1. Innehåll

Produkt lista: Lista om produkt som ingår i projekt.

ABB:

UD/S2.300.2 Universal Dim Act.,2-fold, 300VA, MDRC
US/U4.2 Yniversal Interface, 4 fold, fm

Albrecht Jung:

Shutter/Blinds act. 2gang AC230V/1gang DC 12-24V se

Berker:

Knappsensor 4 kanal Komfort med skricfält

ESYLUX:

Rörelsevakt PD-C360i/8 mini KNX

Hager Electro:

2-Channel weekly time switch

Schnider Electric Industries SAS:

USB interface REG-K
Push-button, 2-gang plus, room temp. control

Simens:

Power supply unit N 125/01
BTM wall switch UP22x/ UP24x/ UP28x

STEINEL professional:

Rörelsevakt IR Quattro HD KNX

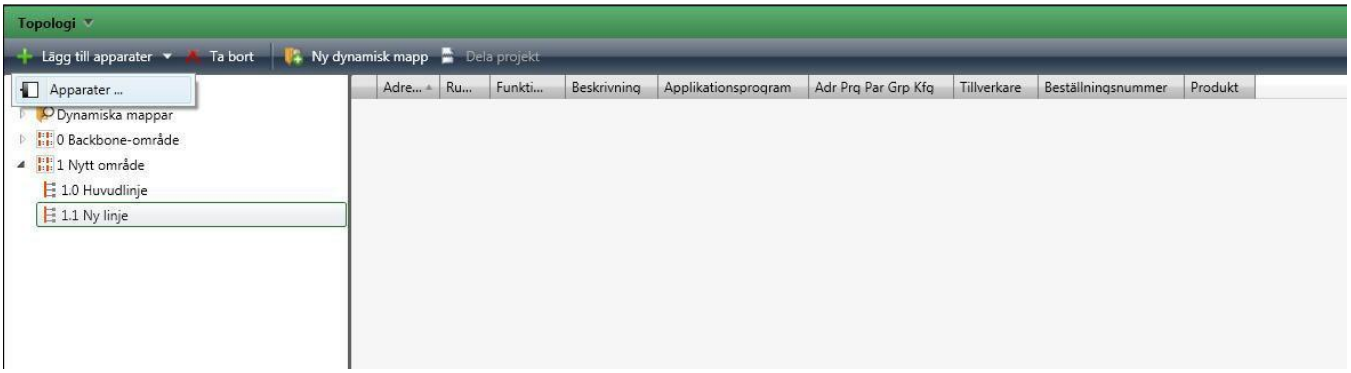
ZENNIO:

Brytaktor ACTinBOX QUATRO

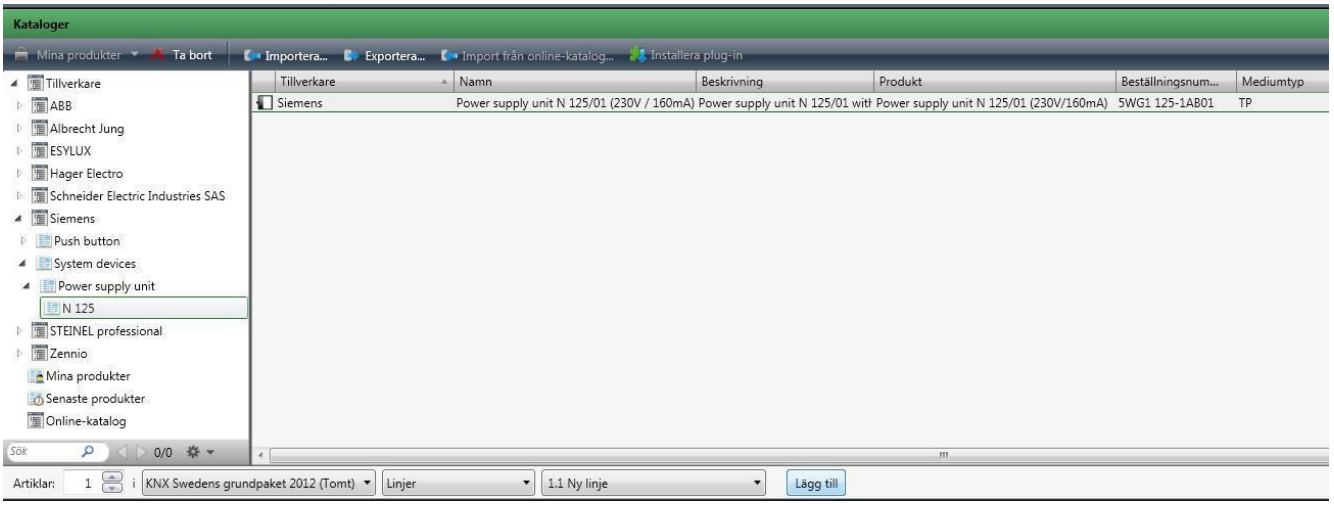
Övning 0: Intro

Innan vi börjar med de riktiga uppgifterna ska vi gå genom några grundläggande steg i programmeringen av en KNX anläggning. Vi börjar visa hur man lägger in produkter i ett projekt.

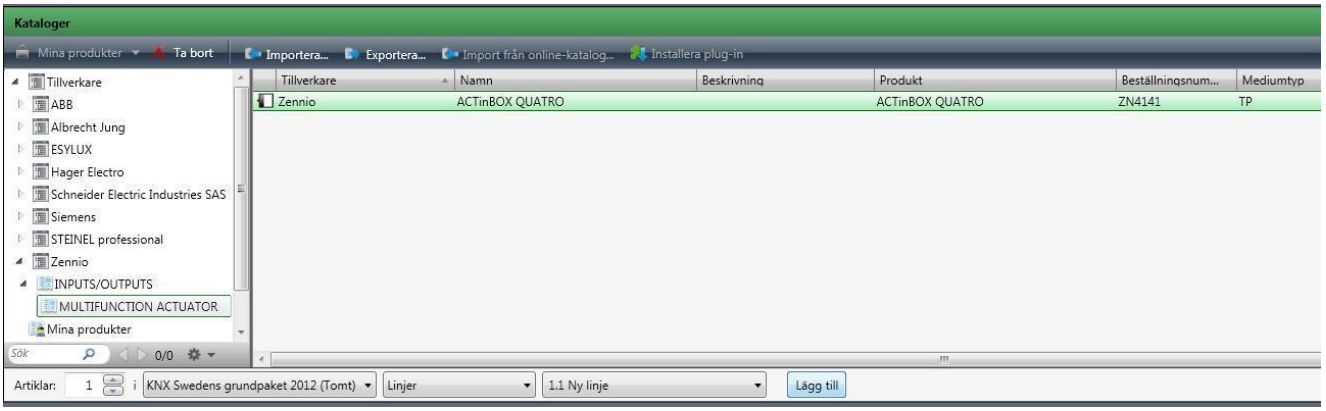
Om man står i topologi vyn klickar man på ikonen ”Lägg till apparater” därefter ”Apparater”.



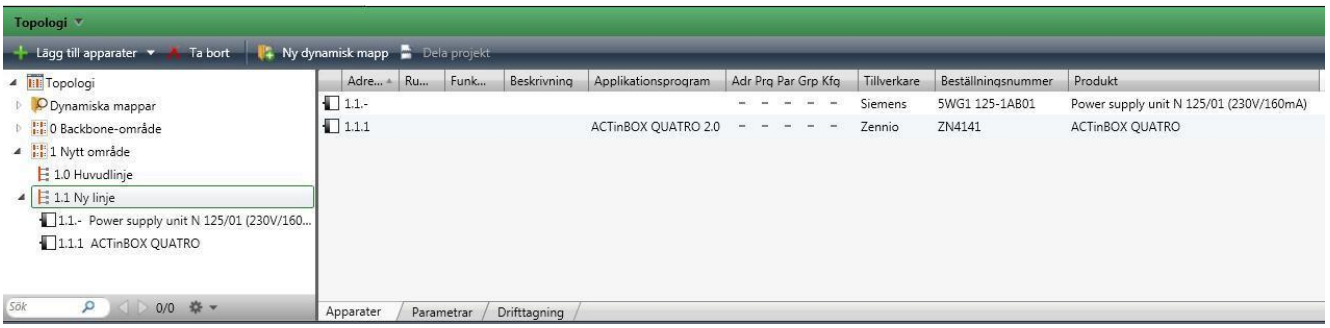
I vår övningsdatabas ligger redan de apparater vi ska använda oss av med. Så vi väljer t ex Siemens strömförsörjning, när vi har fått upp denna vy klickar vi på produkten och sedan ”Lägg till”, längst ner.



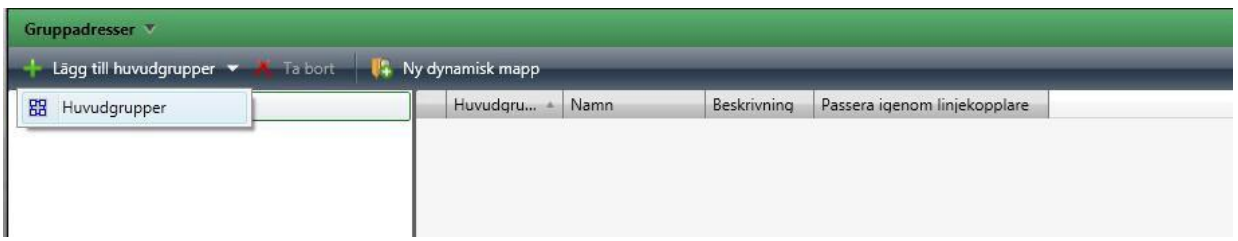
Vi lägger även till en brytaktor från Zennio på samma vis.



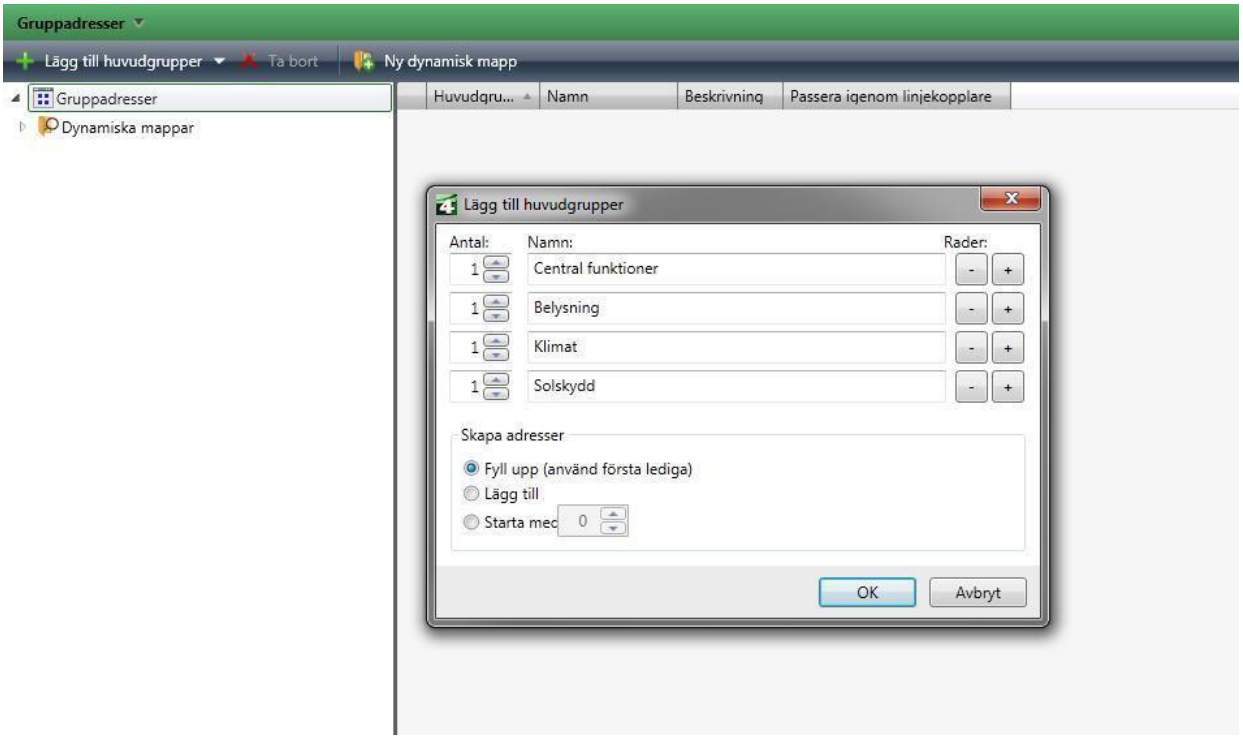
Går vi nu tillbaka till topologin (stänger katalogfönstret) så ser vi att där ligger de två apparaterna.



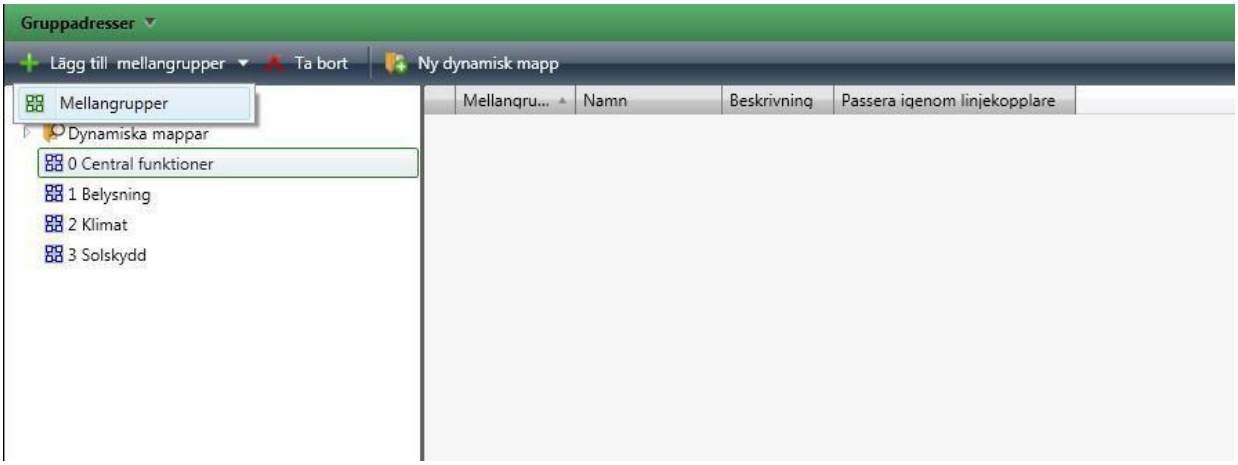
När alla produkter är tillagda är det dags att skapa våra ”Gruppadresser”.
Vi börjar med att gå till ”Gruppadressvyn”, klicka på ”Lägg till huvudgrupper” sedan ”Huvudgrupper”



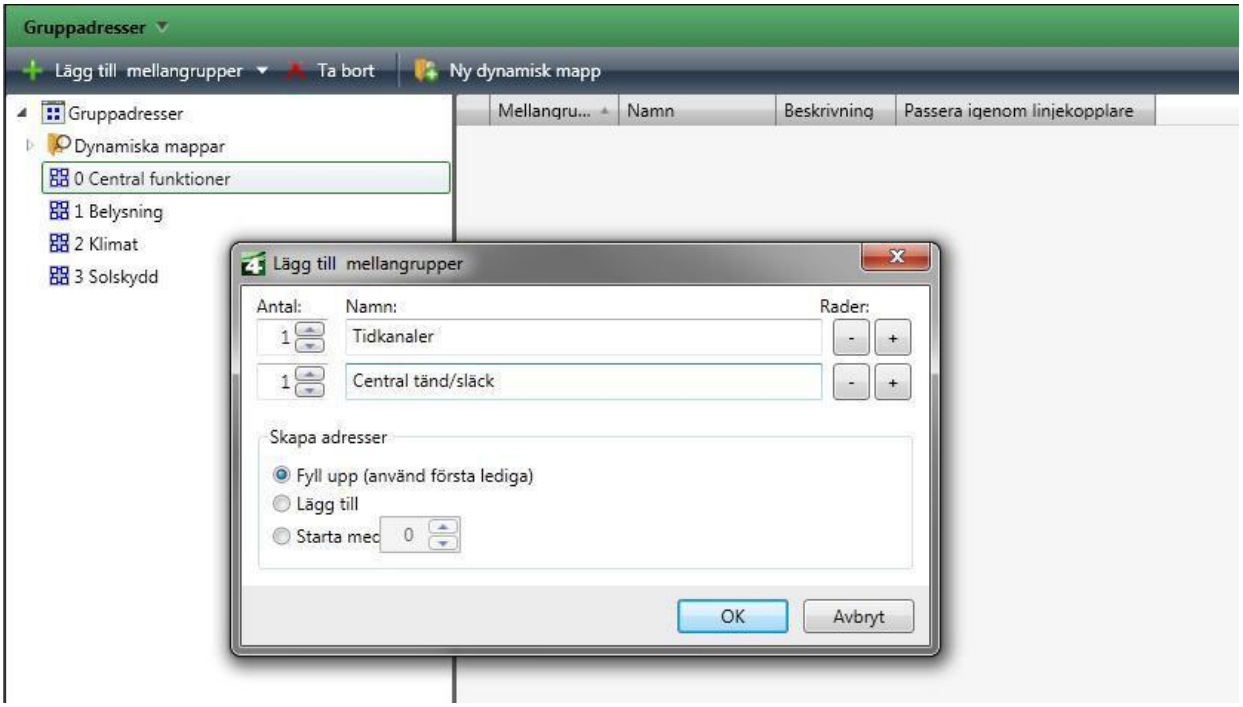
Då kommer följande vy upp, här ser vi ett exempel på vilka huvudgrupper man skulle kunna ha:



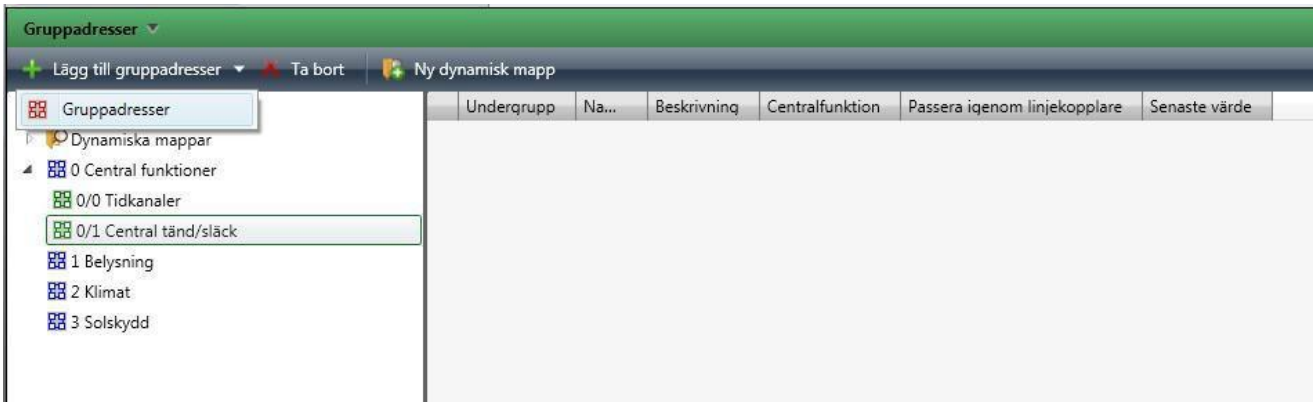
När huvudgrupperna är skapade är det dags för nästa steg, ”Mellangrupper”. Man markerar den av huvudgrupperna som nu ska tilldelas en mellangrupp och klickar på ikonen” Lägg till mellangrupper”.



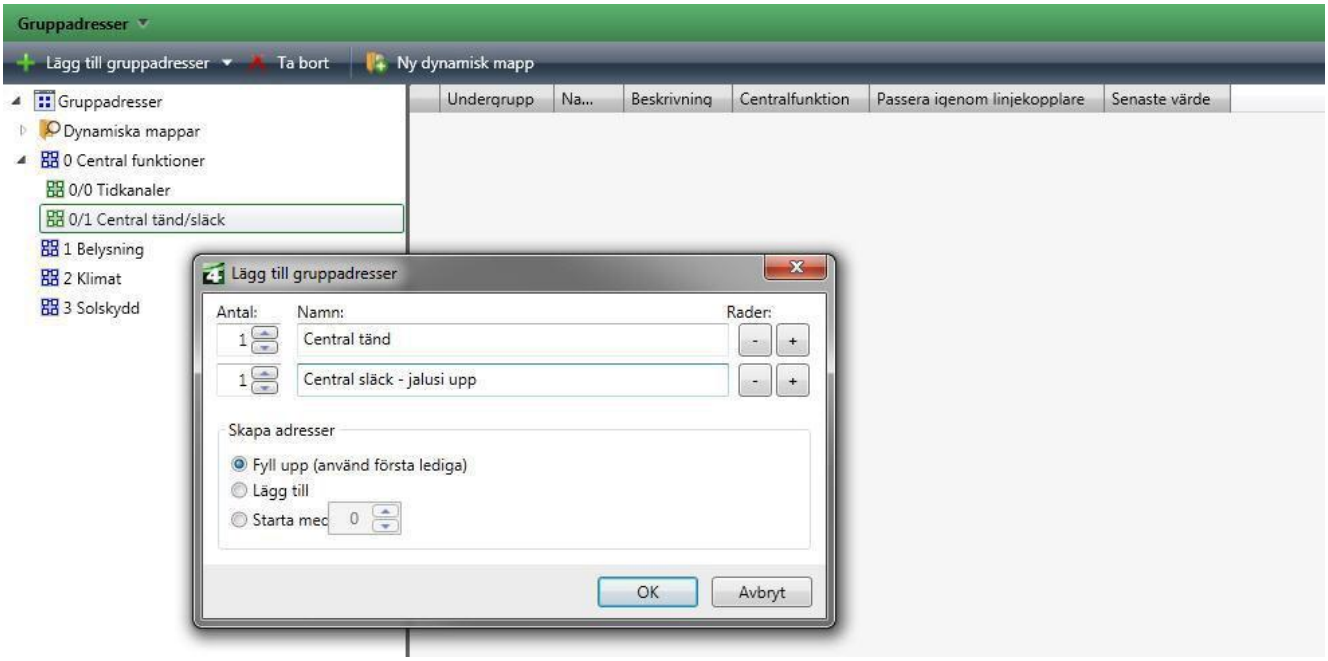
Två exempel på mellangrupper:



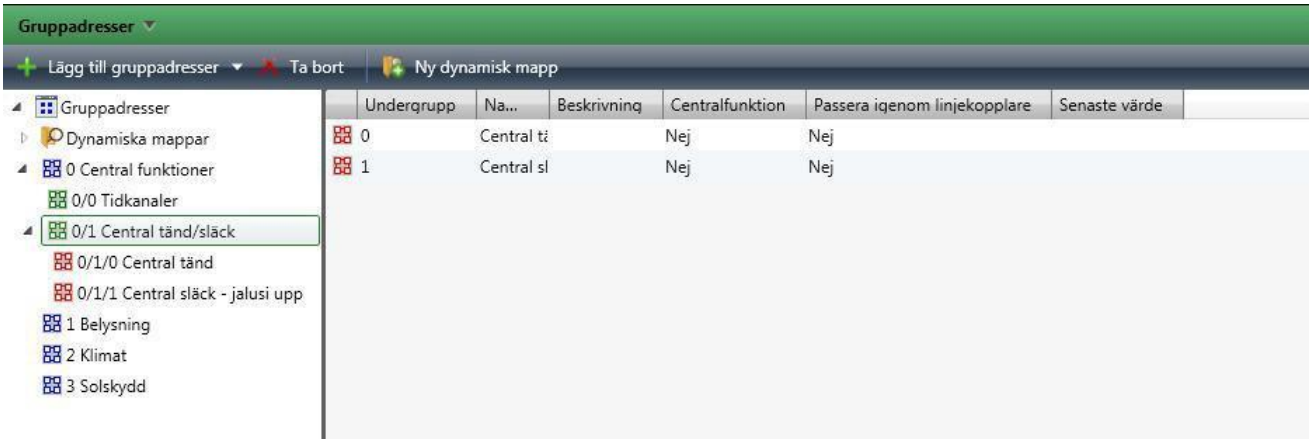
Nu har vi kommit till det sista steget, skapa gruppadresserna. Markera en mellangrupp och klicka sedan ”Lägg till gruppadresser”



Här ser vi två exempel på hur två gruppadresser kan se ut.



Här ser vi slutligen hela trädet från ”Huvudgrupp” till ”Gruppadresserna”



Övning 1: Tänd & släck lampa 1&2

Vi skall skapa en till/från-funktion för lampa 1 & 2 .
Produkter som vi använder i denna övning är:

- Knappsensor 4 kanal 8 knapp (1.1.8) vippa 1 & 2
- Dimmeraktor 2-kan (1.1.5) kanal 2

Plugin-programmet PowerTool från ABB, måste vara installerat på datorn.
Finns under Mappen ”PlugIn”

.

Lampa 1&2 skall tändas vid tryck på vippan överst till vänster på ” Knappsensor 4 kanal” (1.1.8) och släckas vid tryck på knappen överst till höger. Lägg till apparaterna på linje 1 och öppna sedan parameterinställningarna gensom att markera produkten och klicka på fliken ”Parametrar”.

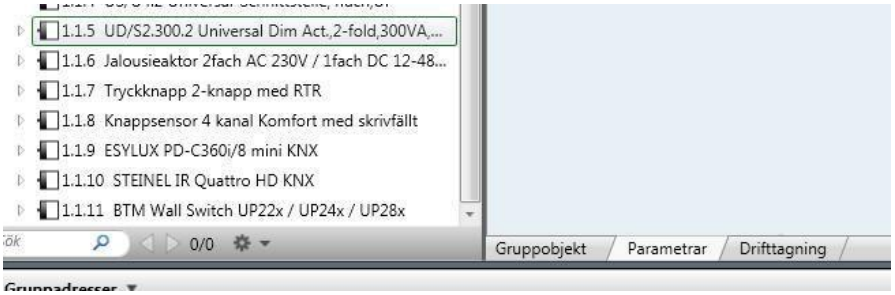
Knapp 1 är överst till vänster. Följande parameter ställs in:

Knapp 2 är överst till höger. Följande parameter ställs in:

När parametrarna är inställda kan vi titta under fliken Gruppobjekt. Här finner vi följande objekt möjliga att knyta till en gruppadress. Skriv in lämpliga benämningar i kolumnen ”Beskrivning”.

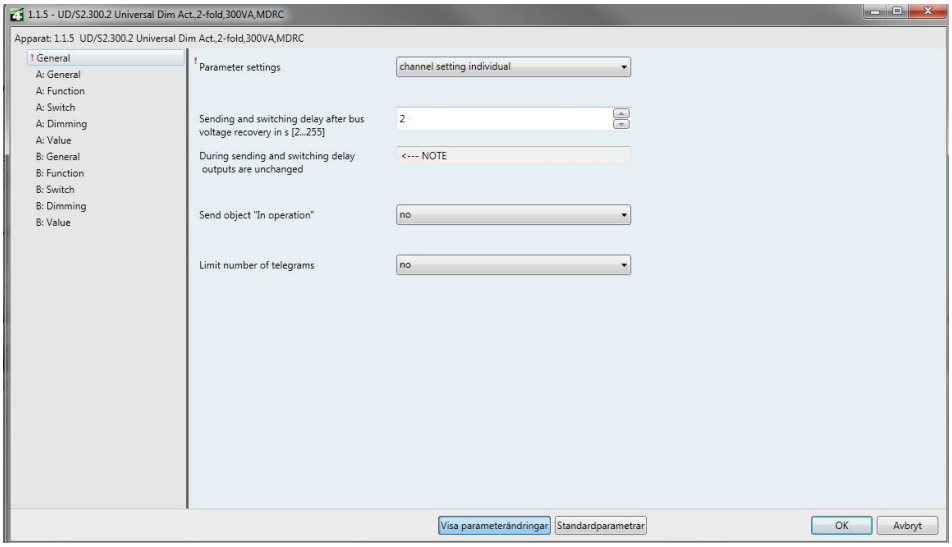
Nummer	Namn	Objektfunkti...	Beskrivning
0	Knapp 1	Till/från	Lampa 1&2 tänd
1	Knapp 2	Till/från	Lampa 1&2 släck

Nu när trycknappen är färdigparametrerad ställer vi in parametrarna på dimmeraktorn på samma sätt. Markera produkten och klicka på fliken ”Parametrar”:



Beroende på vilka inställningar man har på sitt ETS program kan denna ruta dyka upp:

Då är det bara att trycka på länken och man kommer till fönstret nedan.



Under ”General” byter man från ”channel setting global(together) ”till” channel setting individual”
Detta gör man för att kunna använda båda kanalerna individuellt.
Kanal B är kopplad till Lampa 1&2, vi behöver inte göra några ändringar på andra parametersidor för kanal B. Vi skall nu ha följande objekt för kanal B:

35	Output B	Switch	Tänd/släck Lampa 1&2

Nu när alla parametrar är gjorda som de skall, kan vi börja förbinda kommunikationsobjekten till gruppadresser.
Vi måste skapa gruppdresser till funktionen eftersom detta icke är gjort. Vi behöver en gruppadress för att slå lampan ”på” och ”av”. (Ytterligare en om vi vill få en kvittering från brytaktorns kanal B för indikering i trycknappen):

	Undergrupp	Namn
	0	Tänd/släck Lampa 1&2

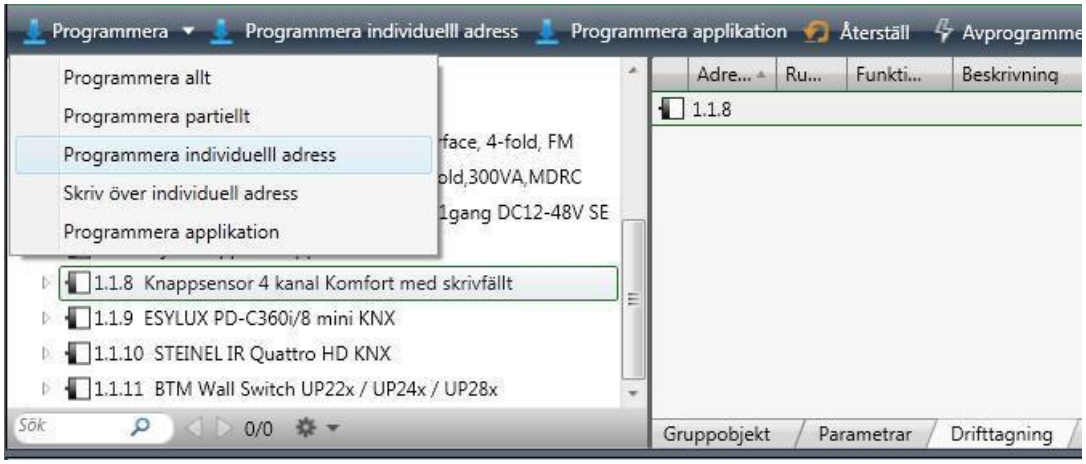
Följande kommunikationsobjekt skall vara anslutna till gruppadressen 1/0/0:

	Objekt	Apparat
	0: Knapp 1 - Till/från	1.1.8 Knappsensor 4 kanal Komfort med skrivfällt
	1: Knapp 2 - Till/från	1.1.8 Knappsensor 4 kanal Komfort med skrivfällt
	35: Output B - Switch	1.1.5 UD/S2.300.2 Universal Dim Act.,2-fold,300VA,MDRC

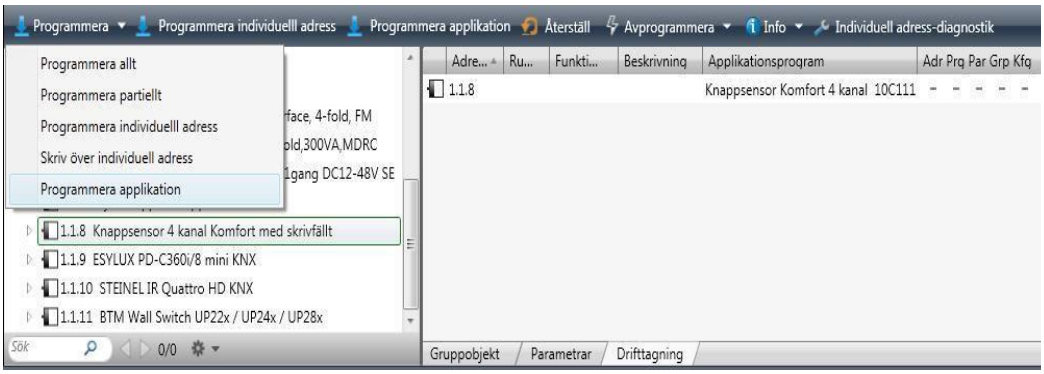
Programmering & avprovning.

Man börjar med att ge produkten en individuell adress genom att välja ”Drifttagning” sedan ”Programmera” och slutligen ”Programmera individuell adress och sedan trycka på

programmeringsknappen på produkten när ETS4-programmet frågar efter detta. En pro
lyser på produkten lyser till dess att programmeringen bekräftats.



Vi skall nu programmera Knappsensors applikationsprogram genom att markera den, välja ”Drifttagning” sedan ”Programmera” och slutligen ”Programmera applikation”



Programflaggor

Observera att då en deltagare är programmerad så är alla programflaggor markerade med bockar. Det är interna microbrytare i produktens applikationsprogram som markeras automatiskt vid programmering. Då någon av dem saknas visar det att ingen nedladdning gjorts efter att en förändring av parametrarna eller knytningar av gruppadresser har utförts. Man måste ha tilldelat en komponent dess individuella adress innan applikationsprogrammet kan laddas.

Gör nu samma sak med Dimmeraktorn.

Testa och avprova övning 1.

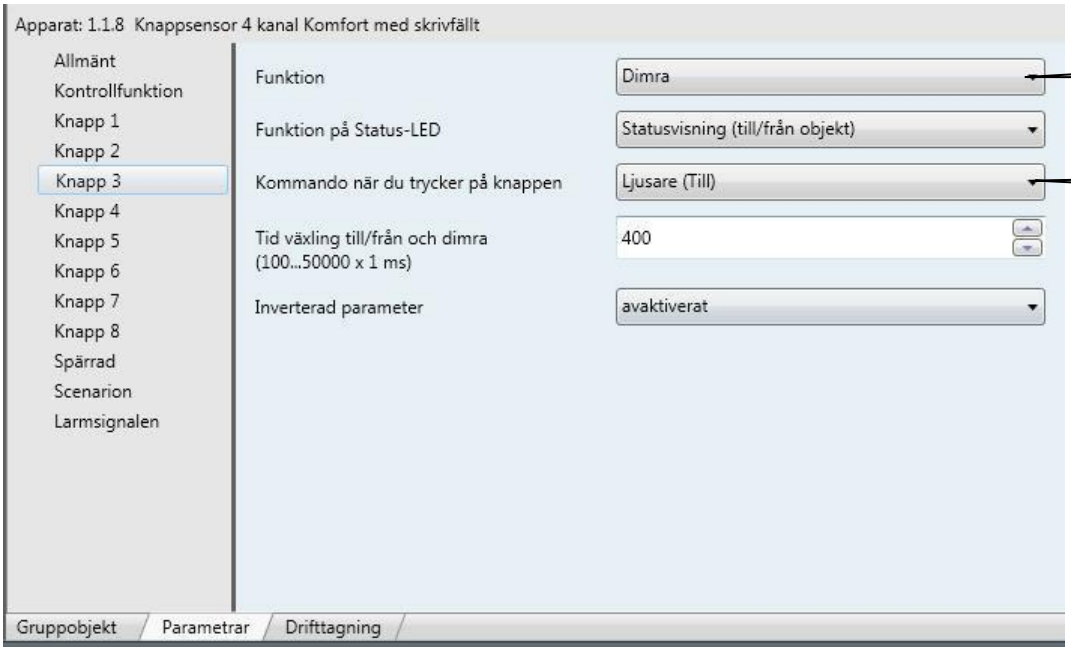
Övning 2: Tänd & släck samt dimra lampa 3.

I denna övning skall vi lägga till dimmerfunktion
Produkter som vi använder i denna övning:

- Knappsensor 4 kanal 8-vippor (1.1.8) vippa 3 & 4
- Universal Dimmeraktor 2-kan (1.1.5) kanal 1

Knapp 3: Tänder (kort tryck) och dimrar upp (långt tryck).
Knapp 4: Släcker (kort tryck) och dimrar ner(långtryck).
Först öppnar vi parametrarna på trycknappen och ställer dem på ”Dimmerfunktion” genom att markera produkten och klicka på fliken ”Parametrar”

Knapp 3 skall ha följande parameter:

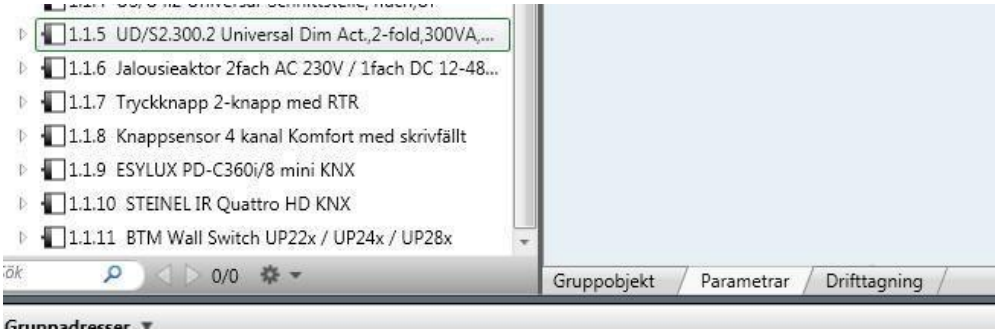


Kanpp 4 skall ha följande parameter:

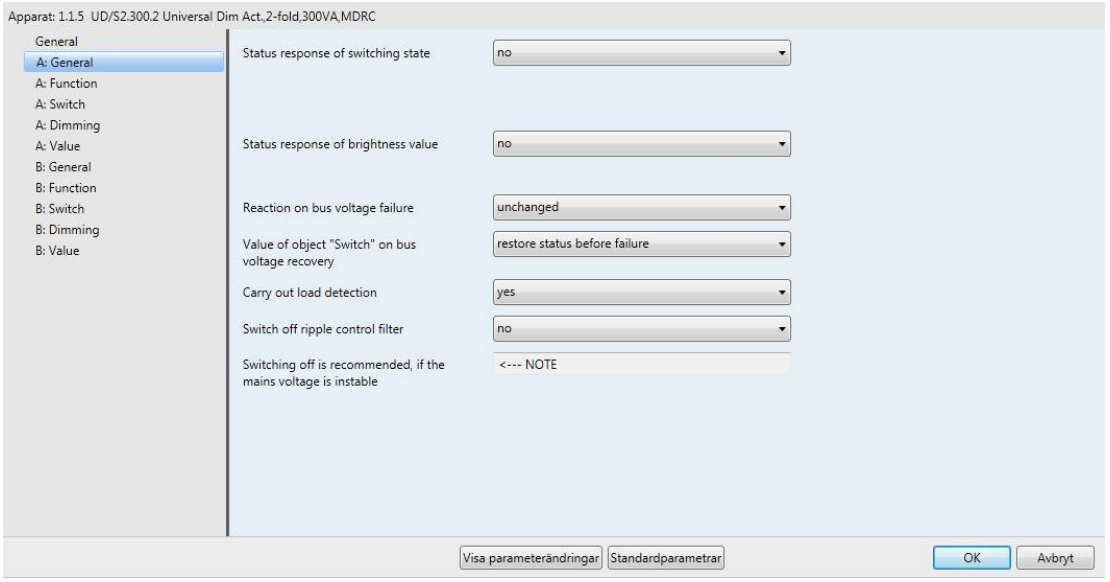
Vi ska nu ha fått dessa gruppobjekt på tryckknappen:

20	Knapp 3	Dimra	Lampa 3 dim upp
2	Knapp 3	Till/från	Lampa 3 tänd
21	Knapp 4	Dimra	Lampa 3 dim ner
3	Knapp 4	Till/från	Lampa 3 släck

Parametrarna på dimmeraktorn justeras, på samma sätt, genom att markera produkten och klicka på fliken ”Parametrar”



Kanal A är kopplad till lampa 3. Tilldelas följande parametrar:



Vi behöver inte göra några ändringar på andra parametersidor för kanal A.

Vi skall nu ha följande objekt för kanal 1:

10	Output A	Switch	Tänd/släck Lampa 3
12	Output A	Relative dimming	Dim Lampa 3

Två gruppadresser skapas: ”Tänd/Släck Lampa 3” för på/av-fuktion, och ”Dim Lampa 3” för ljusreglering.

	Undergrupp	Namn	Beskrivning	Centralfunktion	Passera igenom linjekopplare
	0	Tänd/släck Lampa 1&2		Nej	Nej
	1	Tänd/släck Lampa 3		Nej	Nej
	2	Tänd/släck Lampa 4		Nej	Nej
	3	Tänd/släck Led lampa 1		Nej	Nej
	4	Dim Lampa 1&2		Nej	Nej
	5	Dim Lampa 3		Nej	Nej

Följande objekt skall vara anslutna till gruppadress 1/0/1:

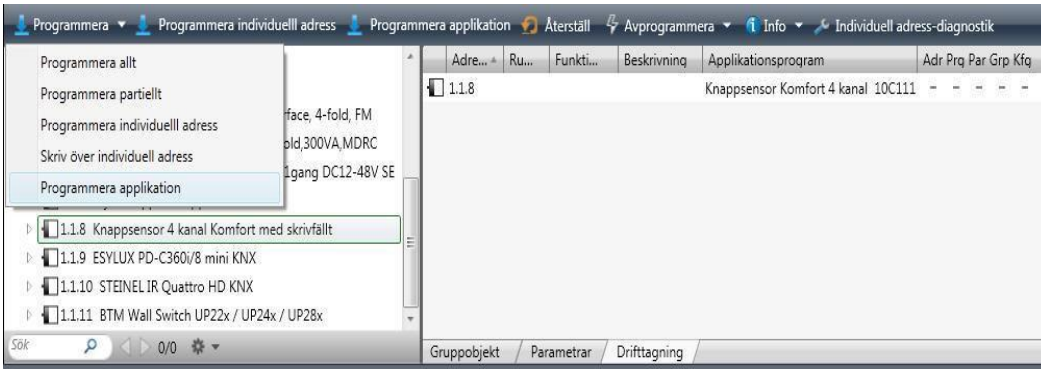
	Objekt	Apparat
	10: Output A - Switch	1.1.5 UD/S2.300.2 Universal Dim Act.,2-fold,300VA,MDRC
	2: Knapp 3 - Till/från	1.1.8 Knappsensor 4 kanal Komfort med skrivfällt
	3: Knapp 4 - Till/från	1.1.8 Knappsensor 4 kanal Komfort med skrivfällt

Följande objekt skall vara anslutna till gruppadress 1/0/5:

	Objekt	Apparat
	12: Output A - Relative d	1.1.5 UD/S2.300.2 Universal Dim Act.,2-fold,300VA,MDRC
	20: Knapp 3 - Dimra	1.1.8 Knappsensor 4 kanal Komfort med skrivfällt
	21: Knapp 4 - Dimra	1.1.8 Knappsensor 4 kanal Komfort med skrivfällt

Programmering & avprovning.

Vi skall nu programmera Knappsensors applikationsprogram genom att markera den, välja ”Drifttagning” sedan ”Programmera” och slutligen ”Programmera applikation”



Nu väljer vi bara knappen ”Programmera applikation” eftersom produkten redan har fått sin individuella adress i förra övningen.

Och sedan programmeras dimmeraktorn på samma sätt som multifunktionstrycknappen.

Test och avprova övning 2.

Övning 3: Jalusistyrning

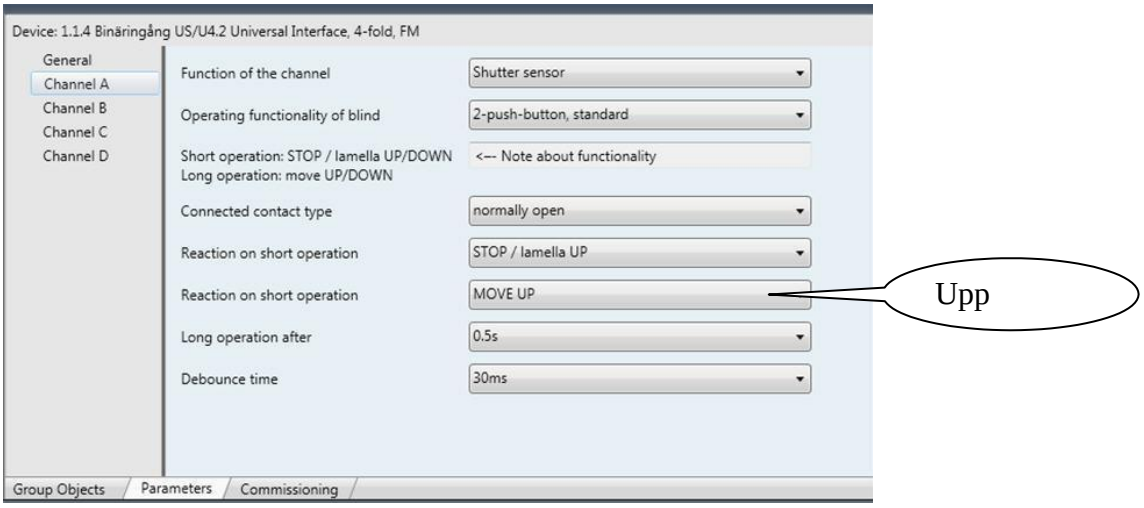
I denna övning skall vi lägga en jalusifunktion som kan vara typ persienn med lameller, markis eller duk. Produkter som vi använder i denna övning:

- Konventionell återfjädrande tvåvipps-trycknapp kopplad via binäringång (puck) (1.1.4) kanal 1&2. Koppla upp knappen enligt bifogad kopplingsanvisning.
- Jalusiaktor 2-kan (1.1.6) kanal 1

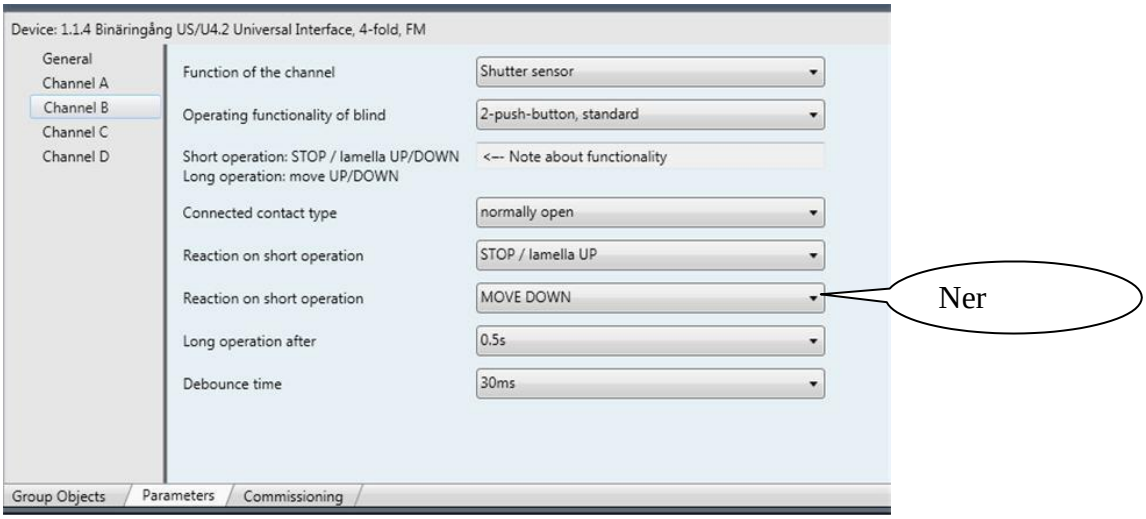
Den ena vippan styr jalusin upp den andra ner. Vid långt tryck på knapparna aktiveras den längre gångtiden (hela vägen upp/ner) vid korttryck stannar den och kan sedan stegas upp eller ner.

Vi börjar med parametrarna på binäringången:

Vi väljer att använda tvåknappsfunktion för båda ingångarna 1 & 2.
Ingång 1 skall köra upp jalusin



Ingång 2 skall köra ner jalusin:

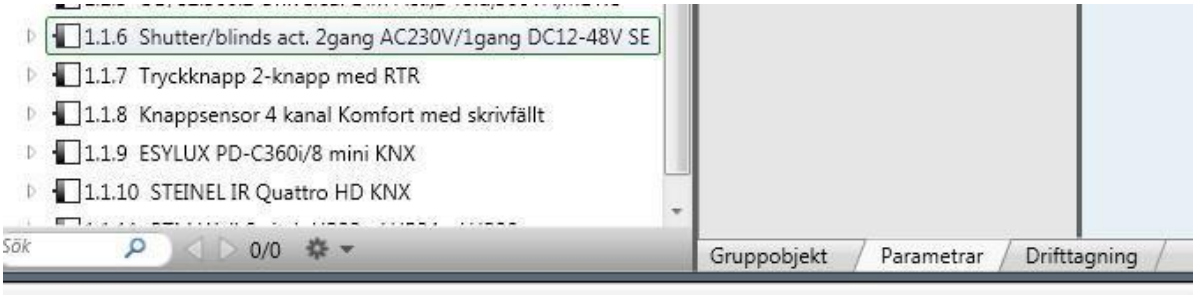


Vi har nu fått dessa kommunikationsobjekt på binäringången:

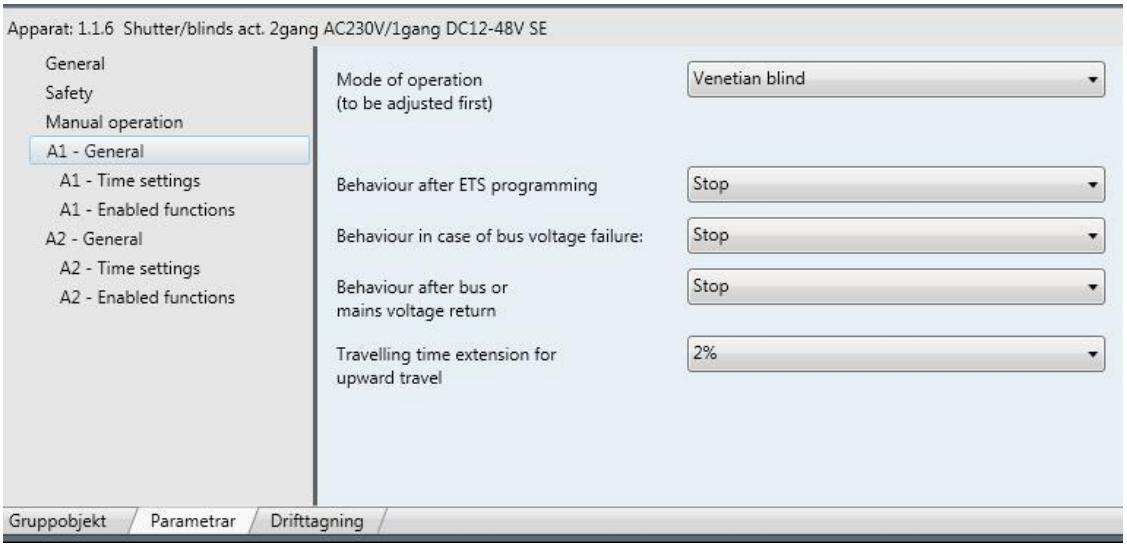
Nummer	Namn	Objektfunktion	Beskrivning
3	Input A	Upper limit position	
10	Input B	Upper limit position	
2	Input A	Telegr. STOP / lamella adj.	Jalusin stopp
9	Input B	Telegr. STOP / lamella adj.	Jalusin stopp
1	Input A	Telegr. shutter UP/DOWN	Jalusin upp
8	Input B	Telegr. shutter UP/DOWN	Jalusin ner
4	Input A	Lower limit position	
11	Input B	Lower limit position	
0	Input A	Disable	
7	Input B	Disable	

Gruppobjekt | Parametrar | Drifttagning

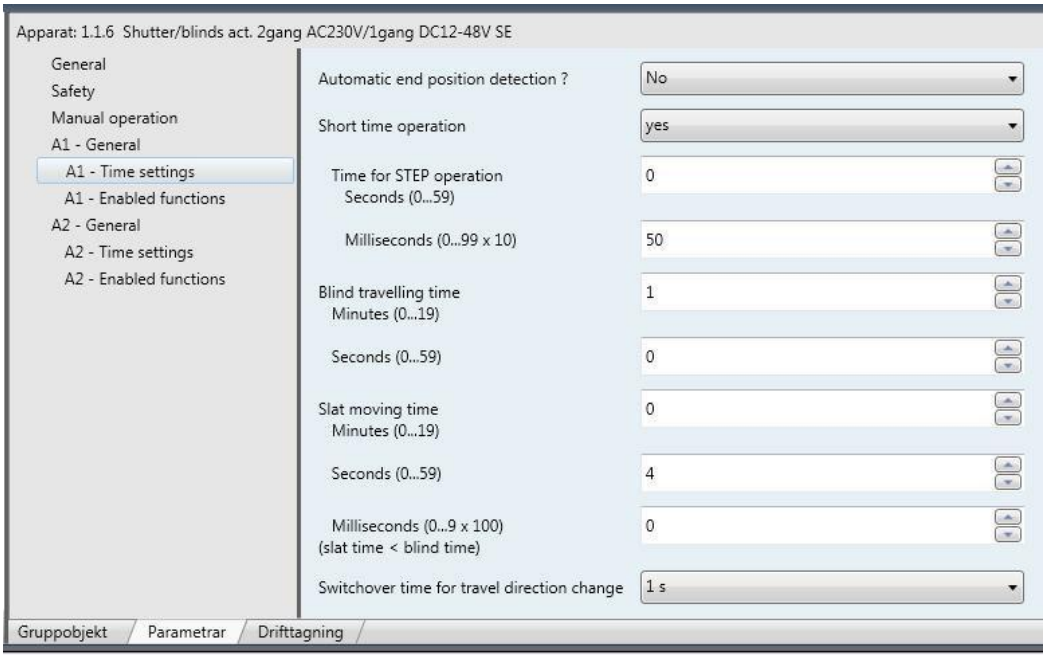
Nu när ”tryckknappen” är färdigparametrerad ställer vi in parametrarna på jalusiaktorn:



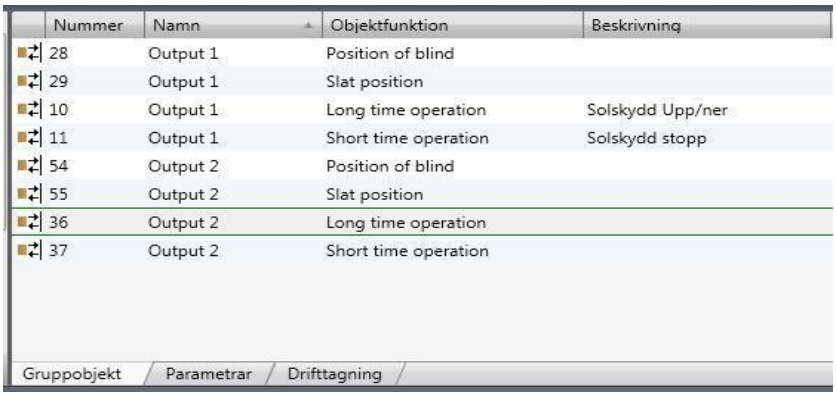
Kanal A1 är kopplad till jalusiet (simuleras eventuellt med två lampor). Den skall ha följande parametrar:



I verkligheten så behöver vi justera på gångtiden (upp & ner) för att kunna köra jalusin hela vägen upp & ner/ ut/in. Detta får man göra genom att mäta gångtiden på plats. Även stegtiden kan justeras.



Vi skall nu ha fått följande kommunikationsobjekt för kanal A1:

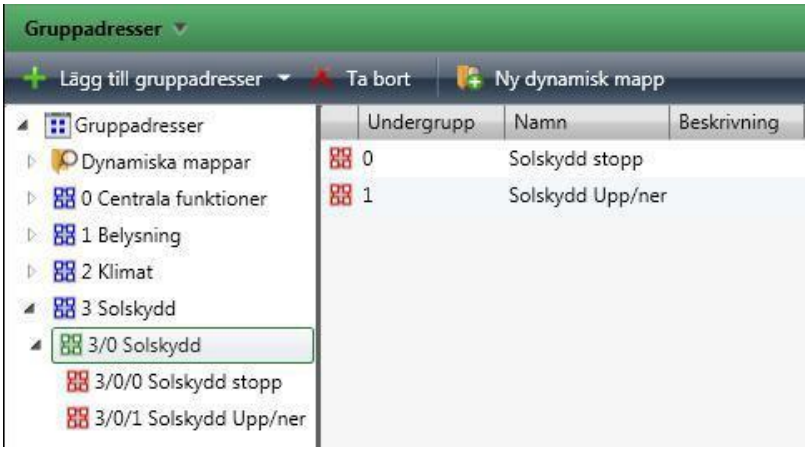


Nummer	Namn	Objektfunktion	Beskrivning
28	Output 1	Position of blind	
29	Output 1	Slat position	
10	Output 1	Long time operation	Solskydd Upp/ner
11	Output 1	Short time operation	Solskydd stopp
54	Output 2	Position of blind	
55	Output 2	Slat position	
36	Output 2	Long time operation	
37	Output 2	Short time operation	

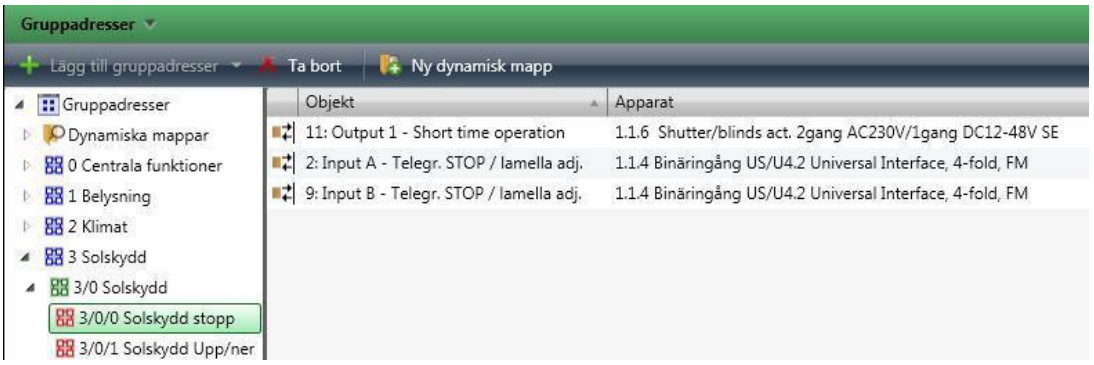
Gruppobjekt | Parametrar | Drifttagning

Nu när alla parametrar är inställda, kan vi börja med att förbinda gruppobjekten till gruppadresserna.

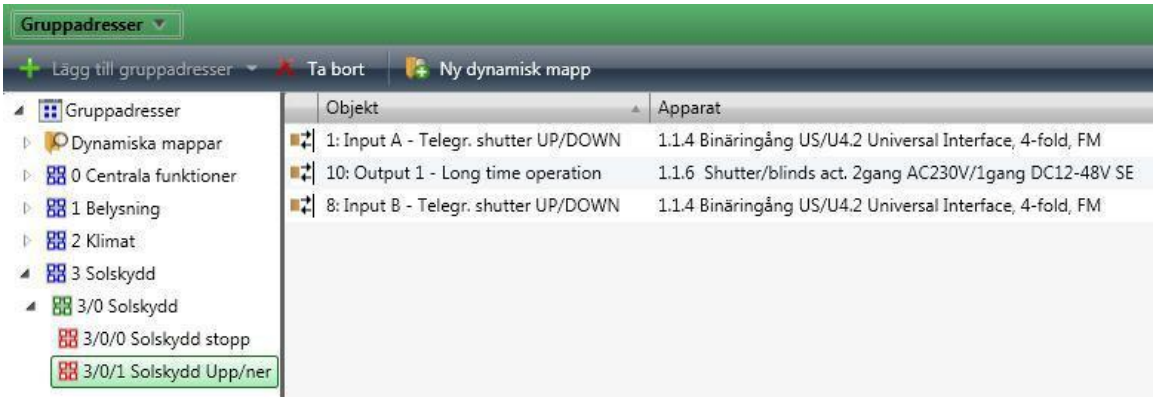
Vi måste skapa gruppadresser till funktionen.
Vi behöver två gruppadresser; en till att stega/stoppa och en till att köra upp/ner.



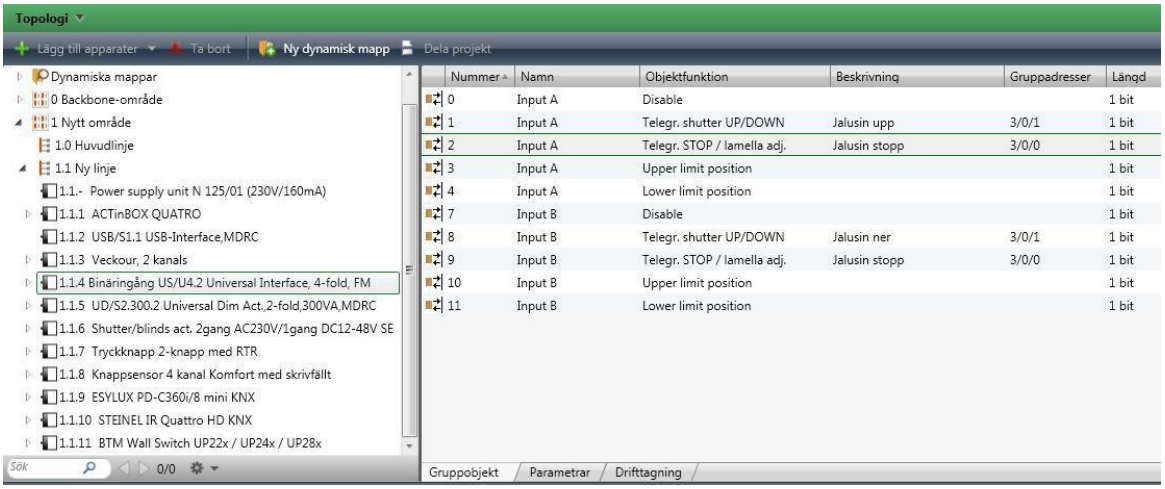
Följande objekt skall vara anslutna till gruppadress 3/0/0:



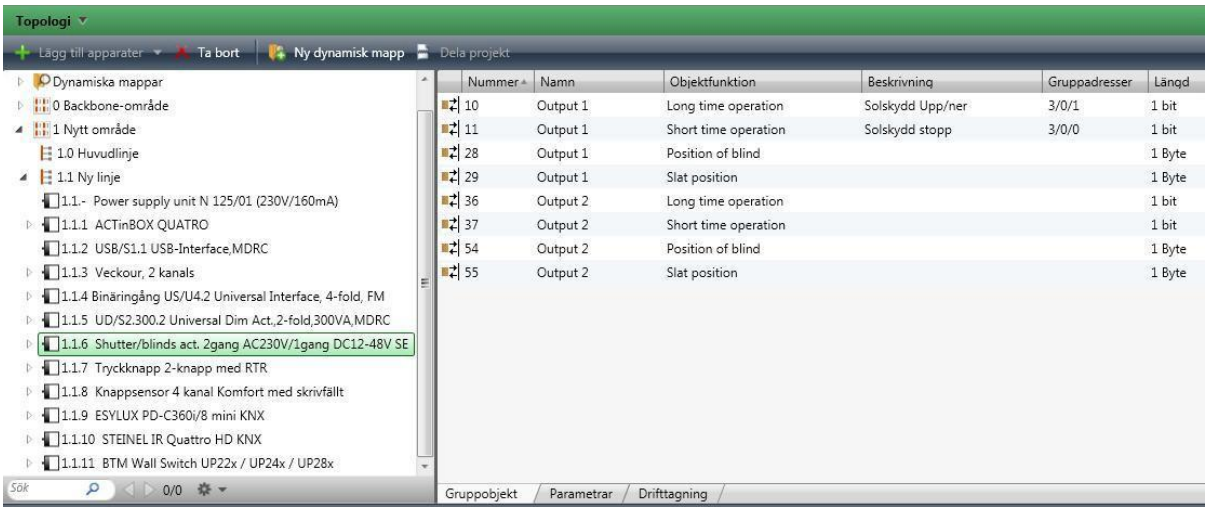
Följande objekt skall vara anslutna till gruppadress 3/0/1:



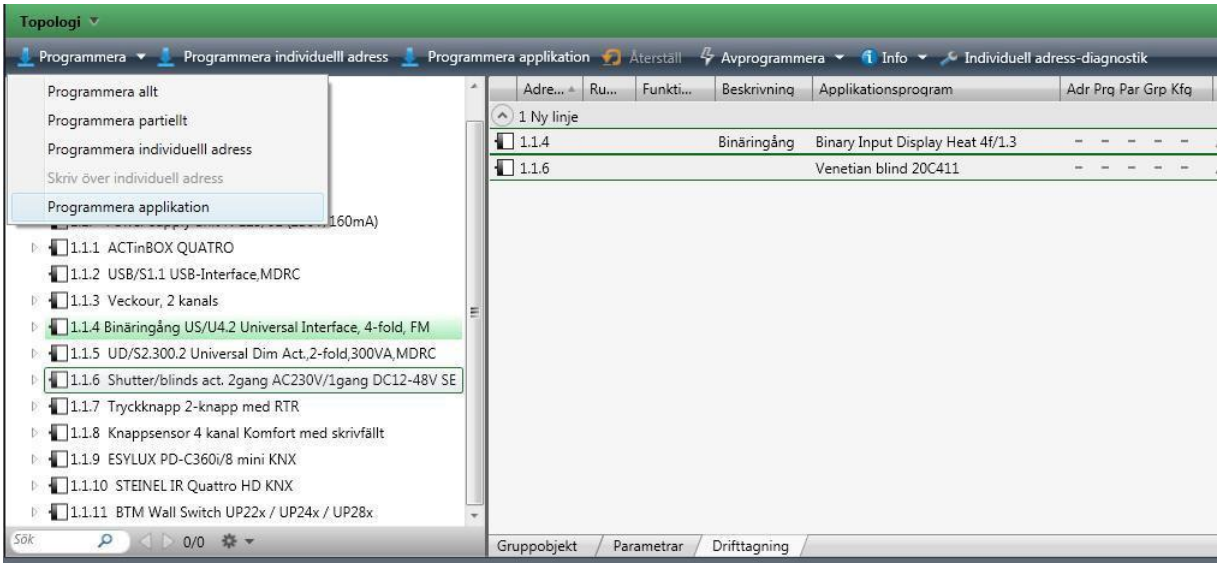
Gruppobjekten på binäringången:



Gruppobjekten på jalusiaktorn:



Programmera nu båda komponenterna med individuell adress och applikation:



Testa och avprova övning 3.

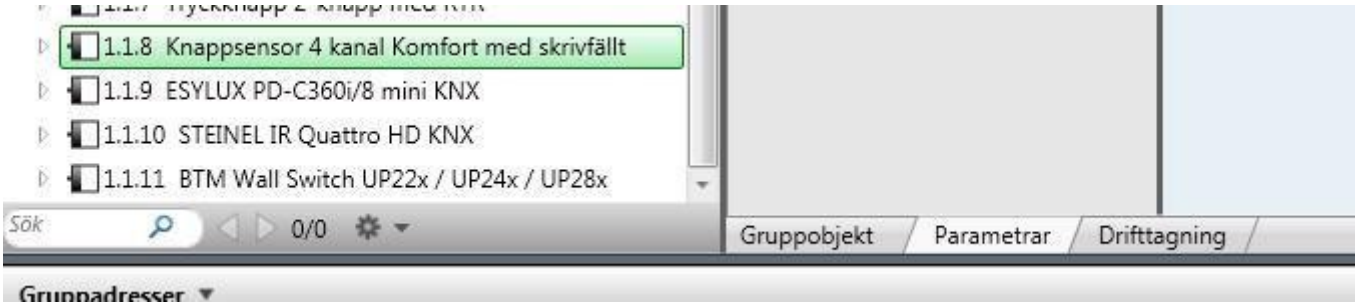
Övning 4: Tänd, släck och dimma lampa 1&2.

Vi har tidigare skapat en”tänd/släck” funktion för lampa 1 & 2. Vi skall nu lägga till en dimmerfunktion.

Produkter som vi använder i denna övning:

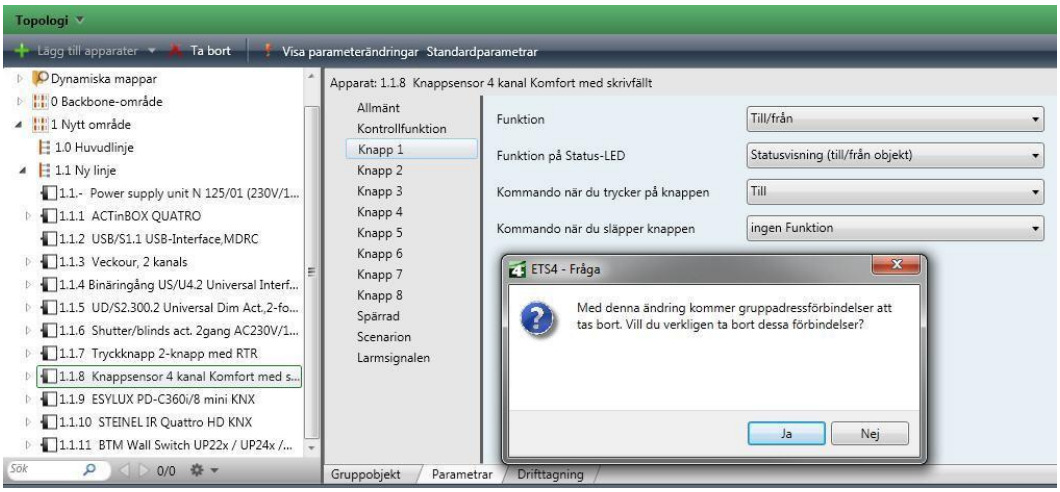
- Knappsensor 4 kanal 8-vippor (1.1.8) tryckknapp 1 & 2
- Universal Dimmeraktor 2-kan (1.1.5) kanal B

Funktionen för tänd är ett korttryck på knappen överst till vänster på ” Knappsensor 1.1.8” och dimmerfunktion ”dim upp” är ett långt tryck på samma knapp.
Motsvarande för släck och dimmerfunktionen ”dim ner” vid tryck på knappen överst till höger.
Vi har redan ställt in parametrarna på tänd- och släckfunktion genom att markerat produkten och sedan klickat på fliken ”Parametrar”



I denna övning skall trycknapp 1 som är överst till vänster, ha följande parameter inställning.

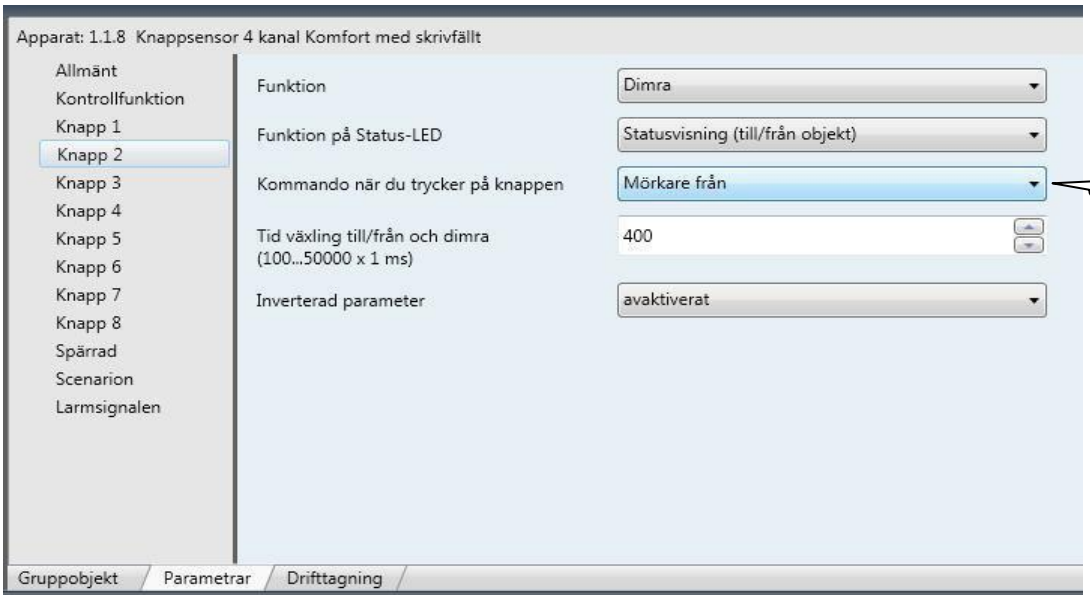
Nu när vi ändrar från ”Till/från” till ”Dimra”, kommer denna varningstext komma upp, vilket innebär att den gamla gruppförbindelsen kommer att försvinna, tryck ”Ja” här efter som vi nu ska dimra istället.



Vi skall nu ha fått dessa kommunikationsobjekt på trycknappen 1:

Nummer	Namn	Objektfunktion	Beskrivning
18	Knapp 1	Dimra	Lampa 1&2 dim upp
0	Knapp 1	Till/från	Lampa 1&2 tänd

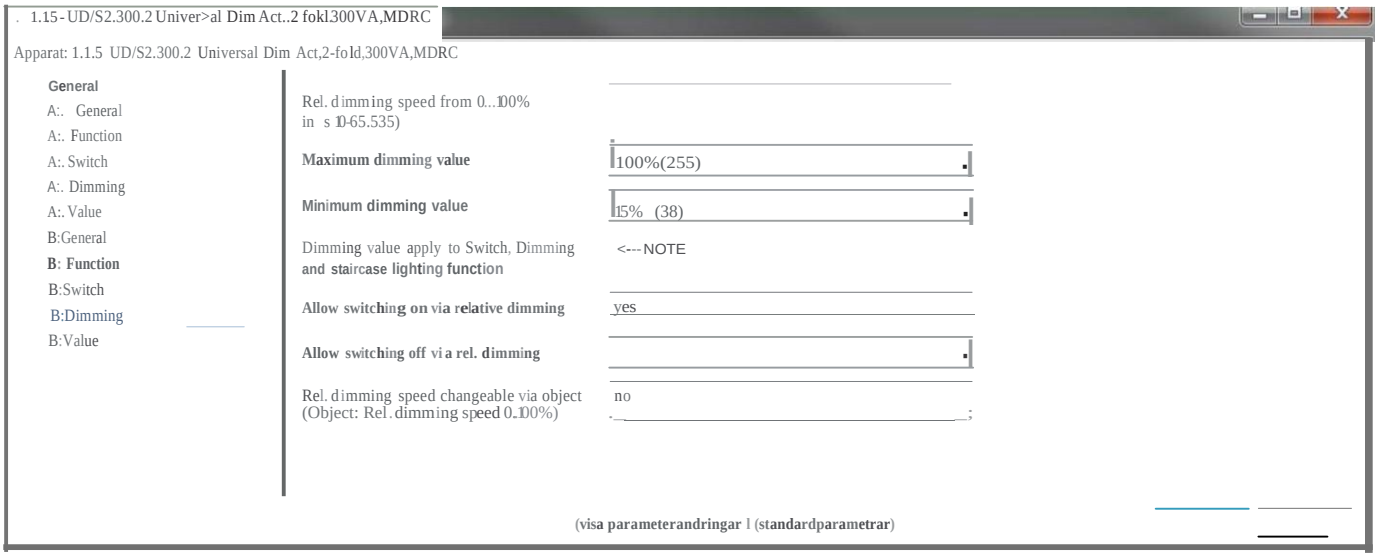
Vi gör likadan parameterinställning på trycknapp 2. Men, funktion dimra ner.



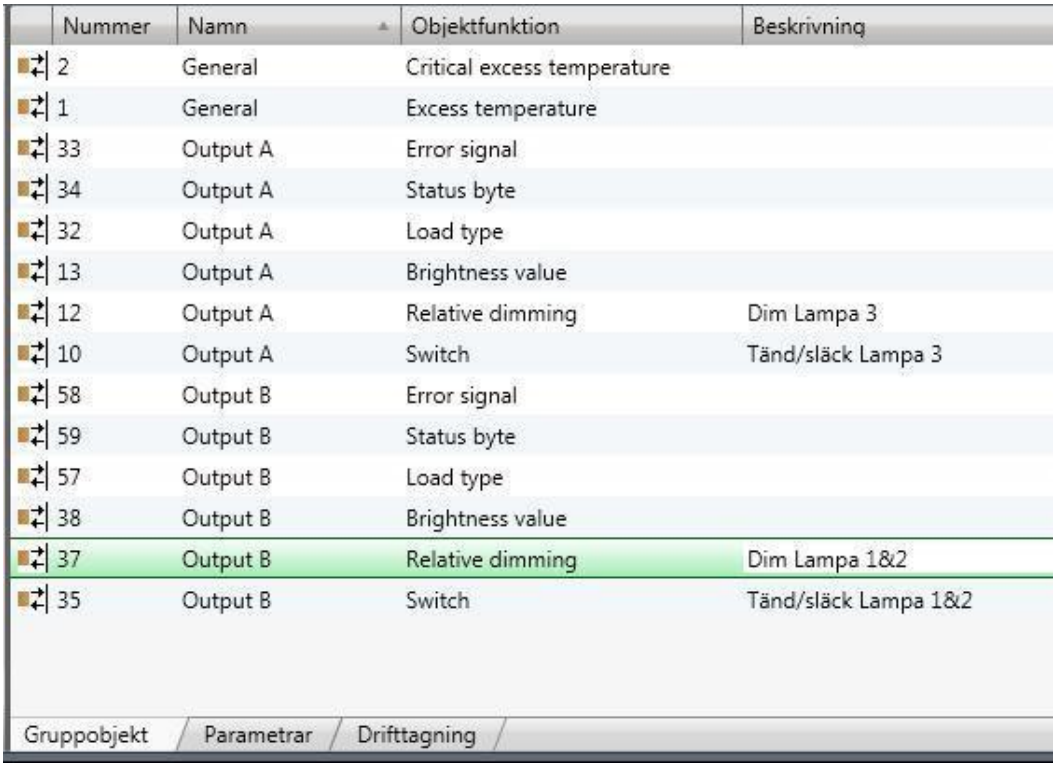
Vi skall nu ha fått dessa kommunikationsobjekt på trycknappen 1 & 2:

Nummer	Namn	Objektfunktion	Beskrivning
18	Knapp 1	Dimra	Lampa 1&2 dim upp
0	Knapp 1	Till/från	Lampa 1&2 tänd
19	Knapp 2	Dimra	Lampa 1&2 dim ner
1	Knapp 2	Till/från	Lampa 1&2 släck

Nu när trycknappen är klar använder vi samma parameterinställningar i dimmeraktorn som vi hade i övning 1.
Kanal B är kopplad till lampa 1&2. Den skall ha följande parameter:


. 1.15 - UD/S2.300.2 Univer>al Dim Act..2 fokl300VA,MDRC
Apparat: 1.1.5 UD/S2.300.2 Universal Dim Act,2-fold,300VA,MDRC
General
A:. General
A:. Function
A:. Switch
A:. Dimming
A:. Value
B:General
B: Function
B:Switch
B:Dimming
B:Value
Rel. dimming speed from 0...100% in s 10-65.535)
Maximum dimming value
100%(255)
Minimum dimming value
15% (38)
Dimming value apply to Switch, Dimming and staircase lighting function
<--- NOTE
Allow switching on via relative dimming
yes
Allow switching off via rel. dimming
Rel. dimming speed changeable via object (Object: Rel. dimming speed 0..100%)
no
(visa parameterandringar I (standardparametrar)

Vi behöver inte göra några ändringar på andra parameter sidor för kanal B. Vi skall nu ha följande kommunikationsobjekt för kanal 2:



Nummer	Namn	Objektfunktion	Beskrivning
2	General	Critical excess temperature	
1	General	Excess temperature	
33	Output A	Error signal	
34	Output A	Status byte	
32	Output A	Load type	
13	Output A	Brightness value	
12	Output A	Relative dimming	Dim Lampa 3
10	Output A	Switch	Tänd/släck Lampa 3
58	Output B	Error signal	
59	Output B	Status byte	
57	Output B	Load type	
38	Output B	Brightness value	
37	Output B	Relative dimming	Dim Lampa 1&2
35	Output B	Switch	Tänd/släck Lampa 1&2

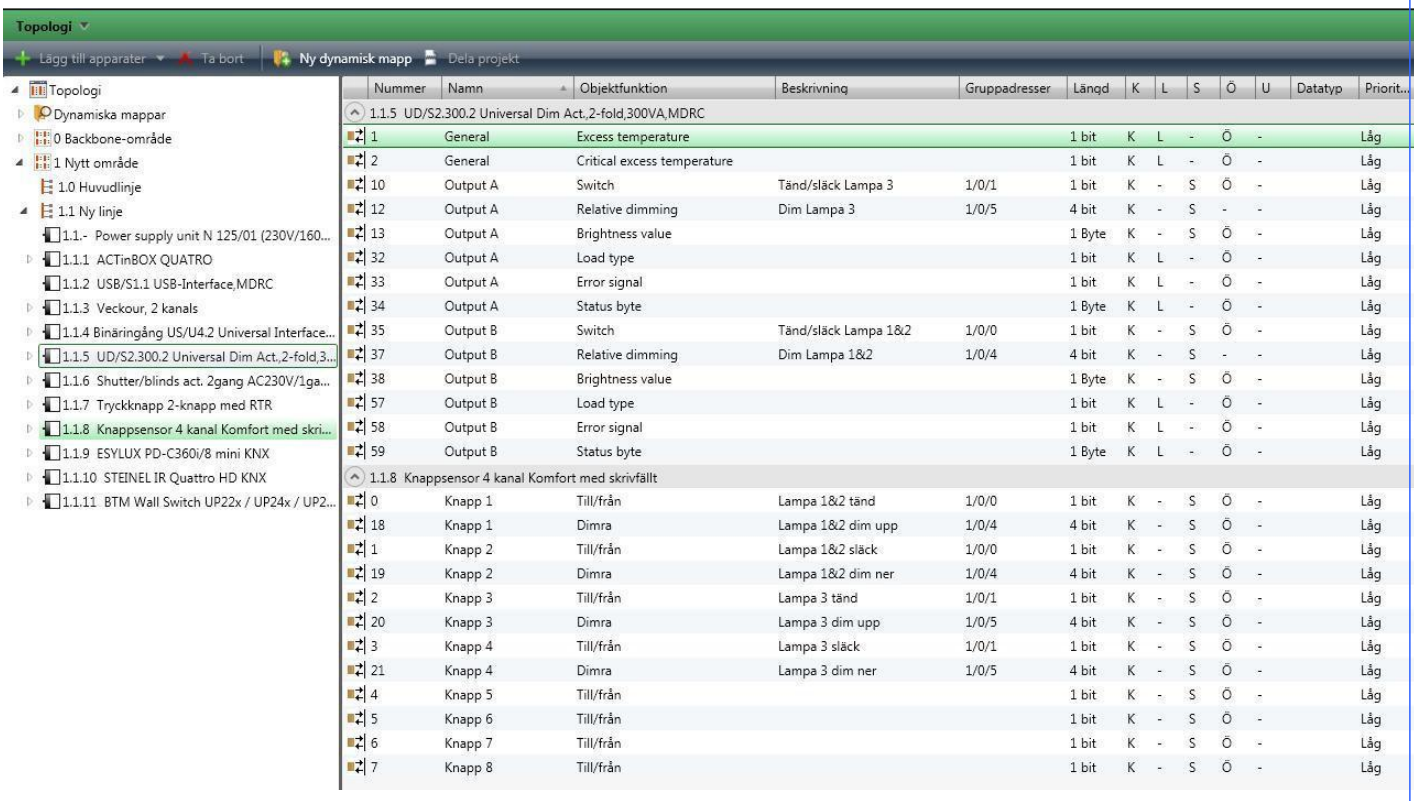
Gruppobjekt | Parametrar | Drifttagning

När alla parametrar är inställda, kan vi börja förbinda gruppobjekten till gruppadresserna.
Vi måste skapa nya gruppdresser till dimmer funktionen.

Följande kommunikationsobjekt skall vara anslutna till gruppadressen 1/0/0.

Följande kommunikationsobjekt skall vara anslutna till gruppadressen 1/0/4:

Så här ser de förbundna kommunikationsobjekten ut på Multifunktionstryckknappen 1.1.8 och dimmeraktorn 1.1.5.



Testa och avprova övning 4.

Övning 5: Tidsfördröjning, ”trappautomat”-funktion.

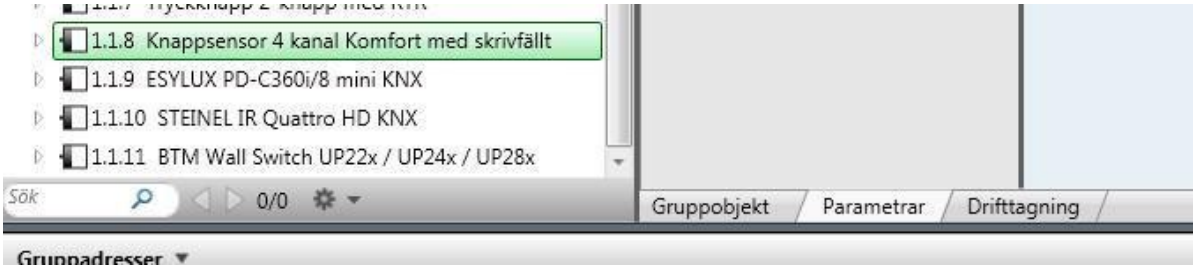
I denna övning skall vi använda tidsfördröjningsfunktionen på brytaktorn via utgång 4 som styr lampa 4. Denna applikation används i t.ex. i korridorer att man trycker på knappen och det lyser inställd tid.

Produkter som vi använder i denna övning:

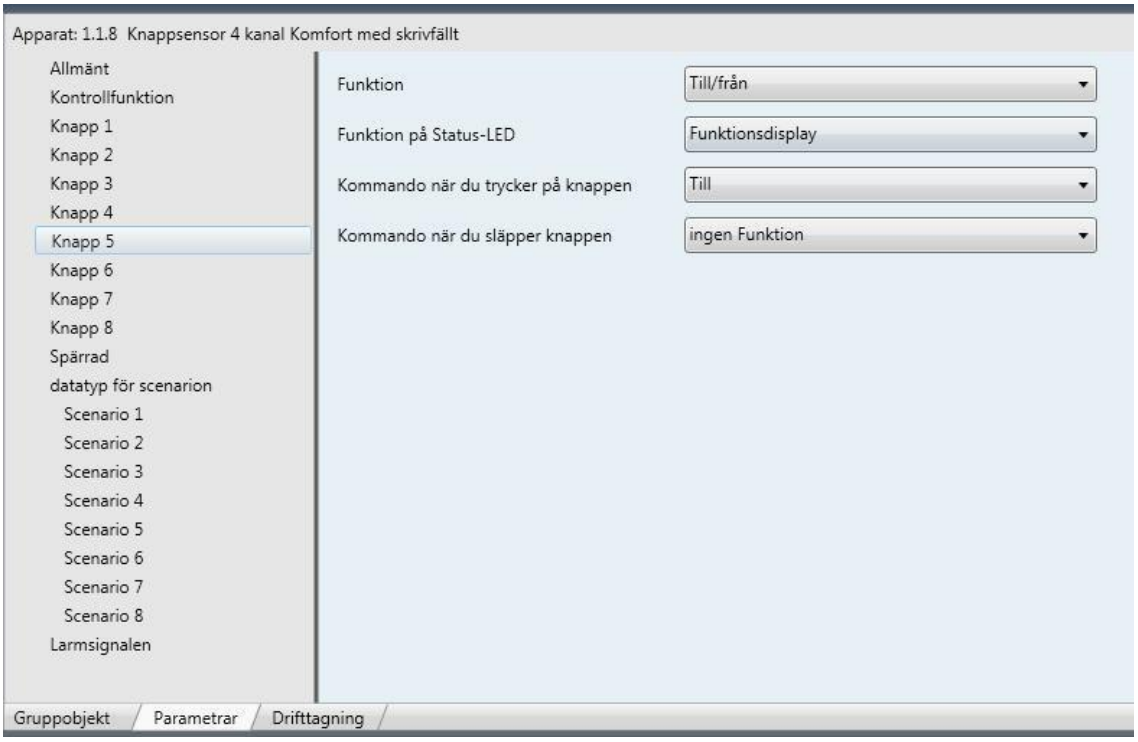
- Knappsensor 4 kanal 8-vippor (1.1.8) vippa 5 & 6
- Brytaktorn ACTinBOX (1.1.1) kanal 4

Vippan till vänster(5) styr utgång 4 till med tidsfördröjning och vippan till höger släcker utgång 4 på brytaktorn.

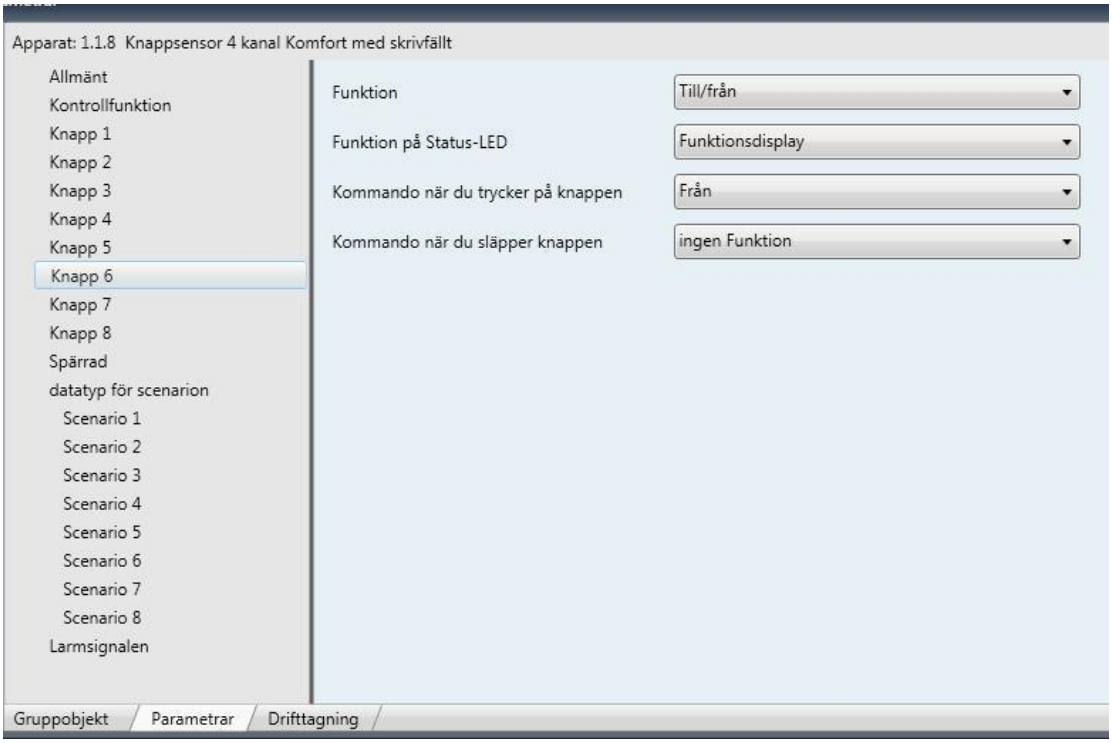
Först parametrarar vi Knappsensorn, genom att markera den och klicka på fliken ”Parametrar”



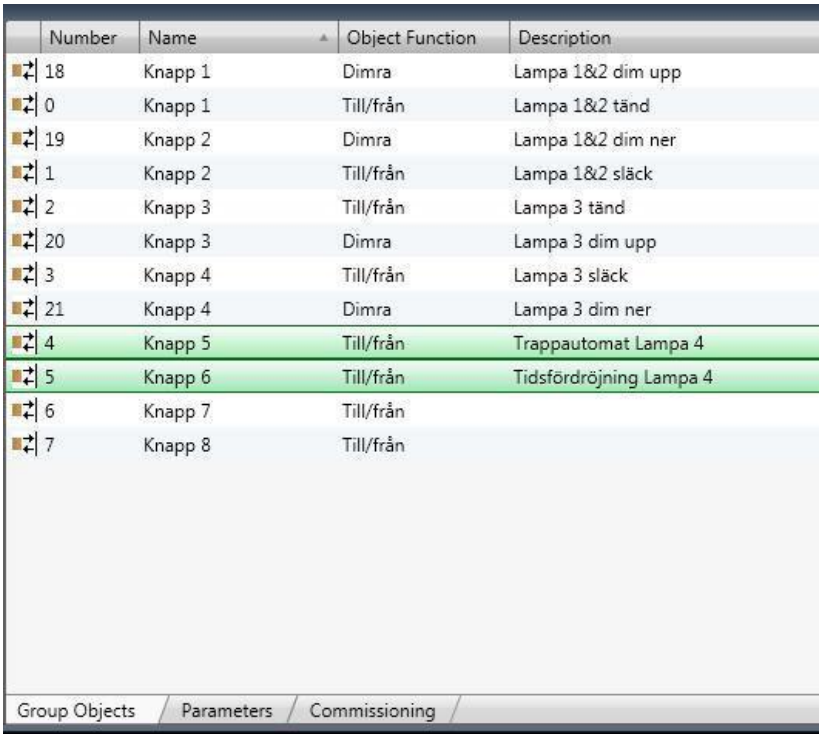
Knapp 5 skall ha följande parameter:



Knapp 6 skall ha följande parameter:



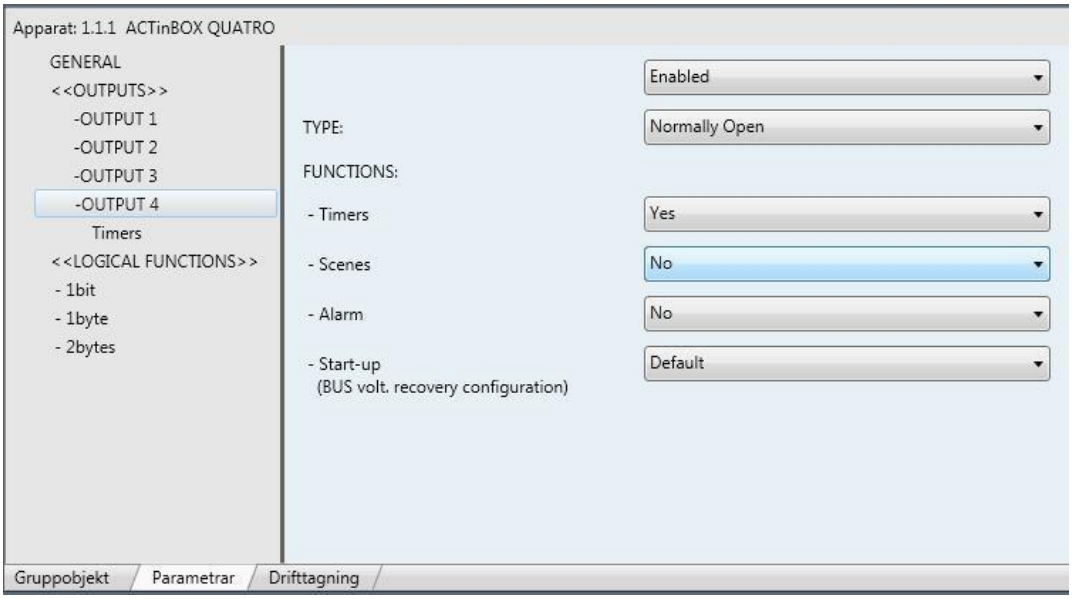
Nu skall vi använda dessa objekten på tryckknappen:



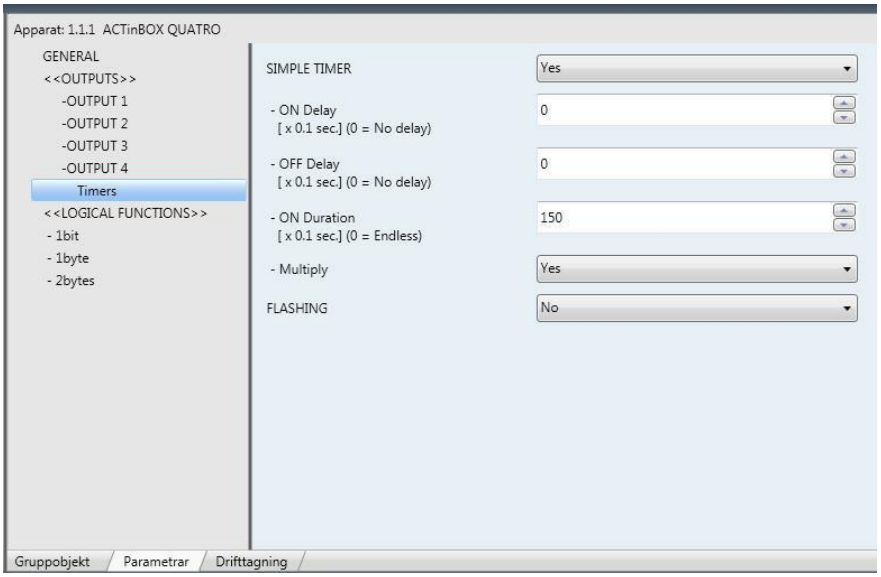
Number	Name	Object Function	Description
18	Knapp 1	Dimra	Lampa 1&2 dim upp
0	Knapp 1	Till/från	Lampa 1&2 tänd
19	Knapp 2	Dimra	Lampa 1&2 dim ner
1	Knapp 2	Till/från	Lampa 1&2 släck
2	Knapp 3	Till/från	Lampa 3 tänd
20	Knapp 3	Dimra	Lampa 3 dim upp
3	Knapp 4	Till/från	Lampa 3 släck
21	Knapp 4	Dimra	Lampa 3 dim ner
4	Knapp 5	Till/från	Trappautomat Lampa 4
5	Knapp 6	Till/från	Tidsfördröjning Lampa 4
6	Knapp 7	Till/från	
7	Knapp 8	Till/från	

Group Objects | Parameters | Commissioning

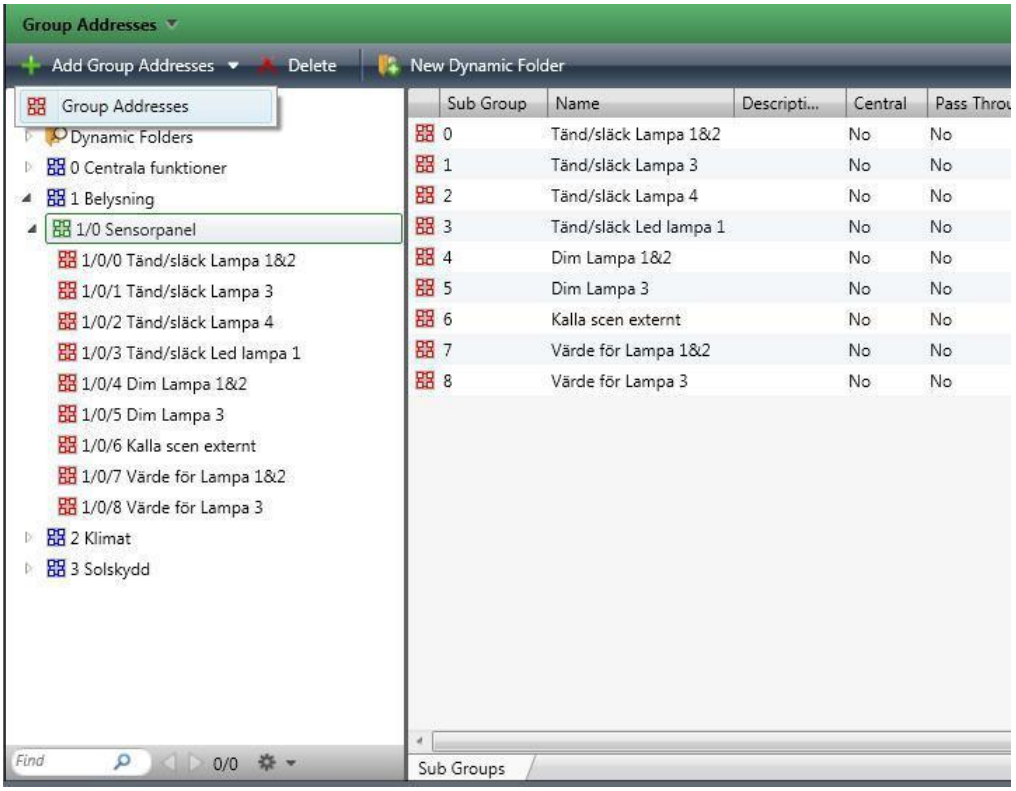
Nu är tryckknappen är färdig parametrerad skall vi även parametrera brytaktorn på samma sätt genom att markera produkten klicka på fliken ”Parametrar” :



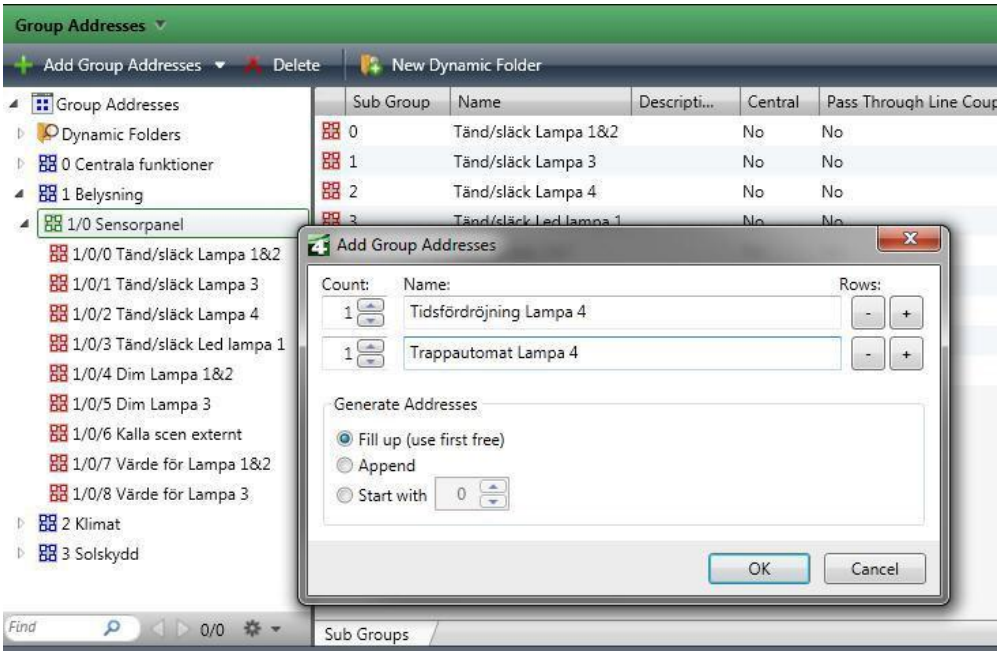
Vi justerar även tiden på utgången, hur lång tidsfördröjningen skall vara.



Nu när alla parametrar är satta. Nu skall vi knyta kommunikationsobjekten till gruppadresser.
Vi skapar en gruppadress 1.1.9 och 1.1.10, klicka på ikonen” Lägg till Gruppadresser” .

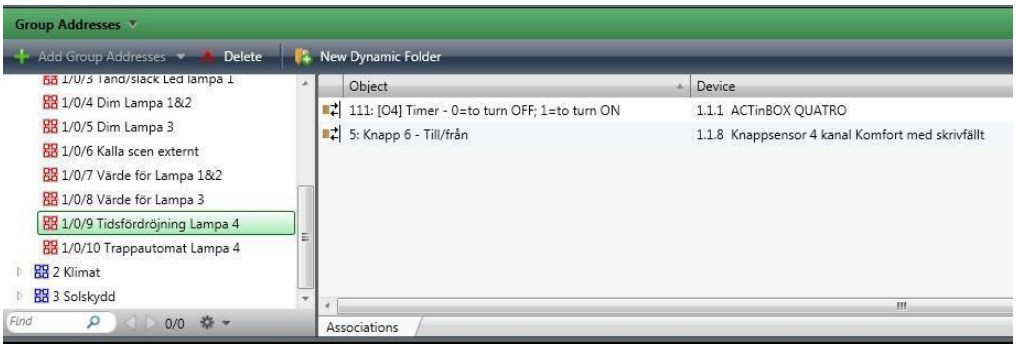


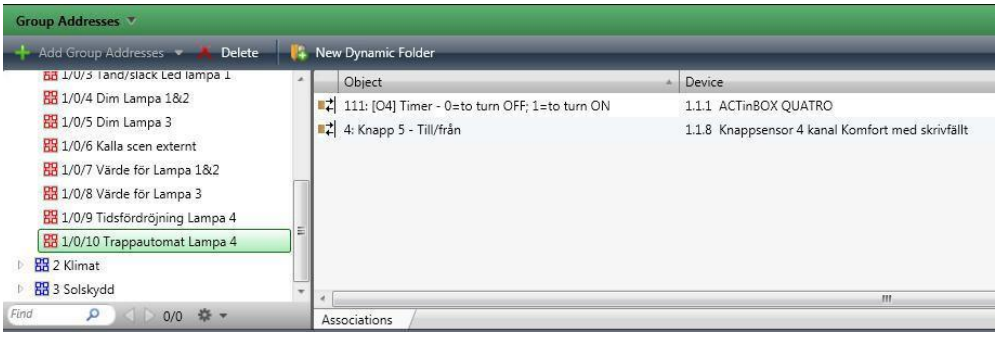
Skriv in namnet på gruppadressen t.ex. ”Tidsfördröjning lampa 4”



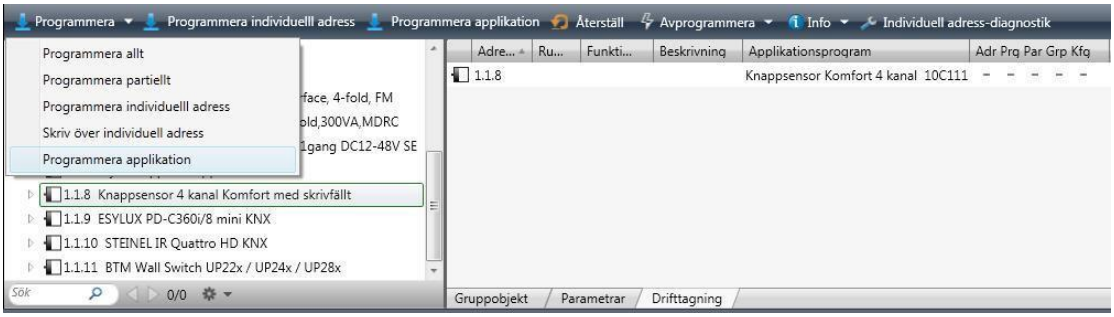
Nu ansluter vi den gruppadressen som tryckknappen skall skicka till utgången på brytaktorn.

Följande objekt skall ligga i gruppadress 1/0/9 och 1/0/10:





Programmering & avprovning.
Vi skall nu programmera Knappsensorn genom att markera den, klicka på ”Drifttagning” ”Programmera” sedan avslutningsvis ”Programmera applikation”



Och nu programmerar vi Brytaktorn på samma sätt.

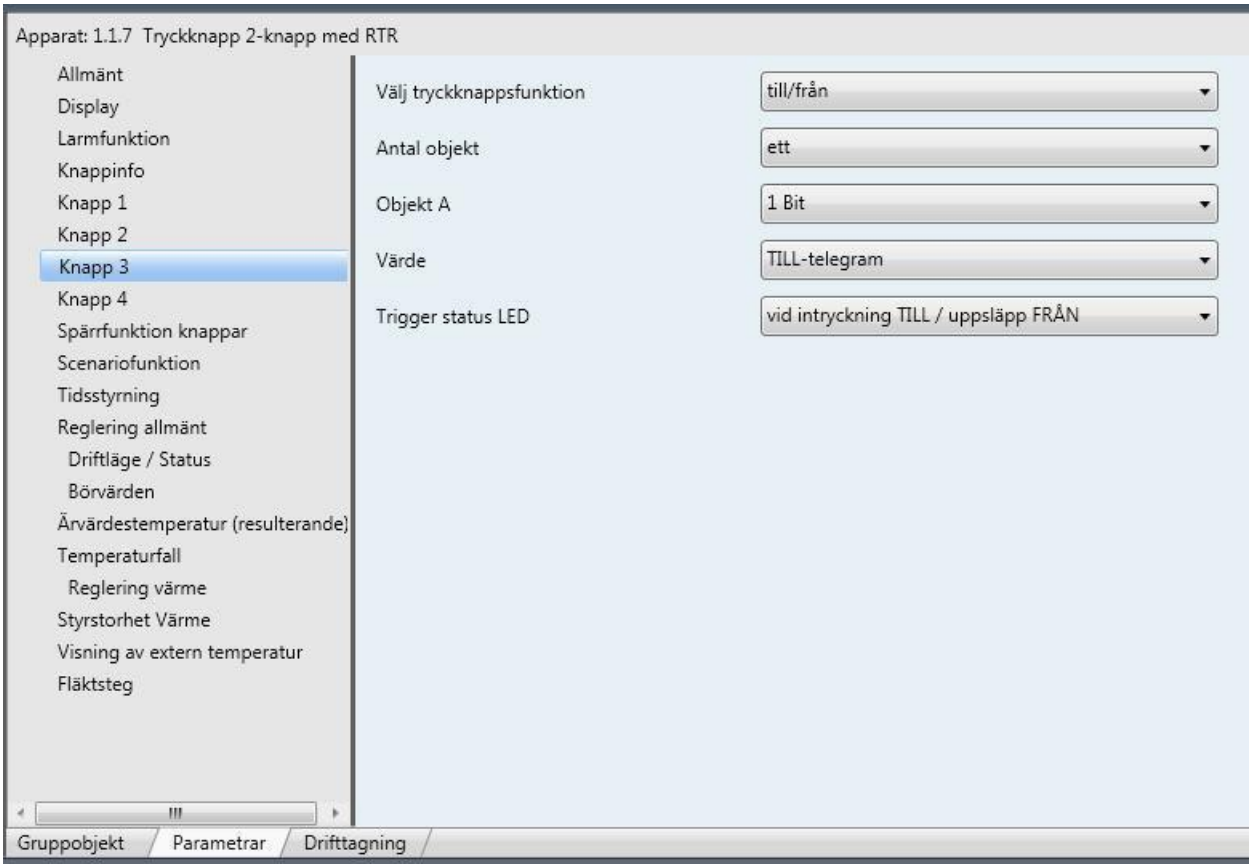
Testa och avprova övning 5

Övning 6: Central tänd

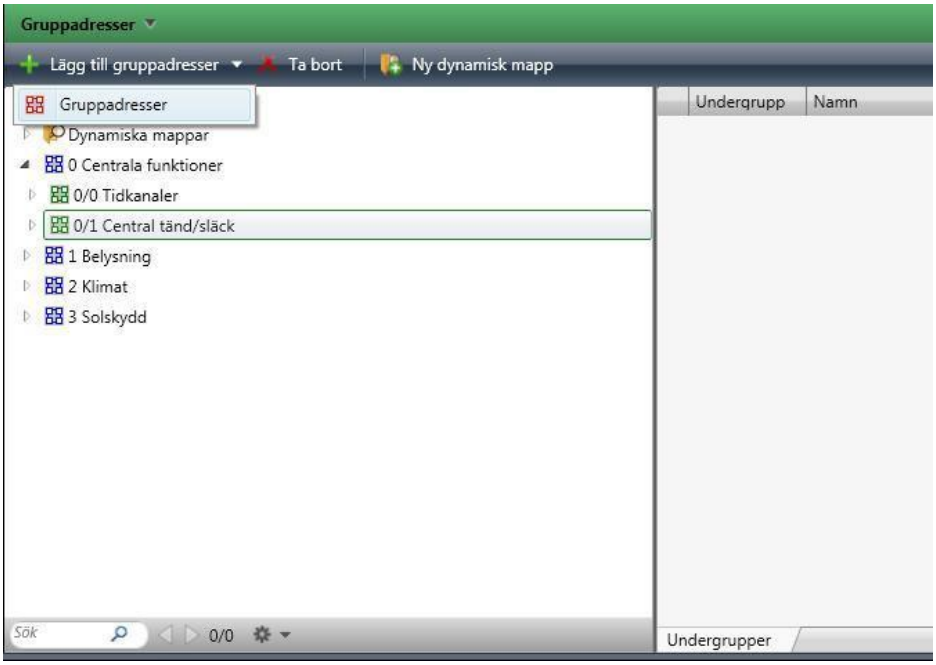
I denna övning skall vi göra central tänd
Produkter som vi använder i denna övning:

- Tryckknapp 2-knapp med RTR (1.1.7)
- Brytaktor 4 US/U4.2 Universal- (1.1.4)
- Universal Dimmeraktor 2-fold, 300VA, MDRC (1.1.5)

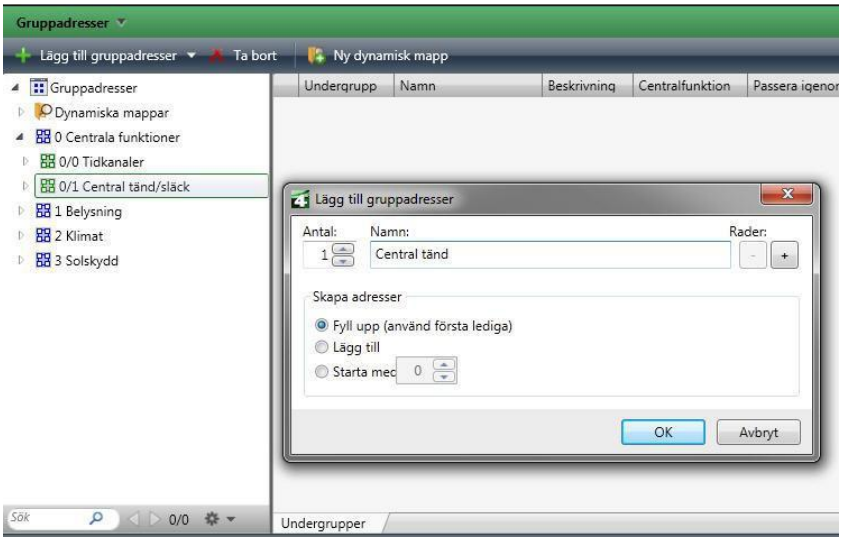
Vippan till vänster (3) tänder alla utgångar 1,4 och dimmaktorns utgång 1-2.Först öppnar vi parametrarna på Tryckknapp 2-knapp med RTR (1.1.7) genom att markera produkten och klicka på fliken ”Parametrar” Knapp 3 skall ha följande parameter:



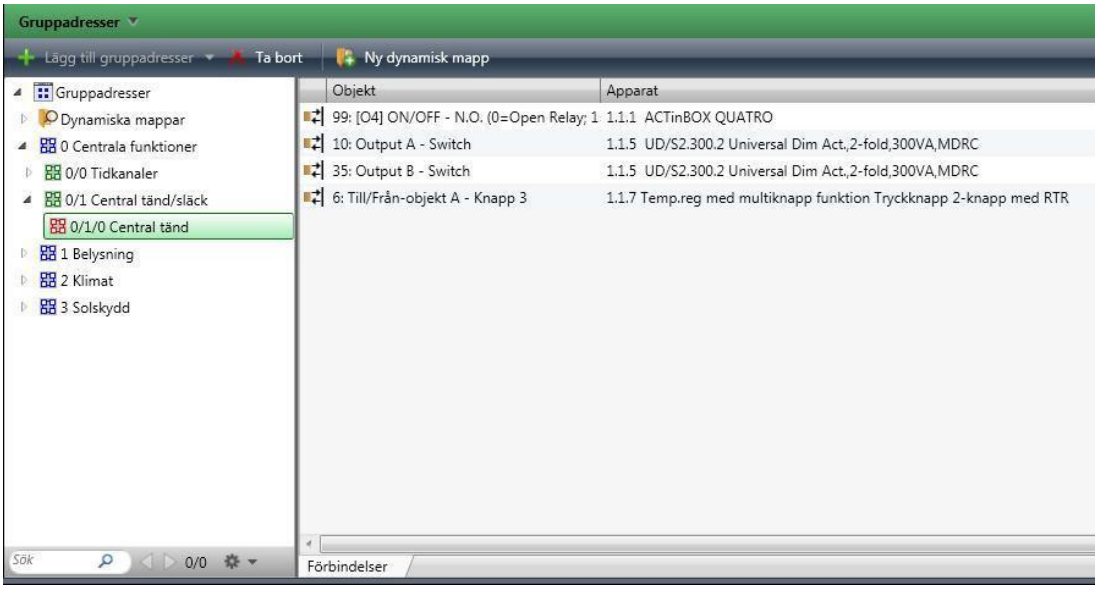
Nu skall vi knyta kommunikationsobjekten till gruppadresserna.
Vi skapar en gruppadress för ”Tänd allt”.



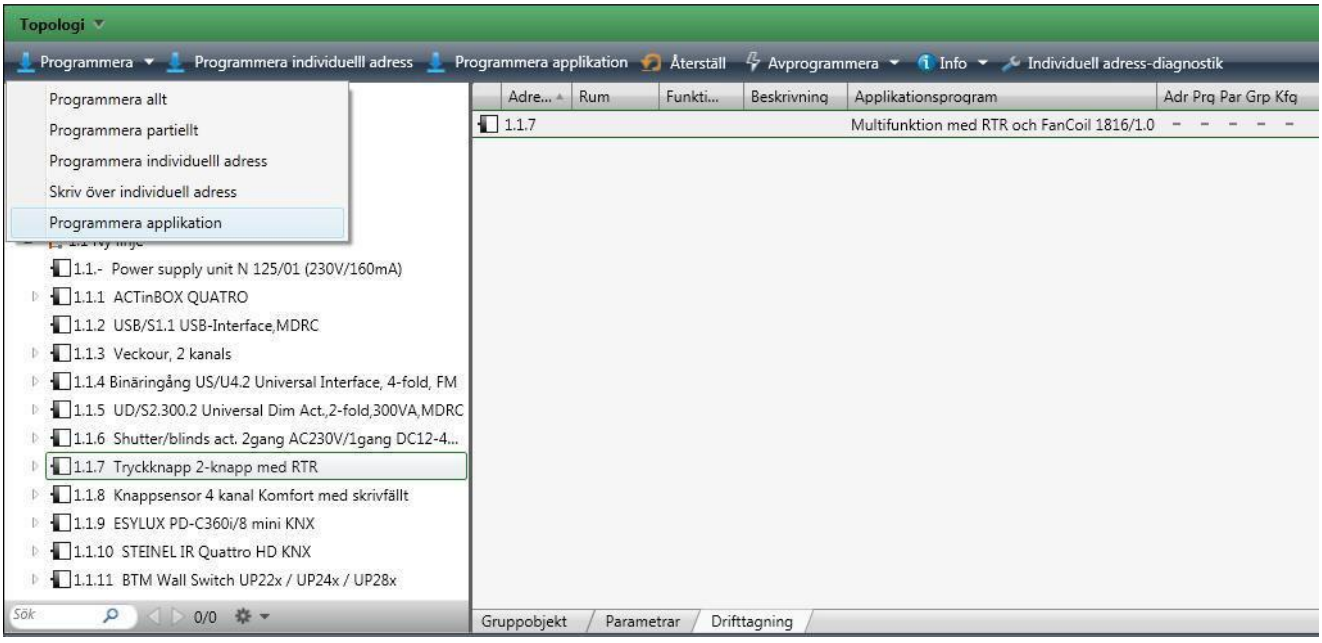
Vi skriver även in namnet på gruppadressen.
Med följande gruppadress 0/1/0



Så här skall det se ut när alla kommunikationsobjekten är tillagda på gruppadressen.



Programmering & avprovning.
Vi skall nu programmera produkterna genom att markera den, klicka på ”Drifttagning” ”Programmera” sedan avslutningsvis ”Programmera applikation”



Och nu programmerar vi Brytaktorn och dimmeraktorn på samma sätt.

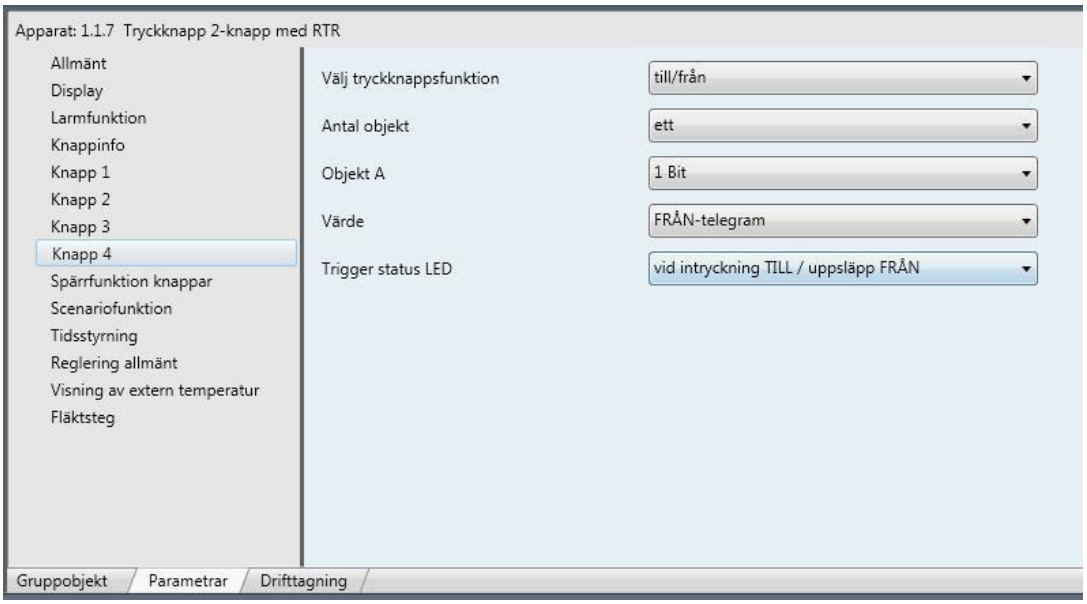
Övning 7: Central släck med jalusi upp

Produkter som vi använder i denna övning:

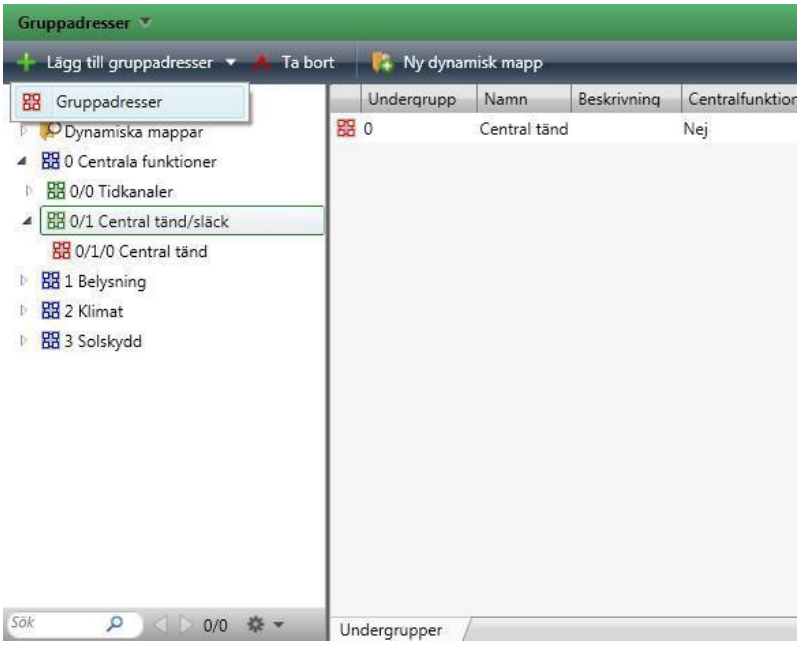
- Tryckknapp med RTR (1.1.7)
- Brytaktor 4 US/U4.2 Universal (1.1.1)
- Universal Dimmeraktor 2-fold, 300VA, MDRC (1.1.5)
- Jalusiaktor (1.1.6)

Kanppen ner till höger (4) släcker utgång 4 på brytaktorn och dimmeraktorns utgång 1-2. Först öppnar vi parametrarna på Tryckknapp med RTR genom att markera produkten och klicka på fliken ”Parametrar”

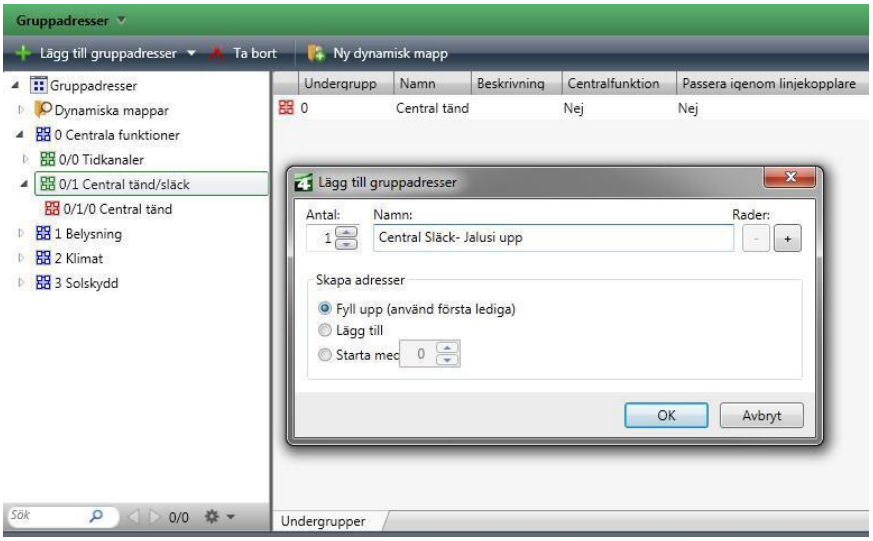
Knapp 4 skall ha följande parameter:



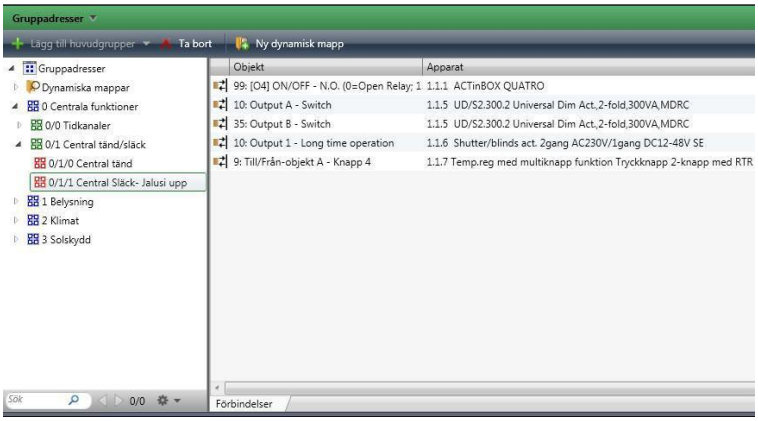
Knyt kommunikationsobjekten till gruppadresserna.
Vi skapar en gruppadress för ”Släck allt- Jalusi upp”.



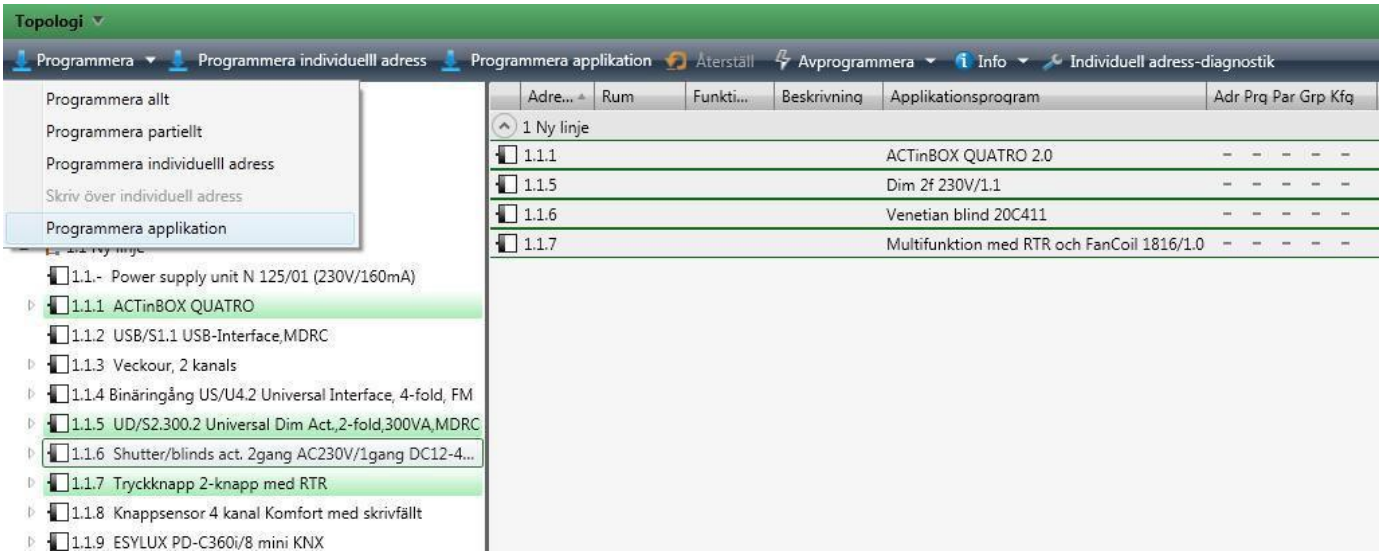
Med följande gruppadress 0/1/1:



Så här skall det se ut när alla kommunikationsobjekten är tillagda på gruppadressen.



Vi skall nu programmera produkterna genom att markera dem, klicka på ”Drifttagning” ”Programmera” sedan avslutningsvis ”Programmera applikation”



Testa och avprova övning 7.

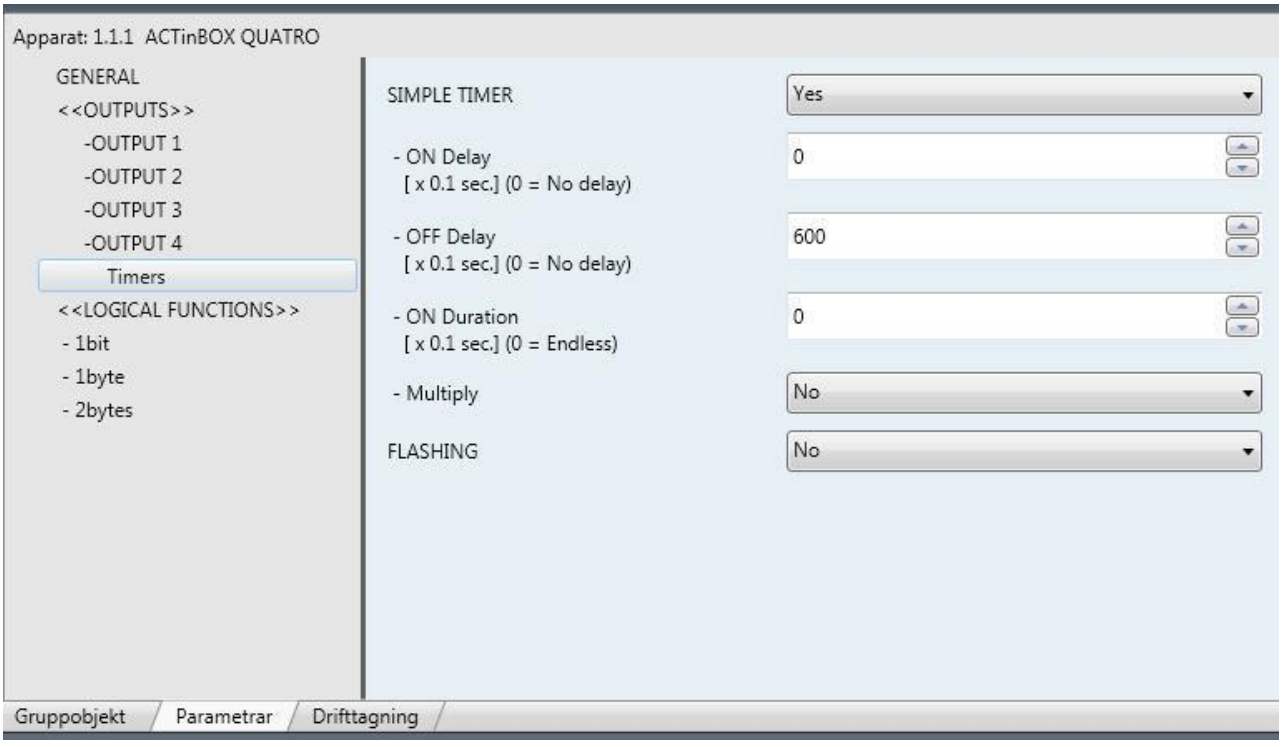
Övning 8: Frånslagsfördröjning av lampor 1,2,3,4 vid central släck.

Produkter som används i denna övning:

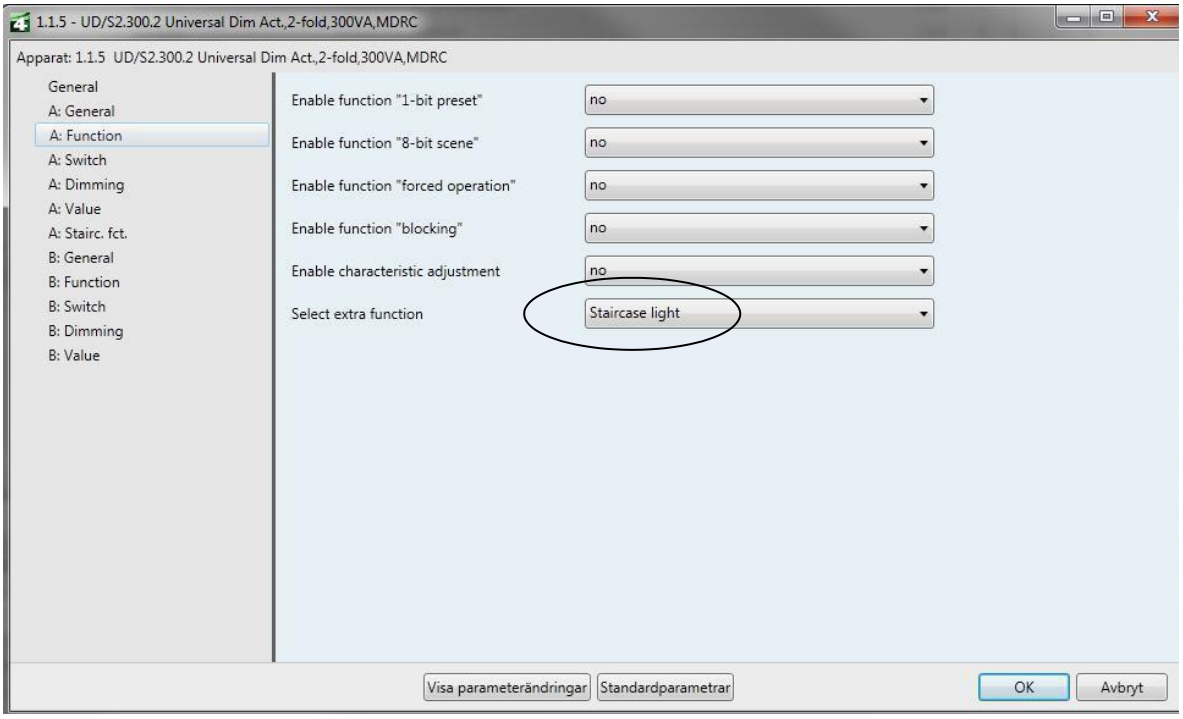
- Brytaktor 4 US/U4.2 Universal 1.1.1 kanal 4
- Universal Dimmeraktor 2-fold, 300VA, MDRC 1.1.5 kanal 1 & 2.
- Tryckknapp med RTR 1.1.7

Vi skall i denna övning använda tre produkter som vi redan har driftsatt och avprovat med andra funktioner.
En tidsfunktion vi skall skapas för att släcka lamporna efter en inställd tid (vi använder i övningen 1min) för att kunna se att funktionen fungerar inom en rimlig tid.
Denna övning skall vi använda de tidsfunktioner som finns inbyggda i produkterna. Det vi då måste vara medvetna om är att denna lösning ger att tidsfunktionen kommer att gälla för dessa kanaler hela tiden.

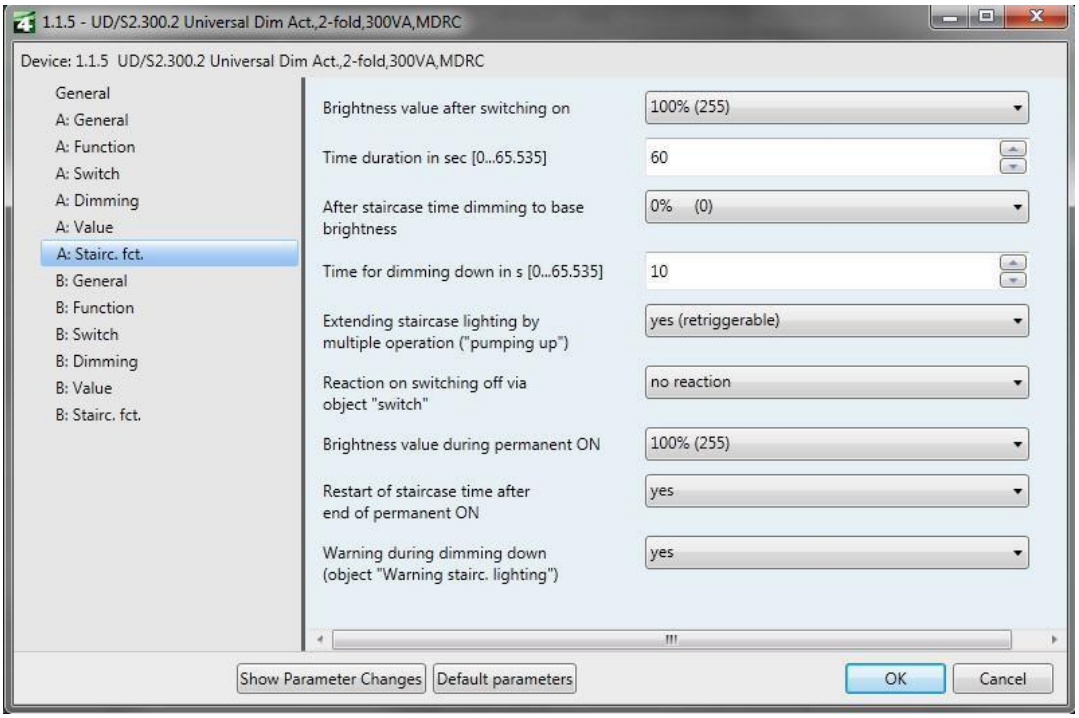
Inställningar i brytaktorn 1.1.1



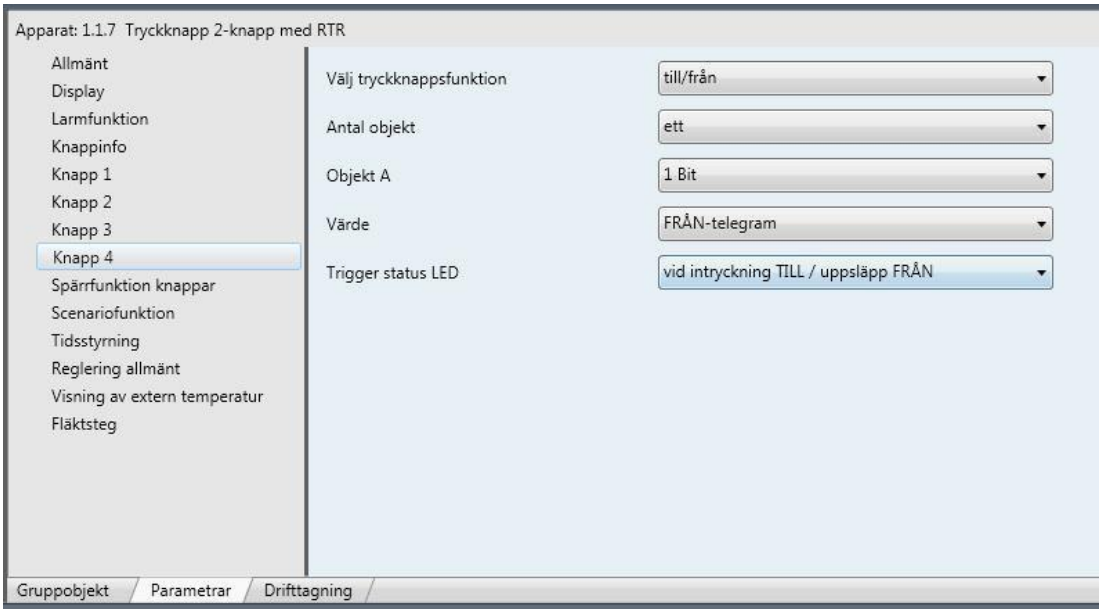
Vi aktiverar trappautomatik funktionen på båda kanalerna.



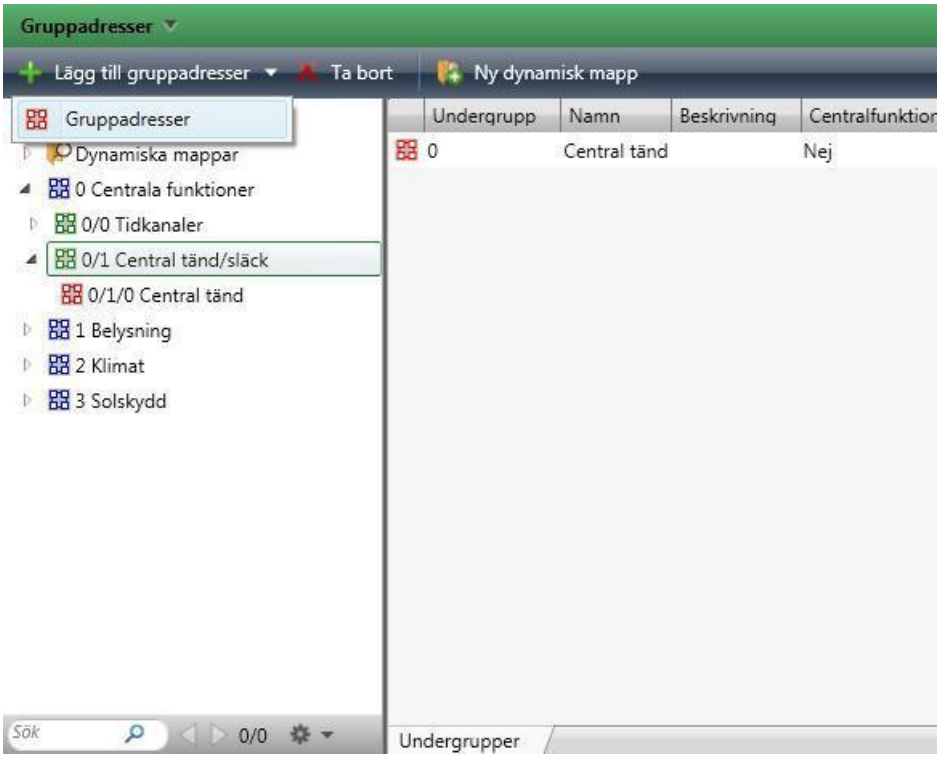
Trappautomatiken ställer vi på 1min på båda kanalerna.

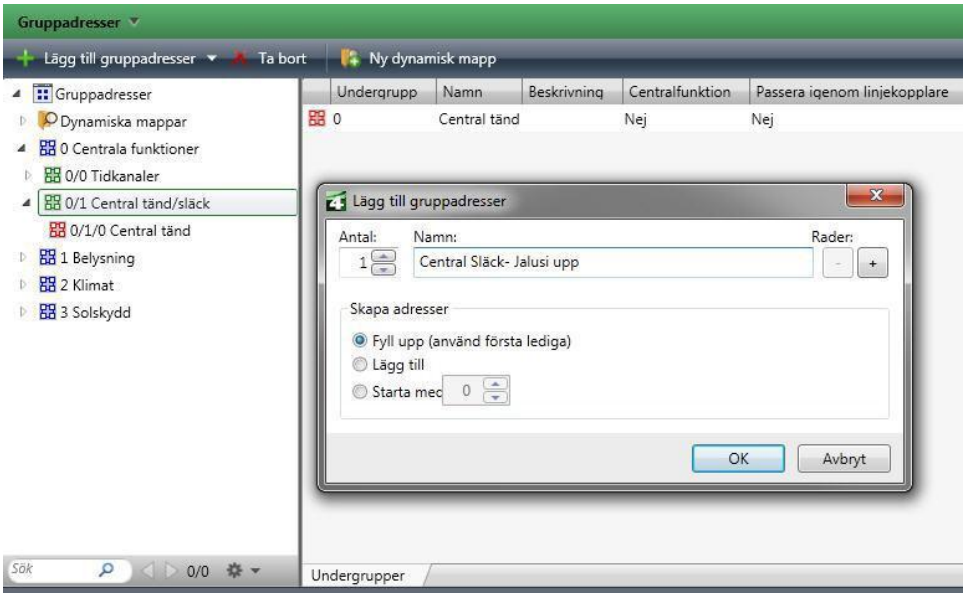


Nu tittar vi på ”Tryckknappen med RTR” för att parametrarna knapp 4.
Vad som skall hända då vi trycker på knappen = central släck!
Vi ställer därför parametern på enbart släck ”off”.

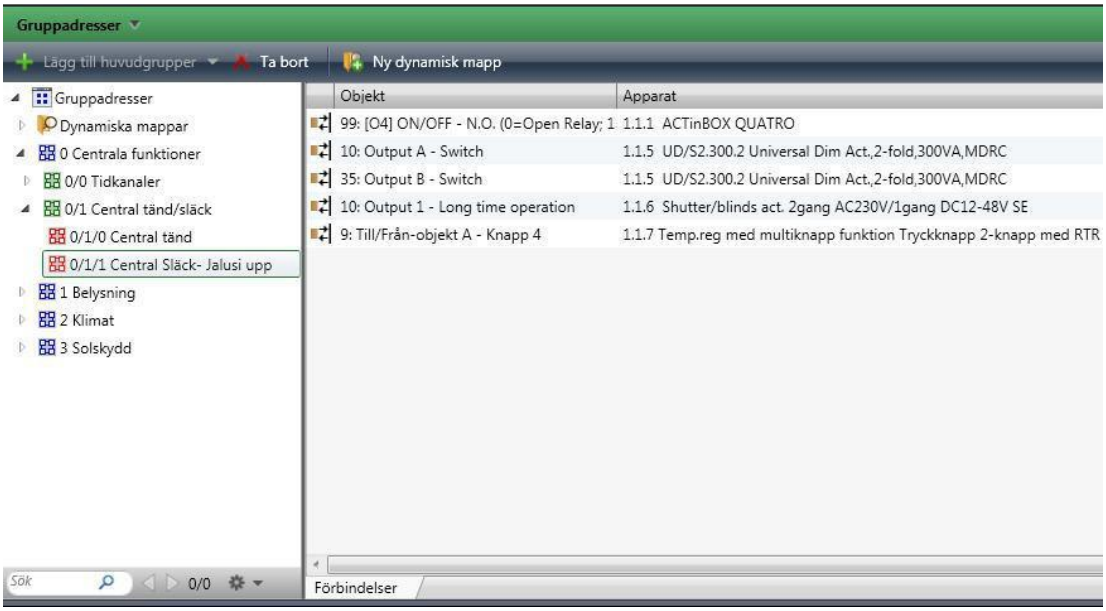


Nu skapar vi vår gruppadress på samma sätt som tidigare.

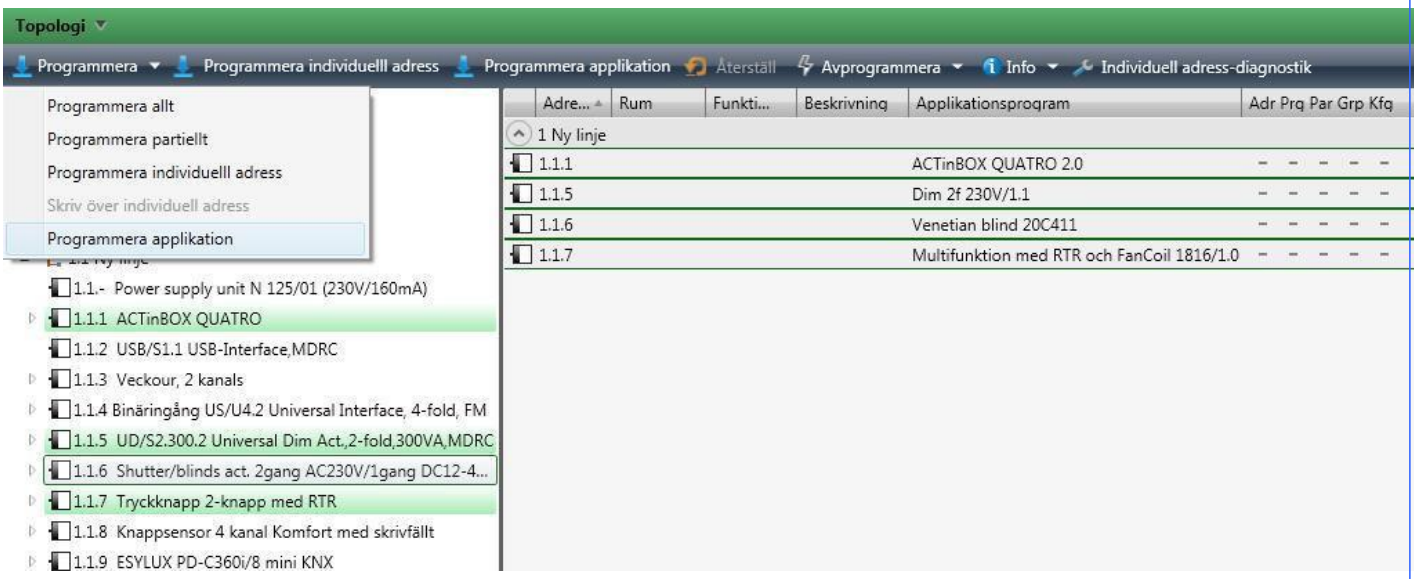




Dessa kommunikationsobjekt är förbundna med gruppadressen 0/1/1



Vi skall nu programmera produkterna genom att markera dem, klicka på ”Drifttagning” ”Programmera” sedan avslutningsvis ”Programmera applikation”



Testa och avprova övning 8.

Övning 9: Energispar funktion med tidkanal

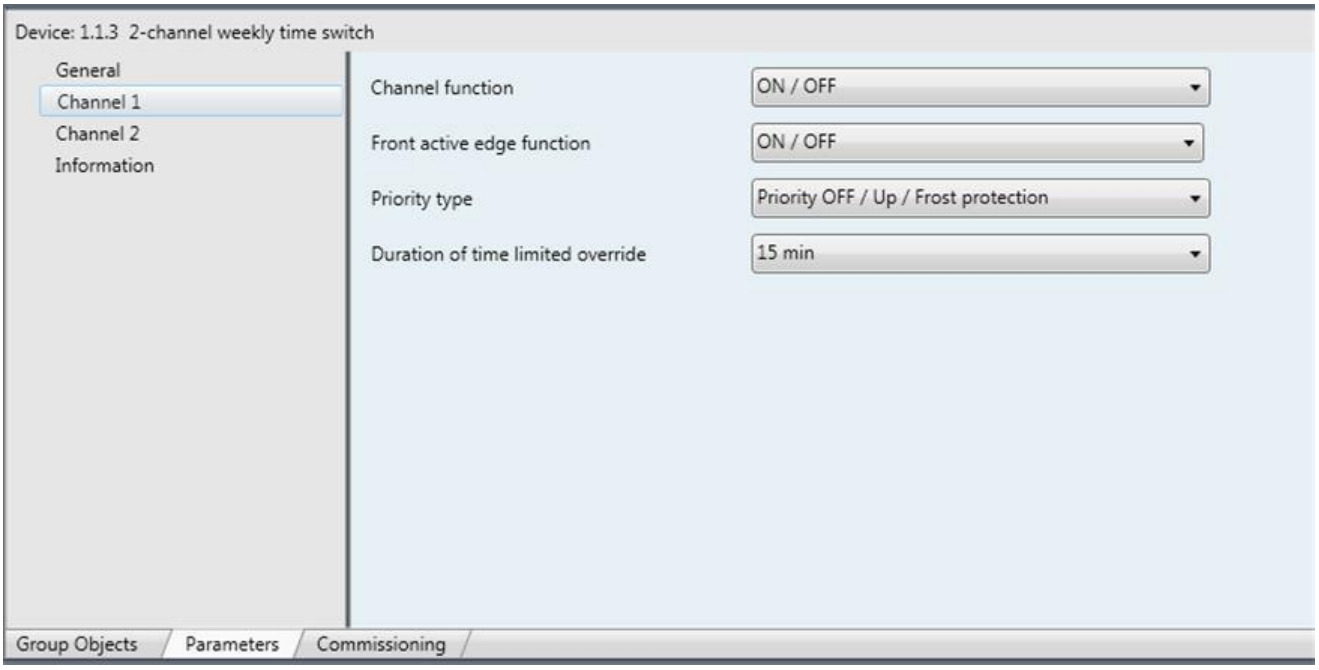
På kopplingsuret skall natt + helgtemperatursänkning göras för energibesparing i rummet.

Produkter som används i denna övning:
- Veckour, 2 kanals1.1.3
- Tryckknapp med RTR 1.1.7
- Brytaktor 4 US/U4.2 Universal 1.1.1

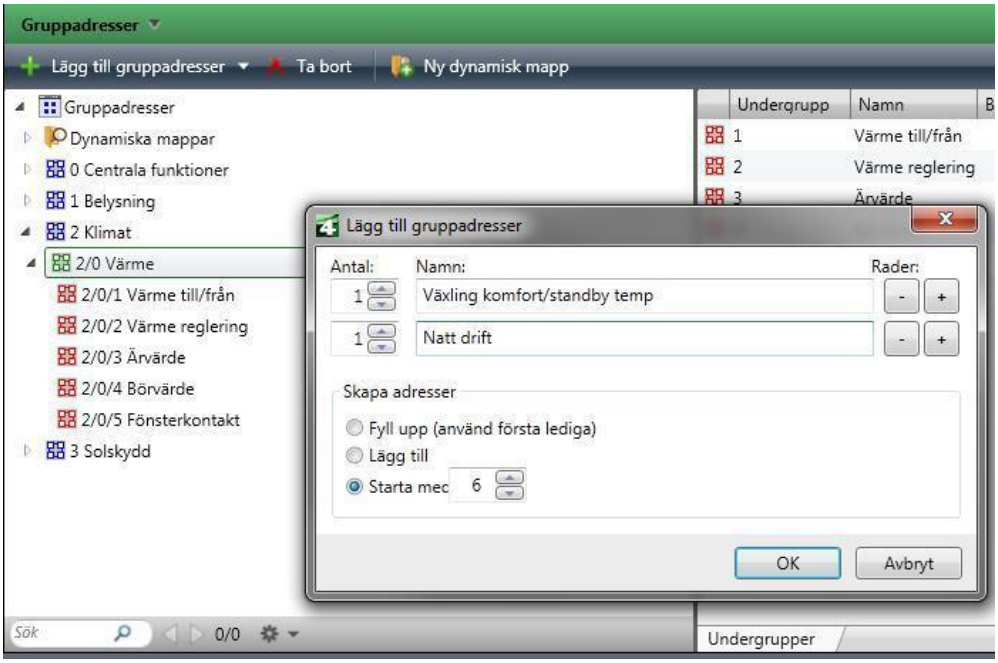
Vi börjar denna övning med att titta på kopplingsuret.
Det är ett 2-kanaligt ur där vi skall använda:
Kanal 1 till växling mellan komfort- och standby temperatur. Där en ”0” ger standbytemp. Och en ”1” ger komforttemp.

Kanal 2 ger ytterligare sänkning av temperaturen med en ”1” till nattdrift.

Vi gör följande inställning av parametrarna i kopplingsuret. Du redigerar parametrar på samma sätt som i tidigare övningar, höger klick på musen välj ”redigera parametrar”.

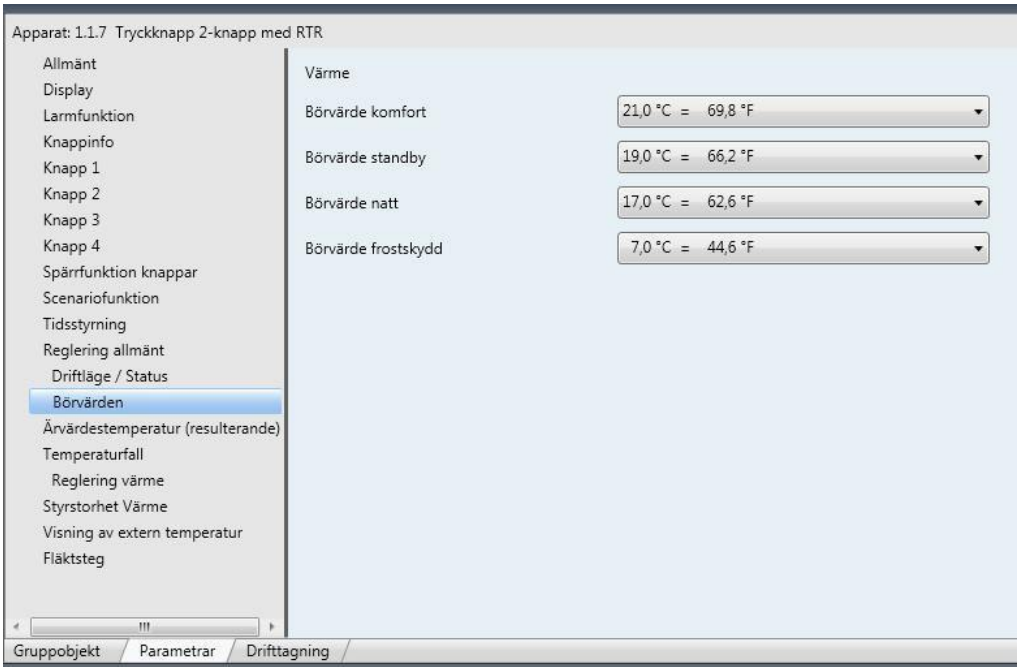


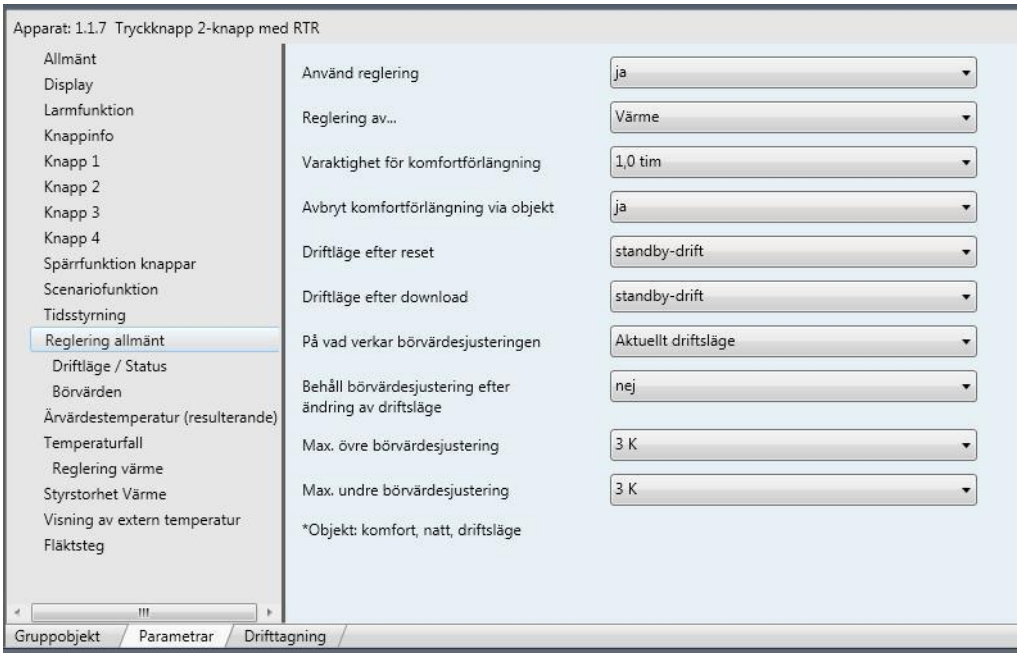
Därefter skapar vi de gruppadresser som behövs enligt nedan:



Nu ansluter vi de gruppadresser som uret skall skicka på inställda tider på båda kanalerna till temperatur regulatorn.
Då ser kommunikationsobjekten ut så här.

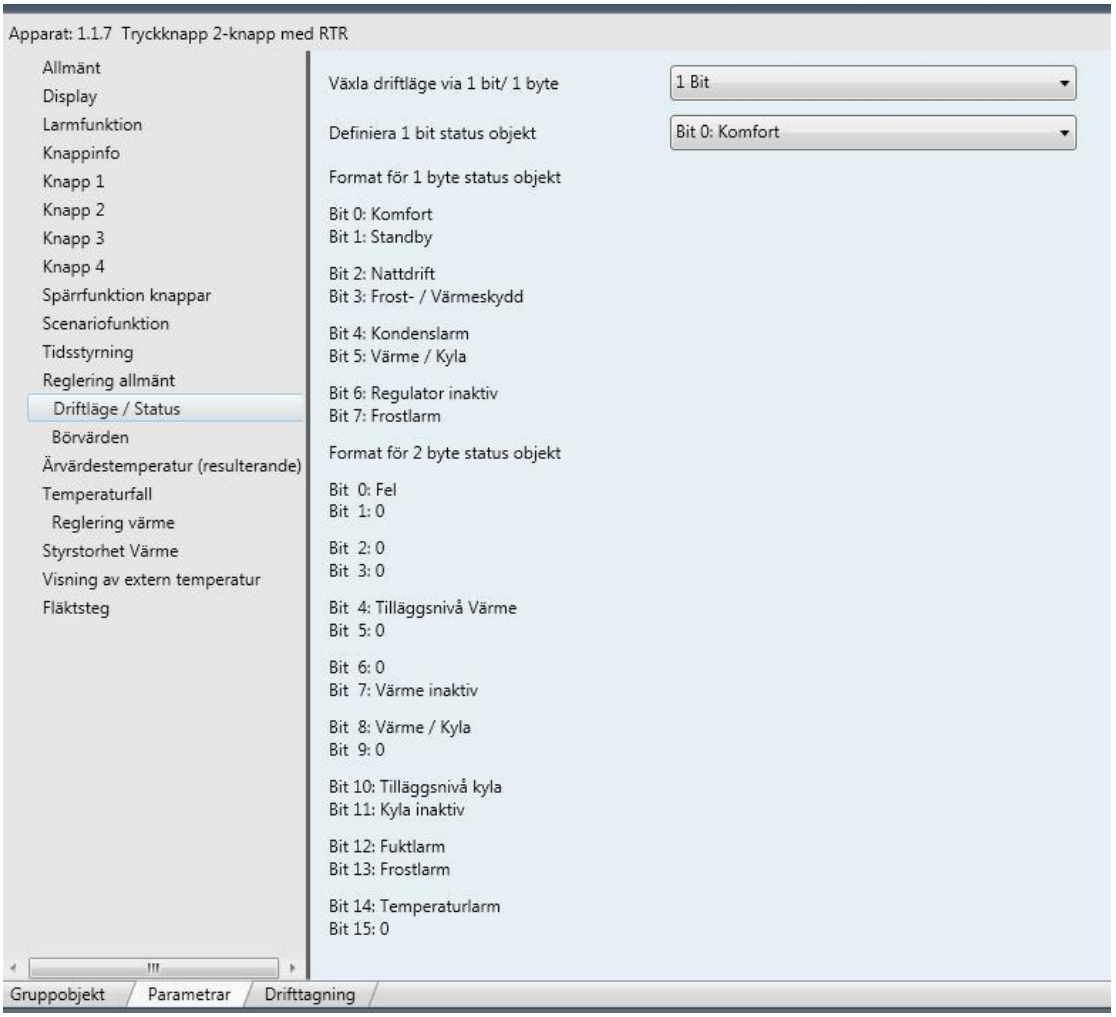
Temperatur regulatorn vi använder är en kombination av regulator och 4st trycknappar.
Trycknapparna använder vi i tidigare övningar så i denna övning koncentrerar vi oss enbart på regulatorn.
Detta är en väldigt avancerad produkt som ger möjligheter till många inställningar som ni längre fram kan göra egna experiment med.
I denna övning skall vi göra energisparande åtgärder genom att sänka temperaturen under förutbestämda tider i vårt kopplingsur.
Följande parameterinställningar är anpassade till vår övning men är givetvis möjliga att förändra i andra övningar till de funktionslösningar som man eftersöker.





Grundinställningen för skillnaden mellan komfort- till standbytemperatur är 2C° sänkning av komforttemperaturen. Vi har ställt in 21C° komfort vilket ger 19C° i standby.

Exempel på gruppadress för komfort driftläge

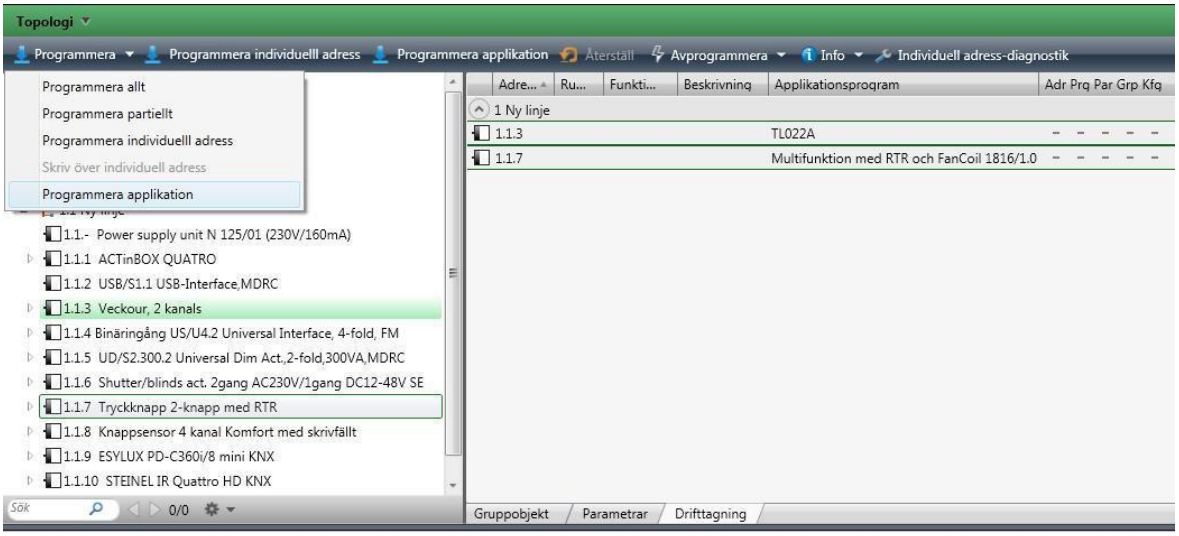


Vi förbinder nu våra gruppadresser till respektive kommunikations objekt på tempregulatorn enligt bilden nedan.

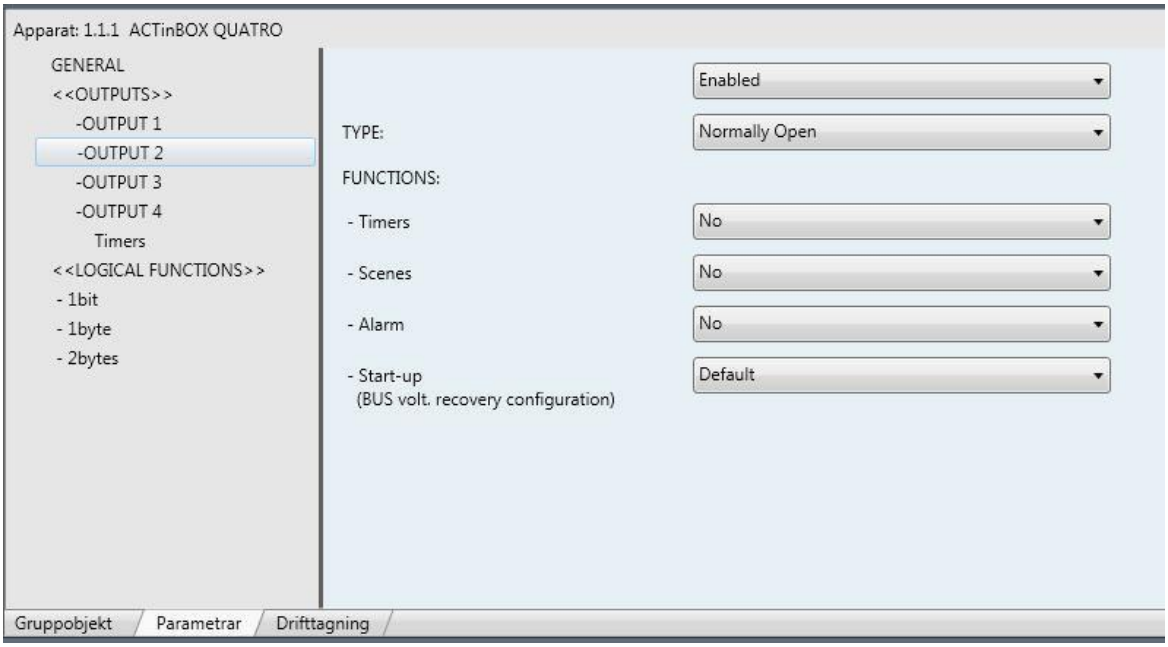
	N...	Namn	Objektfunktion	Beskrivning	Gruppadresser	Längd	K	L	S	Ö	U	Datatyp
	38	Fläktstatus automatik	Indikering automatik			1 bit	K	-	S	-	-	
	37	Extern temperatur	Indikering extern temperatur			2 Byte	K	-	S	Ö	-	
	39	Fläkt 0-100 %	Indikering fläktsteg			1 Byte	K	-	S	-	-	
	0	Till/Från-objekt A	Knapp 1			1 bit	K	-	S	Ö	-	
	3	Till/Från-objekt A	Knapp 2			1 bit	K	-	S	Ö	-	
	6	Till/Från-objekt A	Knapp 3		0/1/0 0/1/1	1 bit	K	-	S	Ö	-	
	9	Till/Från-objekt A	Knapp 4			1 bit	K	-	S	Ö	-	
	51	Aktuellt börvärde temperatur, ingång	Reglering			2 Byte	K	L	-	Ö	-	
	53	Spärrobjekt utgång	Reglering			1 bit	K	L	-	Ö	-	
	55	Komfortförlängning utgång	Reglering			1 bit	K	L	-	Ö	-	
	57	Nattsänkning utgång	Reglering			1 bit	K	L	-	Ö	-	
	59	Status (komfort)	Reglering			1 bit	K	L	-	Ö	-	
	61	Status	Reglering			2 Byte	K	L	-	Ö	-	
	62	Korrigerat värde Värme (grundnivå)	Reglering			1 Byte	K	L	-	Ö	-	
	60	Status	Reglering			1 Byte	K	L	-	Ö	-	
	58	Värme / Kyla utgång	Reglering			1 bit	K	L	-	Ö	-	
	56	Komfort utgång	Reglering			1 bit	K	L	-	Ö	-	
	54	Frost-/värmeskydd utgång	Reglering			1 bit	K	L	-	Ö	-	
	52	Aktuellt ärvärde temperatur, utgång	Reglering			2 Byte	K	L	-	Ö	-	
	50	Börvärdesjustering utgång	Reglering			2 Byte	K	L	-	Ö	-	
	44	Spärrobjekt ingång	Reglering			1 bit	K	-	S	-	-	
	46	Komfortförlängning ingång	Reglering			1 bit	K	-	S	-	-	
	47	Komfort ingång	Reglering	Växling komfort/standby temp	2/0/6	1 bit	K	-	S	-	-	
	48	Nattsänkning ingång	Reglering	Natt drift	2/0/7	1 bit	K	-	S	-	-	
	45	Frost-/värmeskydd ingång	Reglering			1 bit	K	-	S	-	-	
	42	Aktuellt ärvärde temperatur, ingång	Reglering			2 Byte	K	-	S	Ö	U	
	41	Aktuellt börvärde temperatur, utgång	Reglering			2 Byte	K	-	S	-	-	
	40	Börvärdesjustering ingång	Reglering			2 Byte	K	-	S	-	-	
	69	Datumobjekt ingång	Tidsstyrning			3 Byte	K	-	S	-	-	
	68	Tidsobjekt ingång	Tidsstyrning			3 Byte	K	-	S	-	-	

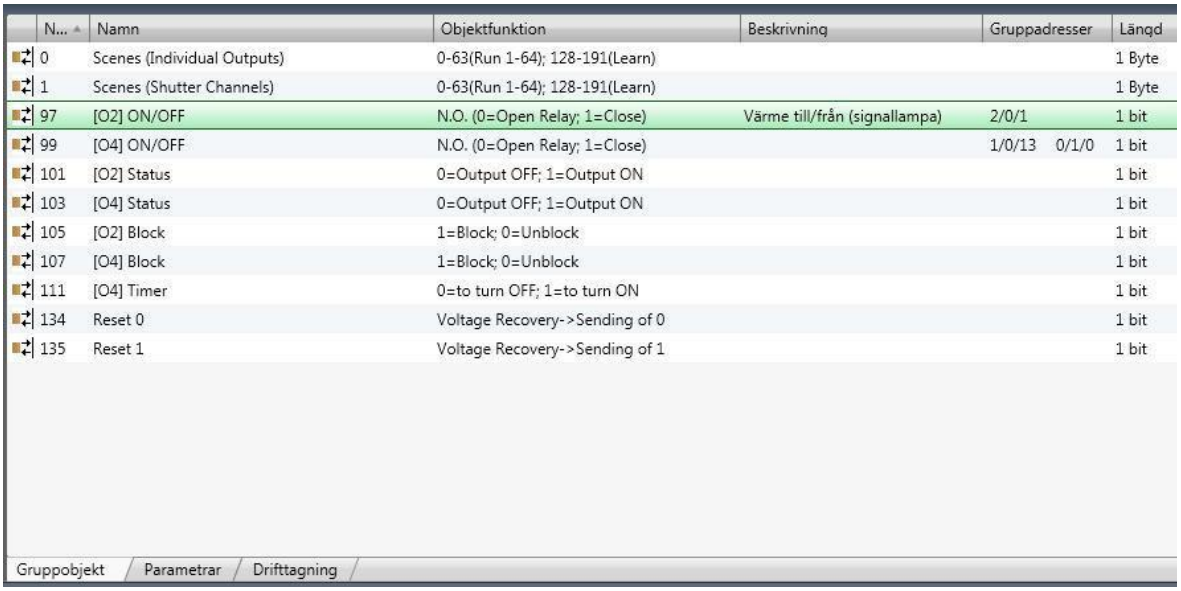
Gruppobjekt | Parametrar | Drifttagning

Nu har vi ställt in både kopplingsuret och tempregulatorn med de inställningar som passar våra önskemål. Vi skall nu programmera dessa.



Vi ansluter en gruppadress på exempelvis kanal 2 på brytaktorn med de parameterinställningar vi tidigare har med endast till/från.
Gruppadress ”värme till/från” ansluter vi på utgång 2.





N...	Namn	Objektfunktion	Beskrivning	Gruppadresser	Längd
0	Scenes (Individual Outputs)	0-63(Run 1-64); 128-191(Learn)			1 Byte
1	Scenes (Shutter Channels)	0-63(Run 1-64); 128-191(Learn)			1 Byte
97	[O2] ON/OFF	N.O. (0=Open Relay; 1=Close)	Värme till/från (signallampa)	2/0/1	1 bit
99	[O4] ON/OFF	N.O. (0=Open Relay; 1=Close)		1/0/13 0/1/0	1 bit
101	[O2] Status	0=Output OFF; 1=Output ON			1 bit
103	[O4] Status	0=Output OFF; 1=Output ON			1 bit
105	[O2] Block	1=Block; 0=Unblock			1 bit
107	[O4] Block	1=Block; 0=Unblock			1 bit
111	[O4] Timer	0=to turn OFF; 1=to turn ON			1 bit
134	Reset 0	Voltage Recovery->Sending of 0			1 bit
135	Reset 1	Voltage Recovery->Sending of 1			1 bit

Gruppobjekt / Parametrar / Drifttagning

Därefter programmerar vi brytaktorn på vanligt sätt.

Nu är det dags för avprovning

OBS! Var noga med att läsa igenom manualen för tempregulatorn som medföljer i kartongen för att ni skall se de möjligheter som finns i denna produkt.

Ni kan nu sätta kopplingsuret på de tider som ni valt eller köra uret för hand.
Det finns också möjlighet att med datorn ”skriva” en gruppadress till en vald produkt för att se direkt på skärmen vad som händer på KNX bussen

Genom att trycka på Läs/skriv kan ni nu Läsa eller skriva ner en gruppadress

Denna adress 2/0/5 är för växlingen mellan komfort/standby temperaturen.
Skriver ni ”1” ställer temp.regulatorn sig i komfort på en ”0” går den till standby

Titta på denna bild så kan ni se hur börvärdet växlar vid en ”1” eller ”0” för komfort/standby.

Övning 10: Närvarostyrd temperaturreglering

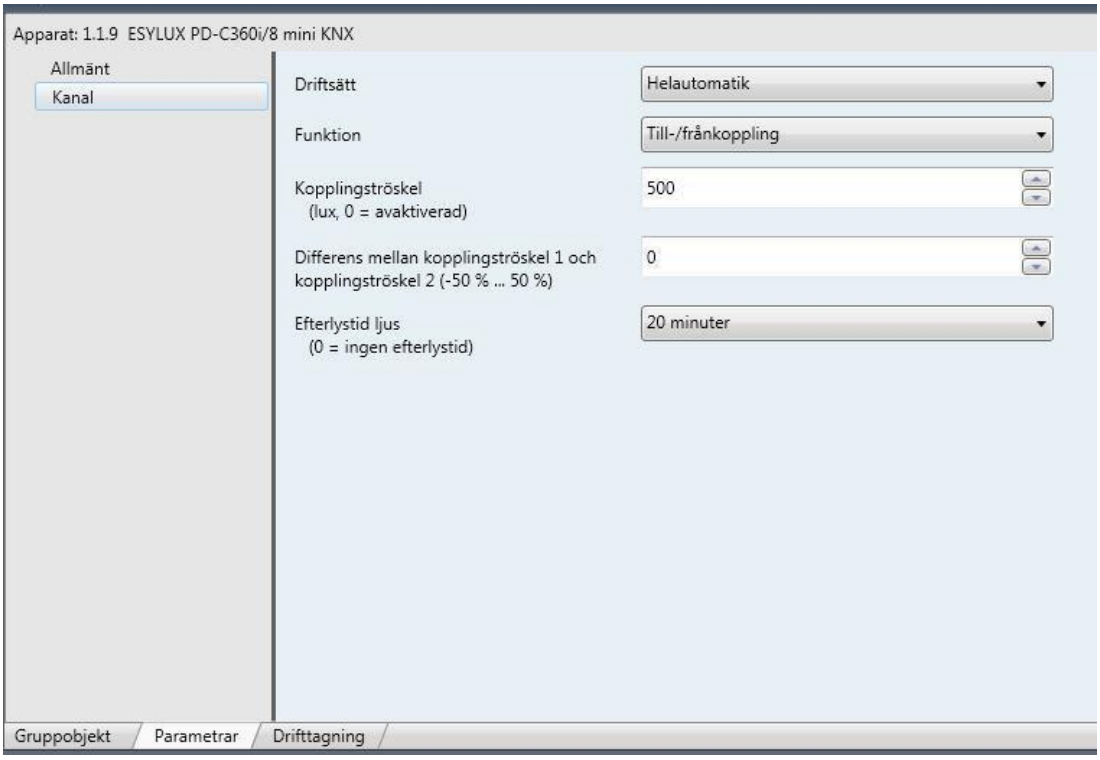
i rummet med komfort temperatur 22C° och en standby temperatur på 20C°. Belysningen skall tändas vid entré till rummet.
Om ingen närvaro har registrerats i rummet under 20 minuter skall belysningen släckas och temperaturen skall gå till standby temperatur. Man ska även kunna förlänga komforttiden i 1 ½ h genom att trycka på vippa 1, 1.1.11 på vippa två går man till nattdrift manuellt. Vi använder oss av två stycken närvarodeckare (en är master och en slav) och 2 stycken 2-tryckknappar.

Produkter som ingår i denna övning:

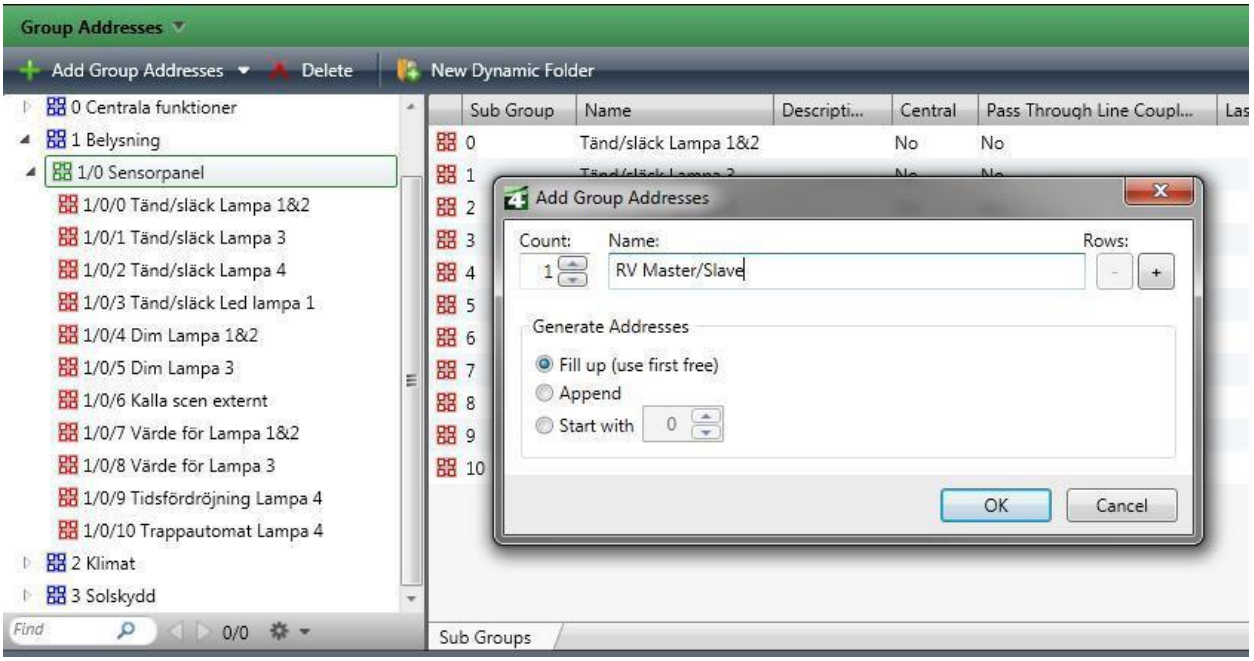
- Närvarodetektor ESYLUX PD-C360i/8 1.1.9 (Master)
- Närvarodetektor STEINEL IR Quattro
- Tryckknapp 2-knapp med RTR 1.1.7
- Tryckknapp 2-knapp 1.1.11
- Brytaktorn kanal 3 ACTinBOX QUATRO 1.1.1, (för att visa värmereglering via en signallampa)

I denna övning skall vi använda närvarodetektorns 2 kanaler. Där kanal 1 styr belysningen och kanal 2 värmen. Den andra närvarodetektorn kommer att fungera som slav och bara trigga mastern vid närvaro.

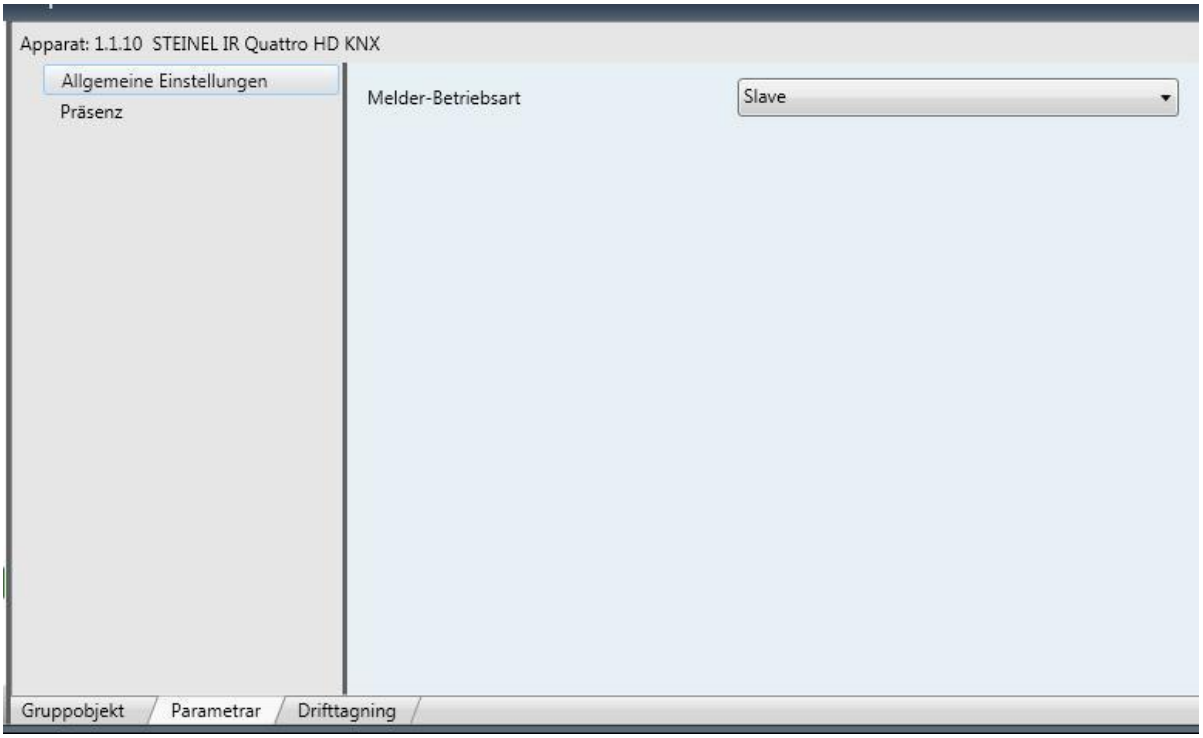
Vi börjar med belysningsstyrningen. Inställningen i närvarodetektorn blir,
tiden som rörelsevakten skall vara aktiv ställs in på c:a 20 min enligt:



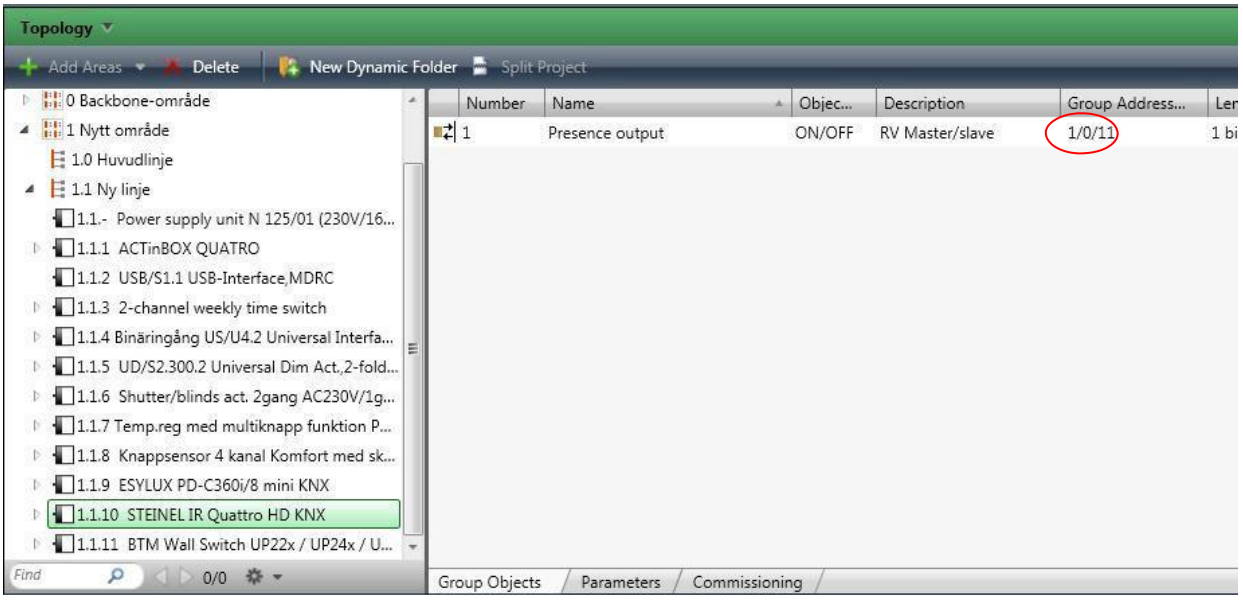
Nu ska vi ställa in master/slav funktionen, vi börjar med att skapa en ny gruppadress:



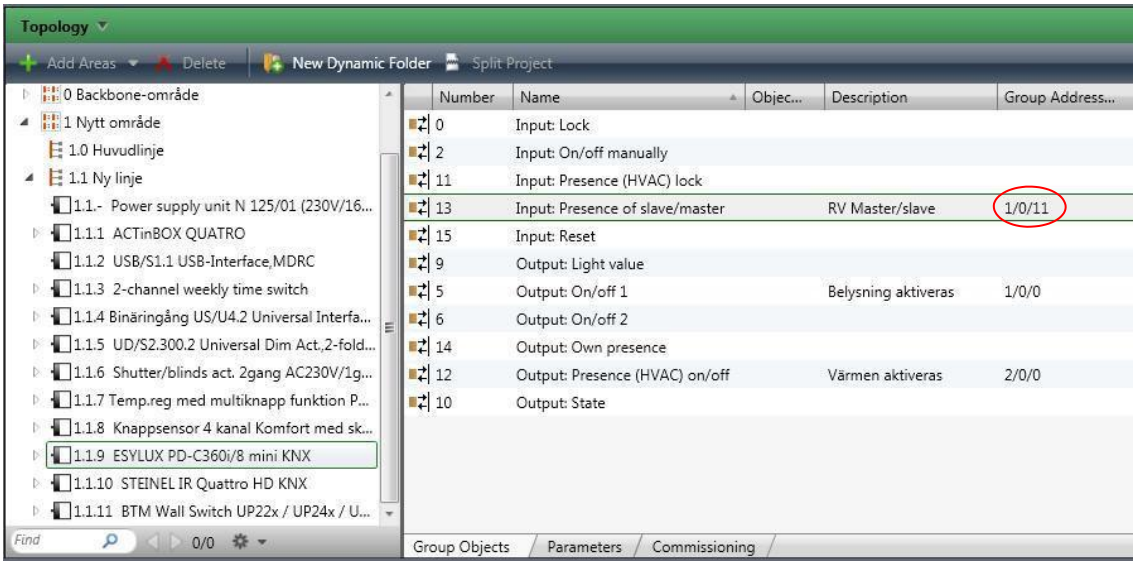
Sedan markerar vi slaven och ställer in dess parametrar enligt följande:



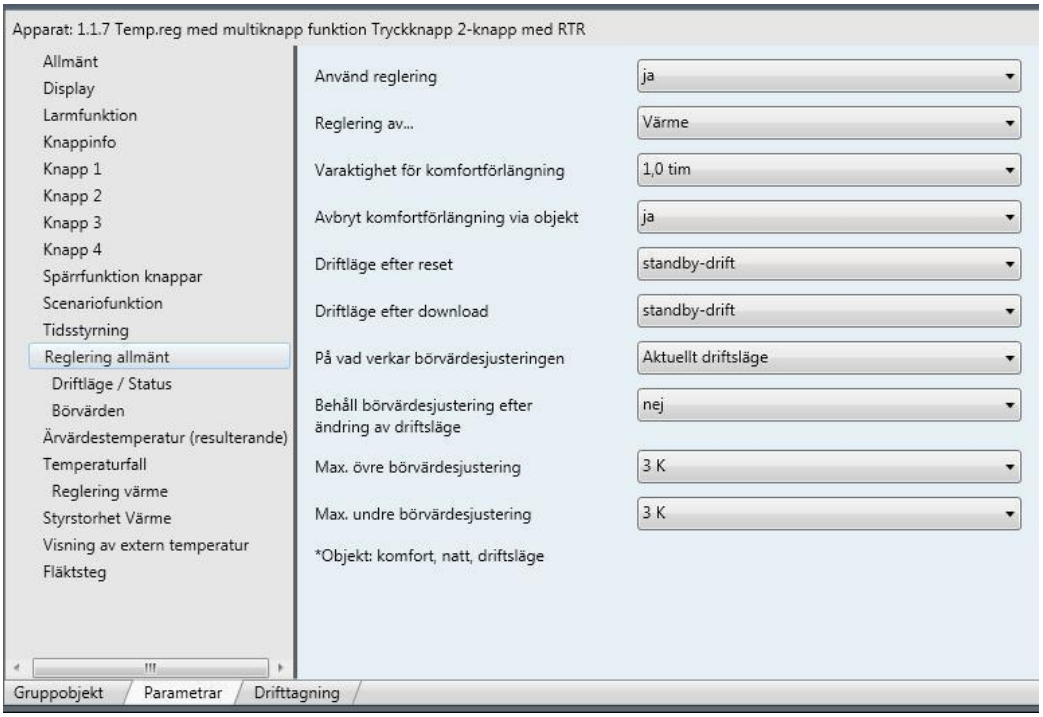
Sedan knyter vi den nya gruppadressen på slavobjektet:



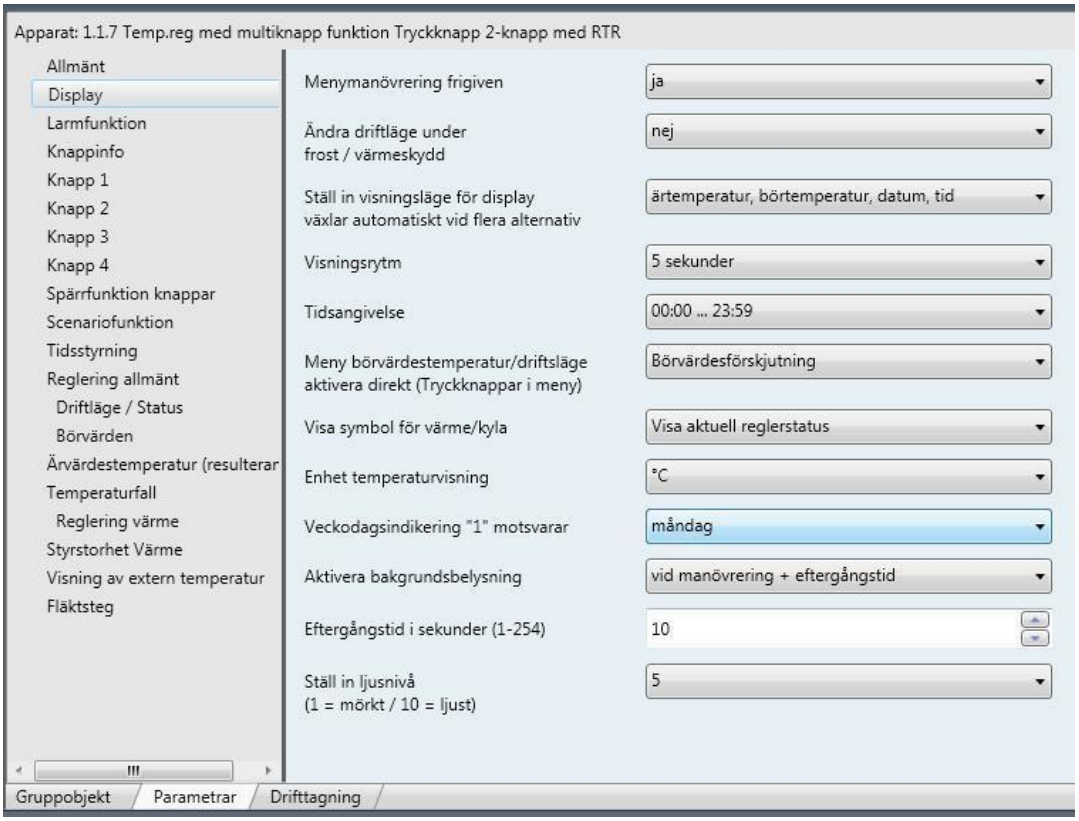
Kommunikationsobjekten i master närvarodetektorn efter inställda parametrar och beskrivningstext, då har vi knutit ihop slaven med master:



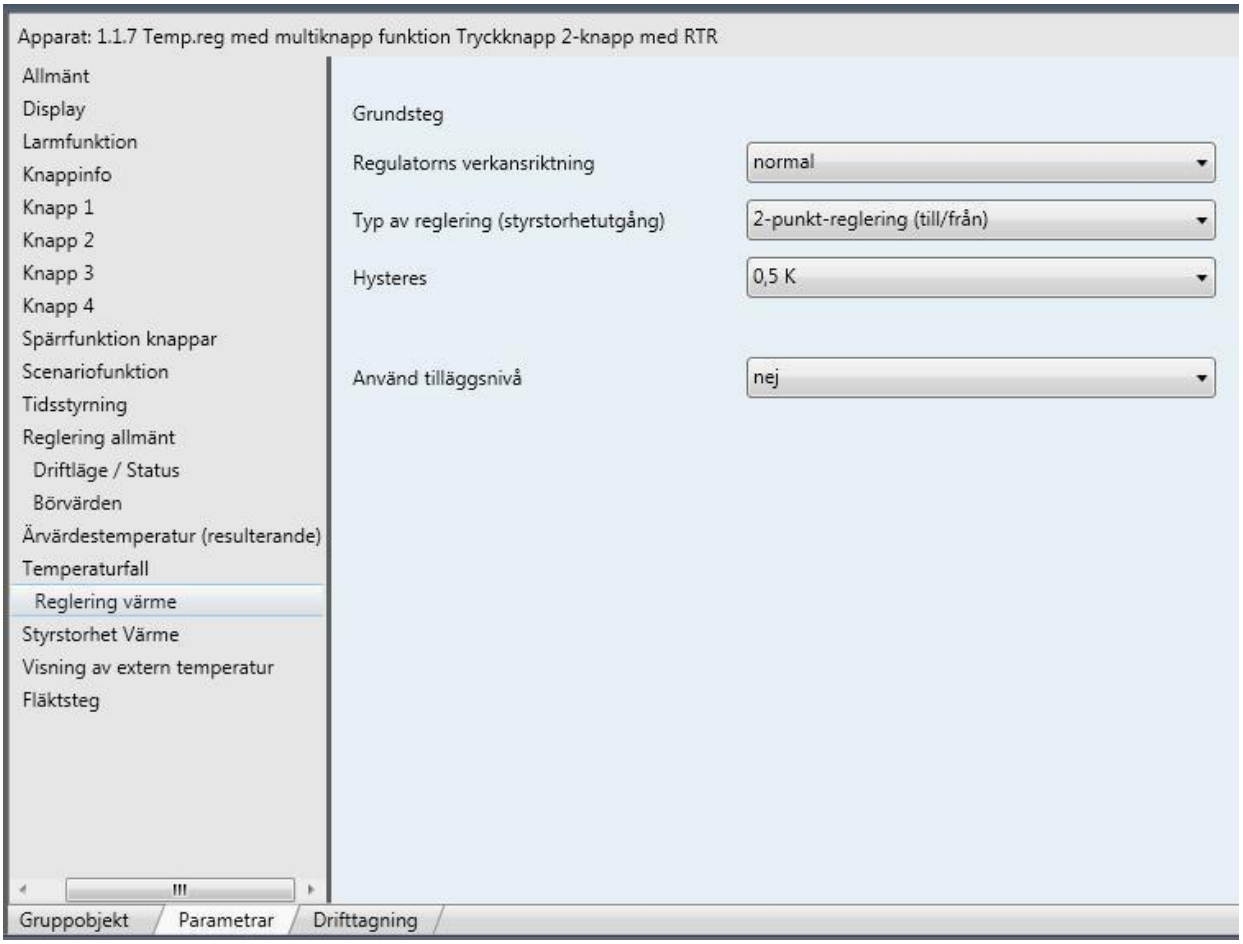
Vi skall nu ställa in vår temperatur regulator för denna funktion.



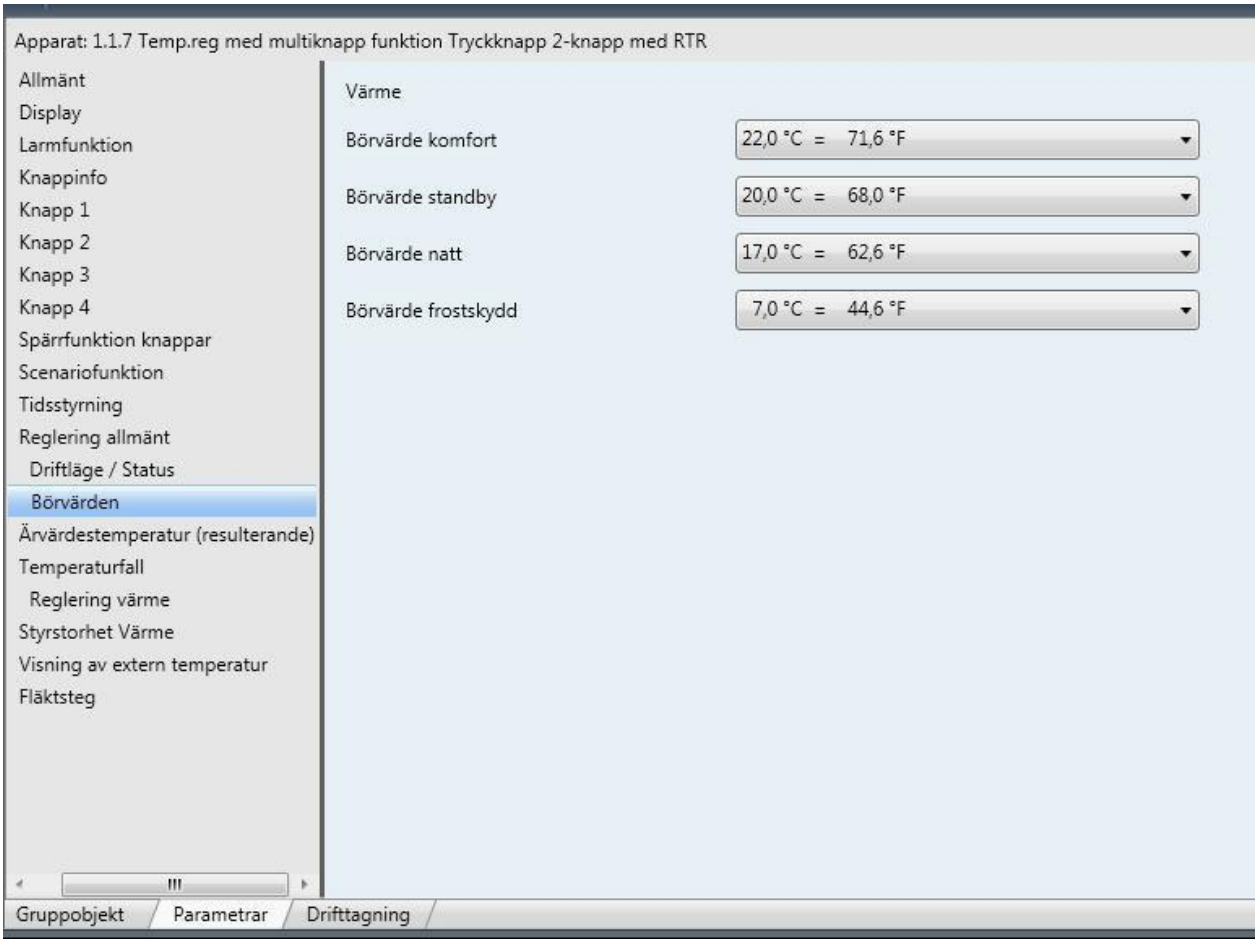
Därefter trycker vi på ”Display” ställer in LED:en på on och att den skall visa ”Time/room/börvärde (setpoint temp):



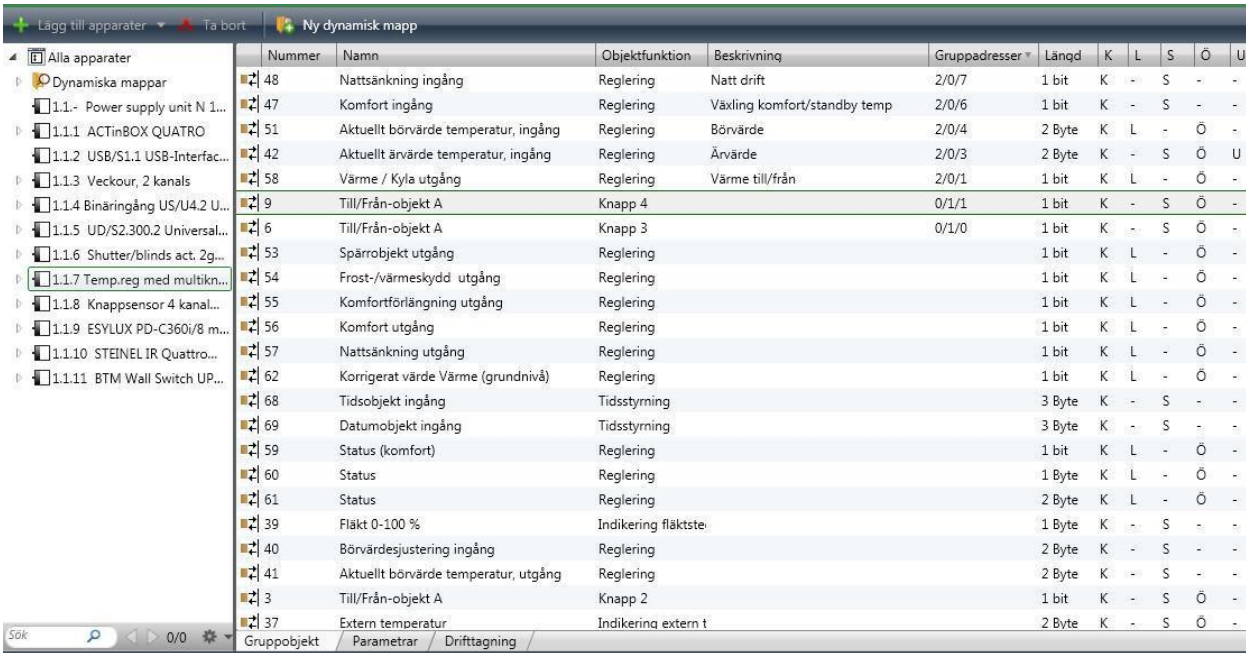
Övriga inställningar görs med typen av temperaturreglering enligt nedan.
Vi gör en värme styrning med en 2-punkts control (on/off), övriga inställningar ser du på bilden:



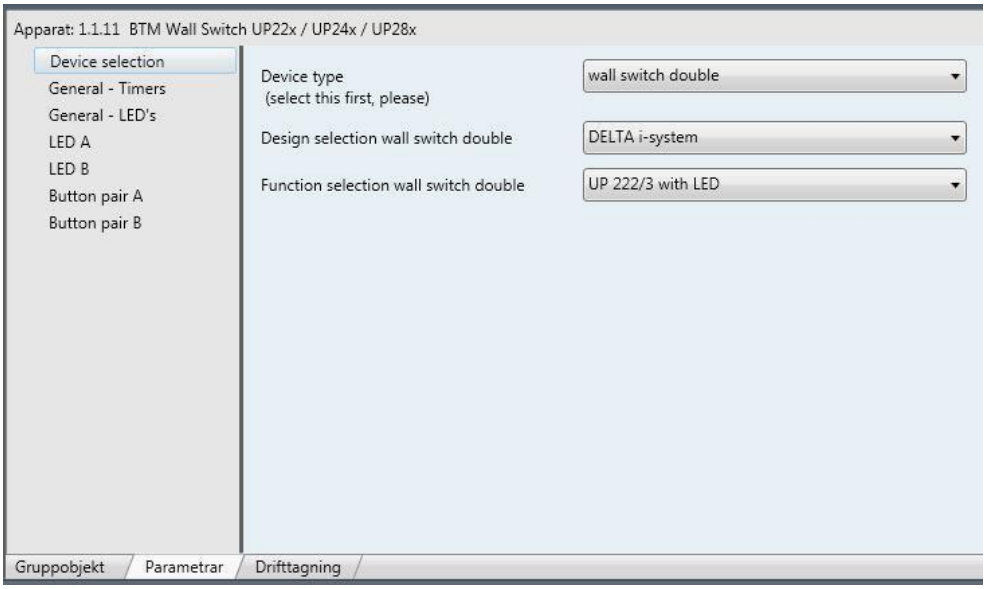
Under ”Börvärde” ställer vi in komfort temperaturen till 22C° och övriga inställningar enligt nedan.

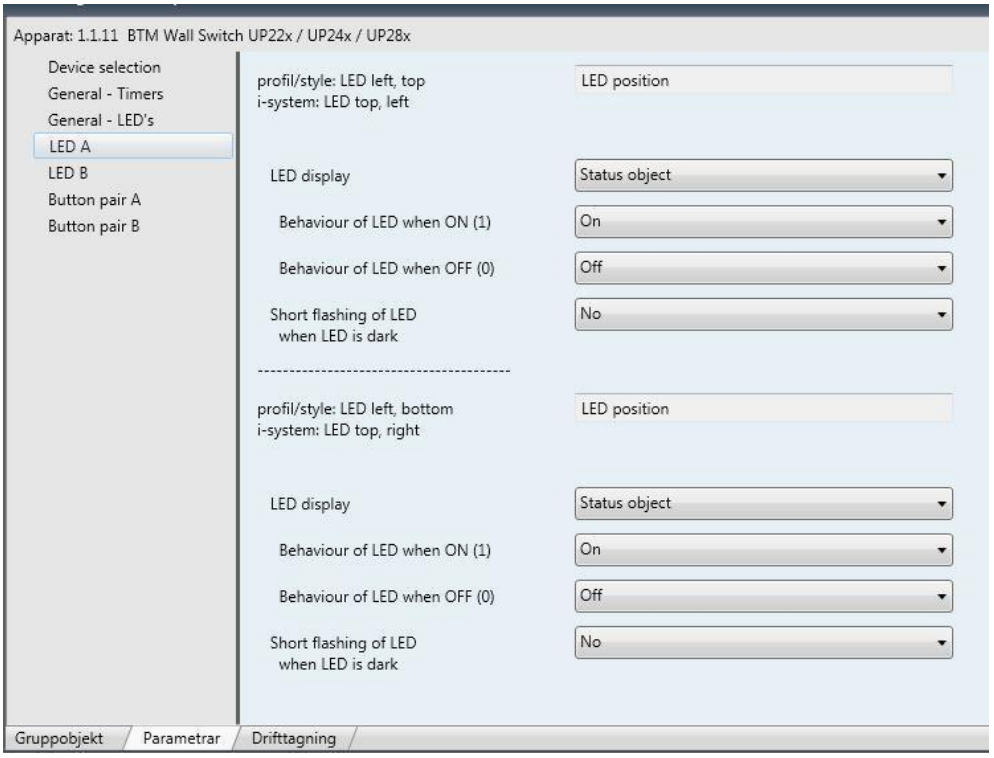


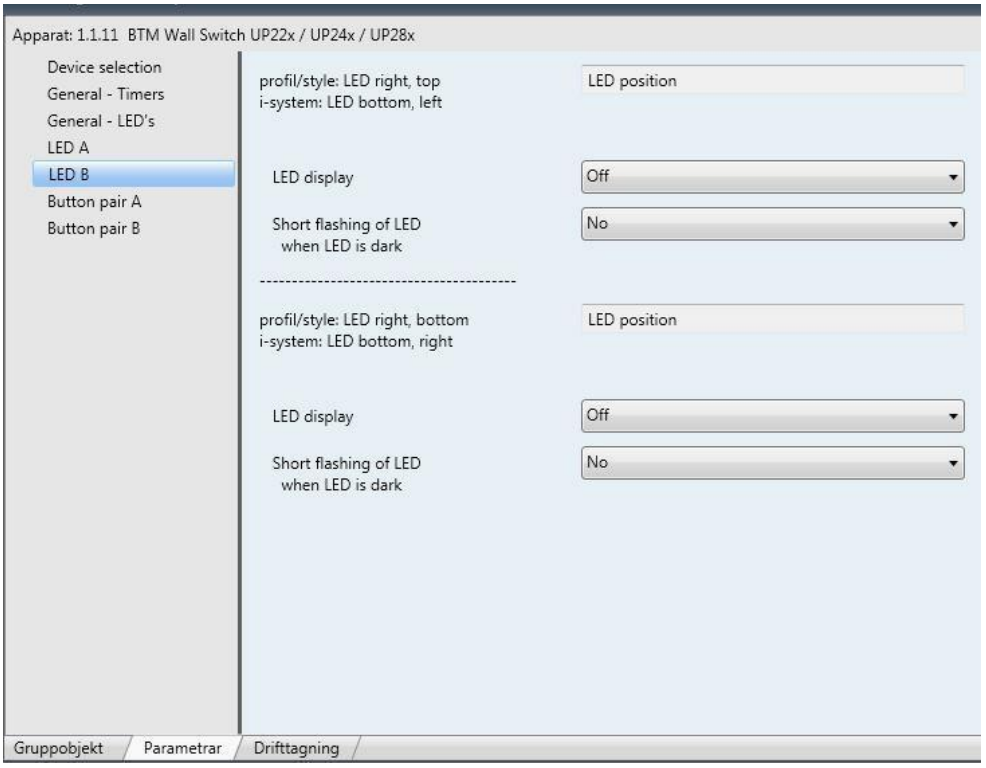
Detta är kommunikationsobjekten på temp.reg. efter parameter inställningarna:

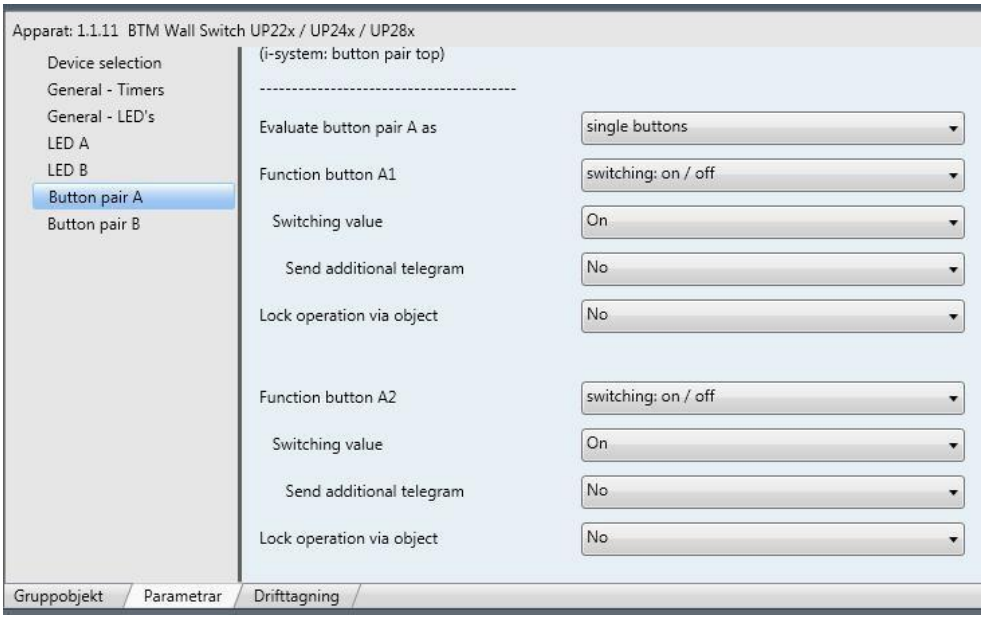


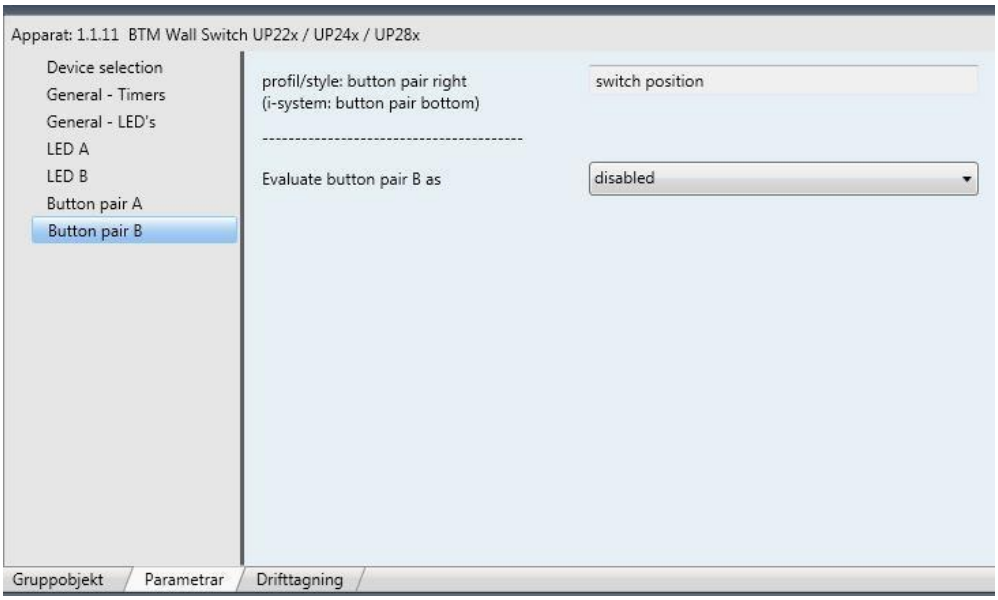
Nu ska vi paramentera tryckknapp 1.1.11 enligt nedan:



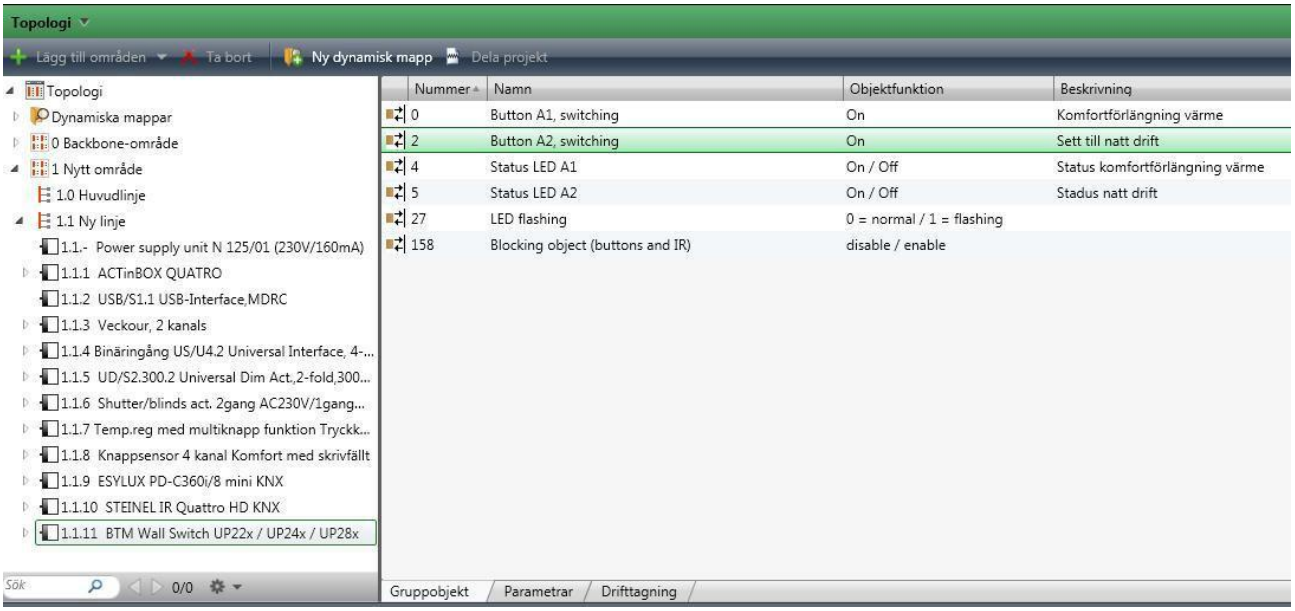

Apparat: 1.1.11 BTM Wall Switch UP22x / UP24x / UP28x
Device selection
General - Timers
General - LED's
LED A
LED B
Button pair A
Button pair B
profil/style: LED left, top
i-system: LED top, left
LED position
LED display
Status object
Behaviour of LED when ON (1)
On
Behaviour of LED when OFF (0)
Off
Short flashing of LED when LED is dark
No
profil/style: LED left, bottom
i-system: LED top, right
LED position
LED display
Status object
Behaviour of LED when ON (1)
On
Behaviour of LED when OFF (0)
Off
Short flashing of LED when LED is dark
No
Gruppobjekt
Parametrar
Drifttagning


Apparat: 1.1.11 BTM Wall Switch UP22x / UP24x / UP28x
Device selection
General - Timers
General - LED's
LED A
LED B
Button pair A
Button pair B
profil/style: LED right, top
i-system: LED bottom, left
LED position
LED display
Off
Short flashing of LED when LED is dark
No
profil/style: LED right, bottom
i-system: LED bottom, right
LED position
LED display
Off
Short flashing of LED when LED is dark
No
Gruppobjekt
Parametrar
Drifttagning

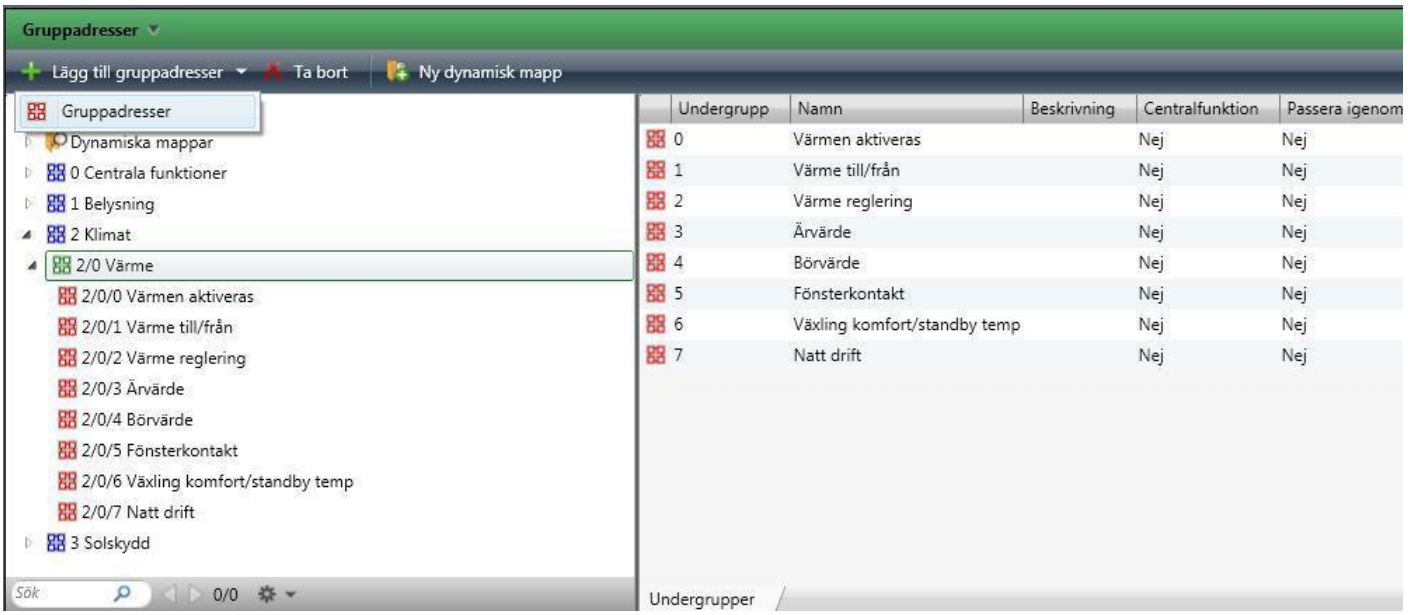

Apparat: 1.1.11 BTM Wall Switch UP22x / UP24x / UP28x
Device selection
General - Timers
General - LED's
LED A
LED B
Button pair A
Button pair B
(i-system: button pair top)
Evaluate button pair A as
single buttons
Function button A1
switching: on / off
Switching value
On
Send additional telegram
No
Lock operation via object
No
Function button A2
switching: on / off
Switching value
On
Send additional telegram
No
Lock operation via object
No
Gruppobjekt
Parametrar
Drifttagning


Apparat: 1.1.11 BTM Wall Switch UP22x / UP24x / UP28x
Device selection
General - Timers
General - LED's
LED A
LED B
Button pair A
Button pair B
profil/style: button pair right
(i-system: button pair bottom)
switch position
Evaluate button pair B as
disabled
Gruppobjekt
Parametrar
Drifttagning

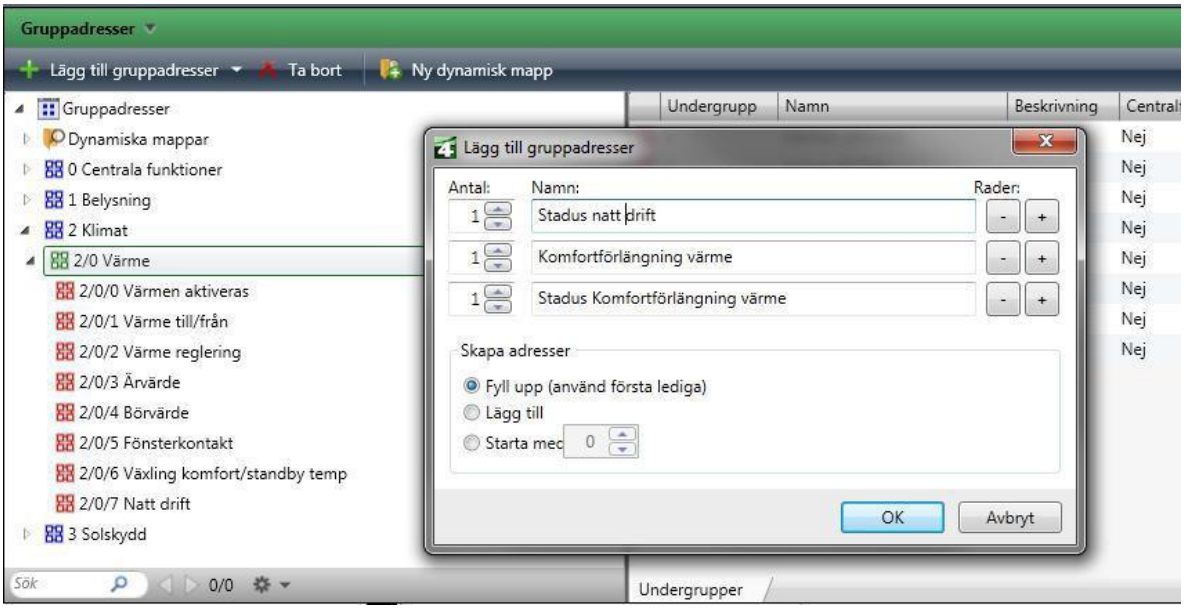
Efter paramenteringen får vi följande objekt på tryckknappen:



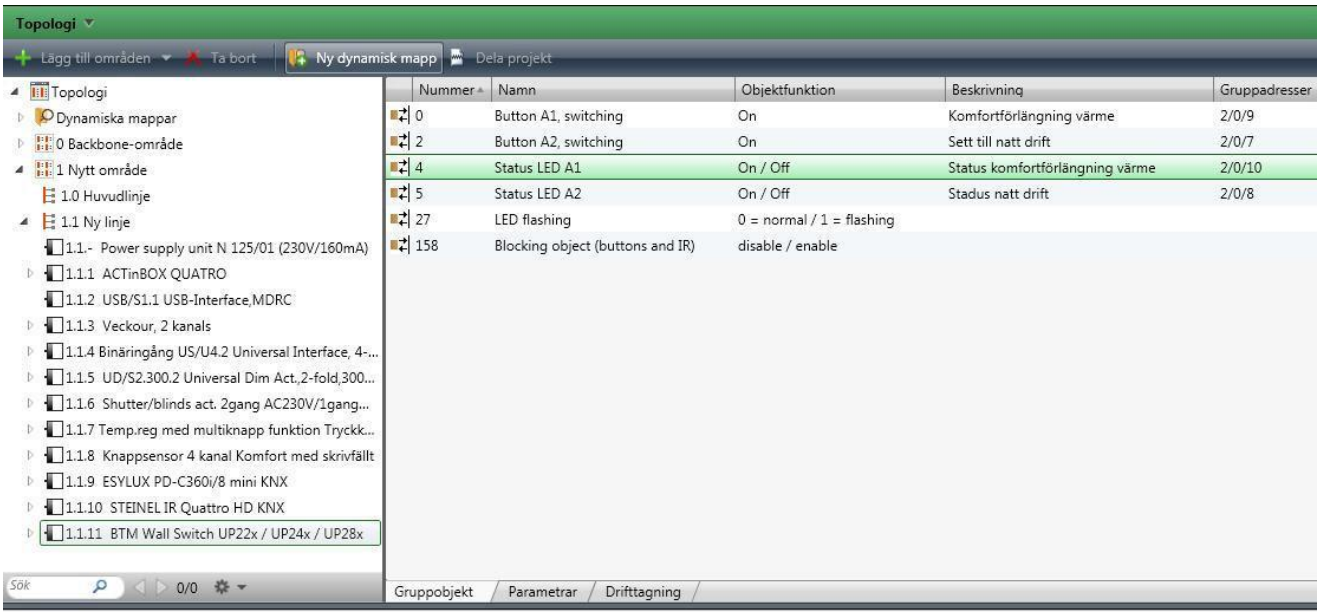
Nu behöver vi skapa några nya gruppadresser för att kunna manövrera med knappen.

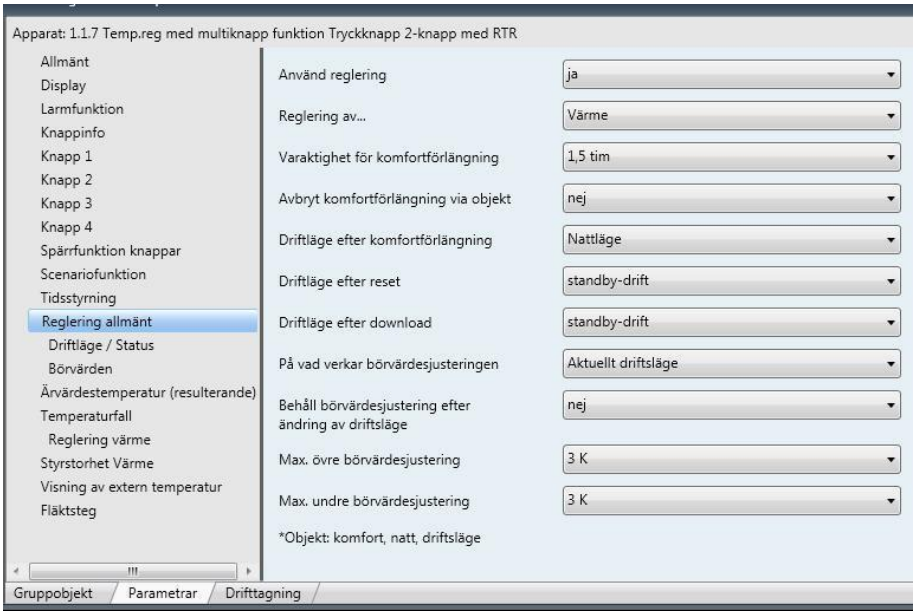


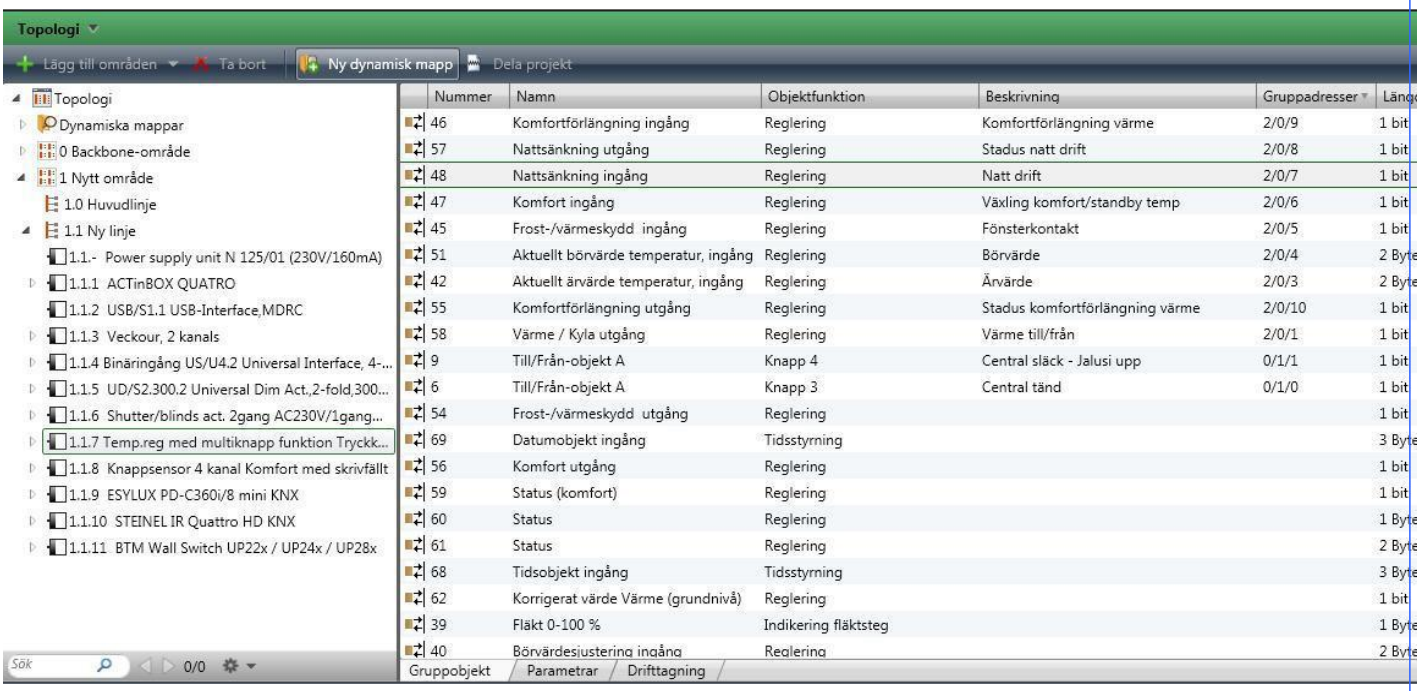
Skapa följande gruppadresser:



Knyt dem till följande objekt:

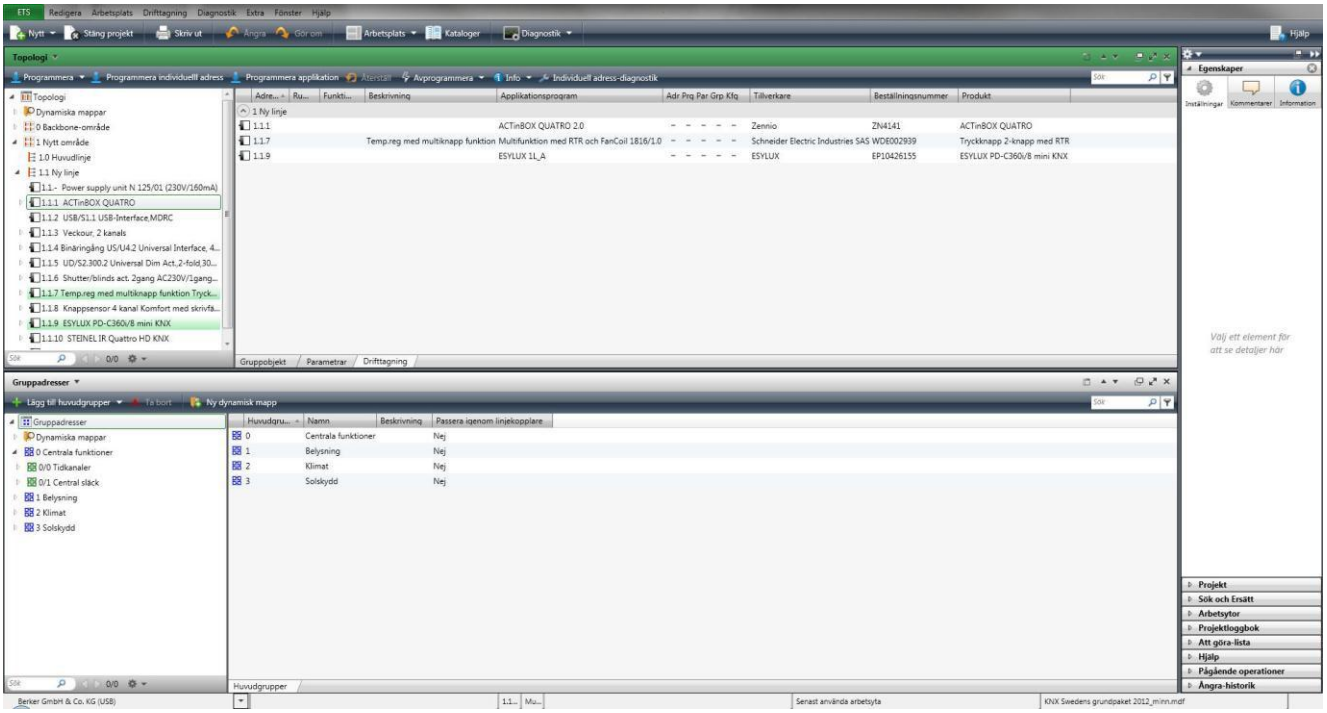



Apparat: 1.1.7 Temp.reg med multiknapp funktion Tryckknapp 2-knapp med RTR
Allmänt
Display
Larmfunktion
Knappinfo
Knapp 1
Knapp 2
Knapp 3
Knapp 4
Spärrfunktion knappar
Scenariofunktion
Tidsstyrning
Reglering allmänt
Driftläge / Status
Börvärden
Ärvärdestemperatur (resulterande)
Temperaturfall
Reglering värme
Styrstorhet Värme
Visning av extern temperatur
Fläktsteg
Använd reglering
ja
Reglering av...
Värme
Varaktighet för komfortförlängning
1,5 tim
Avbryt komfortförlängning via objekt
nej
Driftläge efter komfortförlängning
Nattläge
Driftläge efter reset
standby-drift
Driftläge efter download
standby-drift
På vad verkar börvärdesjusteringen
Aktuellt driftsläge
Behåll börvärdesjustering efter ändring av driftsläge
nej
Max. övre börvärdesjustering
3 K
Max. undre börvärdesjustering
3 K
*Objekt: komfort, natt, driftsläge
Gruppobjekt
Parametrar
Drifttagning


Topologi
Lägg till områden
Ta bort
Ny dynamisk mapp
Dela projekt
Topologi
Dynamiska mappar
0 Backbone-område
1 Nytt område
1.0 Huvudlinje
1.1 Ny linje
1.1.- Power supply unit N 125/01 (230V/160mA)
1.1.1 ACTinBOX QUATRO
1.1.2 USB/S1.1 USB-Interface,MDRC
1.1.3 Veckour, 2 kanals
1.1.4 Binäringång US/U4.2 Universal Interface, 4-...
1.1.5 UD/S2.300.2 Universal Dim Act.,2-fold,300...
1.1.6 Shutter/blinds act. 2gang AC230V/1gang...
1.1.7 Temp.reg med multiknapp funktion Tryckk...
1.1.8 Knappsensor 4 kanal Komfort med skrivfällt
1.1.9 ESYLUX PD-C360i/8 mini KNX
1.1.10 STEINEL IR Quattro HD KNX
1.1.11 BTM Wall Switch UP22x / UP24x / UP28x
Sök
0/0
Nummer | Namn | Objektfunktion | Beskrivning | Gruppadresser | Längd
46 | Komfortförlängning ingång | Reglering | Komfortförlängning värme | 2/0/9 | 1 bit
57 | Nattsänkning utgång | Reglering | Stadus natt drift | 2/0/8 | 1 bit
48 | Nattsänkning ingång | Reglering | Natt drift | 2/0/7 | 1 bit
47 | Komfort ingång | Reglering | Växling komfort/standby temp | 2/0/6 | 1 bit
45 | Frost-/värmeskydd ingång | Reglering | Fönsterkontakt | 2/0/5 | 1 bit
51 | Aktuellt börvärde temperatur, ingång | Reglering | Börvärde | 2/0/4 | 2 Byte
42 | Aktuellt ärvärde temperatur, ingång | Reglering | Ärvärde | 2/0/3 | 2 Byte
55 | Komfortförlängning utgång | Reglering | Stadus komfortförlängning värme | 2/0/10 | 1 bit
58 | Värme / Kyla utgång | Reglering | Värme till/från | 2/0/1 | 1 bit
9 | Till/Från-objekt A | Knapp 4 | Central släck - Jalusi upp | 0/1/1 | 1 bit
6 | Till/Från-objekt A | Knapp 3 | Central tänd | 0/1/0 | 1 bit
54 | Frost-/värmeskydd utgång | Reglering | | | 1 bit
69 | Datumobjekt ingång | Tidsstyrning | | | 3 Byte
56 | Komfort utgång | Reglering | | | 1 bit
59 | Status (komfort) | Reglering | | | 1 bit
60 | Status | Reglering | | | 1 Byte
61 | Status | Reglering | | | 2 Byte
68 | Tidsobjekt ingång | Tidsstyrning | | | 3 Byte
62 | Korrigerat värde Värme (grundnivå) | Reglering | | | 1 bit
39 | Fläkt 0-100 % | Indikering fläktsteg | | | 1 Byte
40 | Börvärdesjustering ingång | Reglering | | | 2 Byte
Gruppobjekt
Parametrar
Drifttagning

För att vi skall kunna avläsa och se hur temp.reg. arbetar använder vi kanal 3 på brytaktorn där vi ansluter vår gruppadress värme till/från 2/0/1.
Nu förbinder vi gruppadresserna till sina objekt på närvarodetektorn & temp.reg och brytaktorn.

Gör nu programmering av dessa deltagare precis som i tidigare övningar.



Öppna busmonitorn, där kan du se hur gruppadresserna skickas från de olika deltagarna.

Testa och av prova denna funktion.

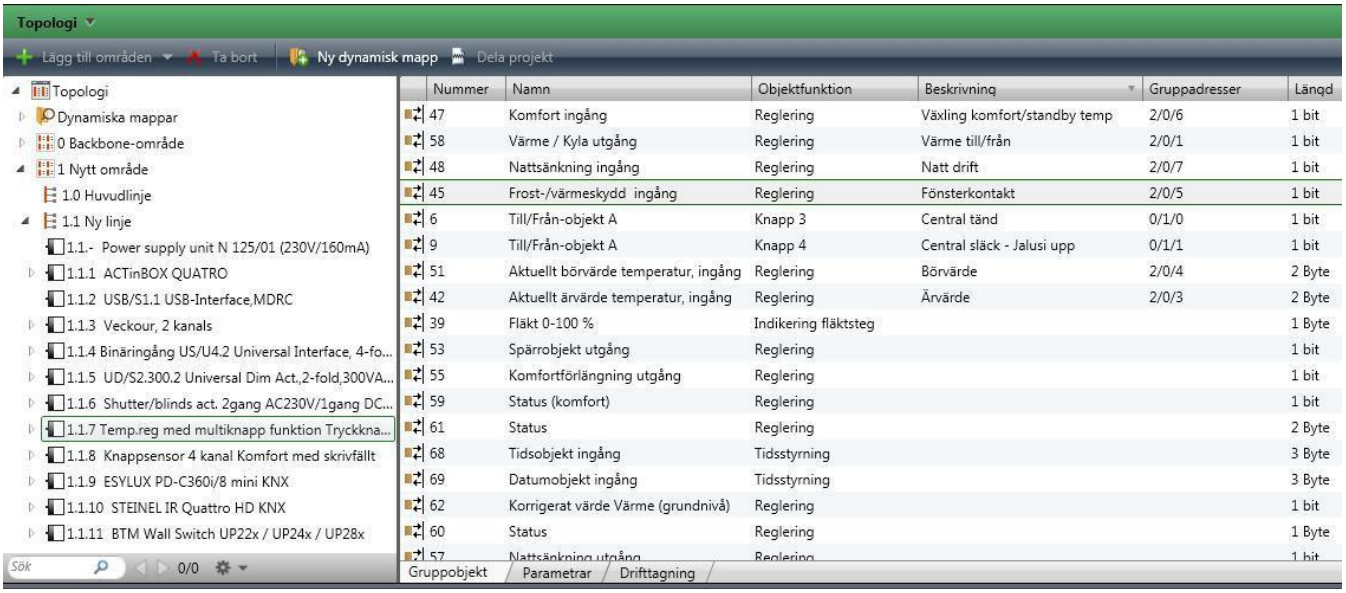
Övning 11: Energispara med kontroll över öppet/stängt fönster.

Vi skall i denna övning fortsätta på övning 10 med det tillägget att stänga av värmen då vi öppnar ett fönster. Vilket innebär att vi ändra vårt börvärde till 7C° men inte lägre för att skydda mot frysning av värme systemet.

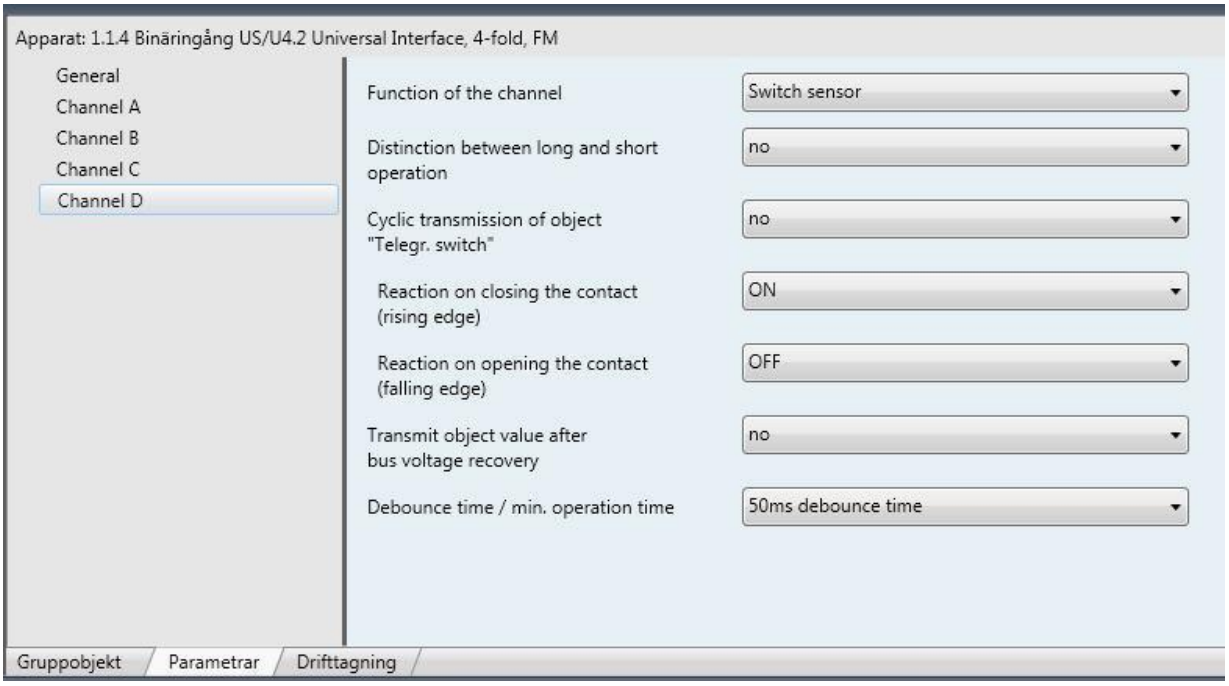
Produkter som vi använder i denna övning:

- Trycknapp 2-pol konv. (för simulering av fönsterkontakt)
- US/U4.2 Universal-Schnittstelle, 1.1.4
- Tryckknapp 2-knapp med RTR, 1.1.7
- Brytaktorn ACTinBOX QUATRO, 1.1.1 (för att visa värmereglering via en signallampa)

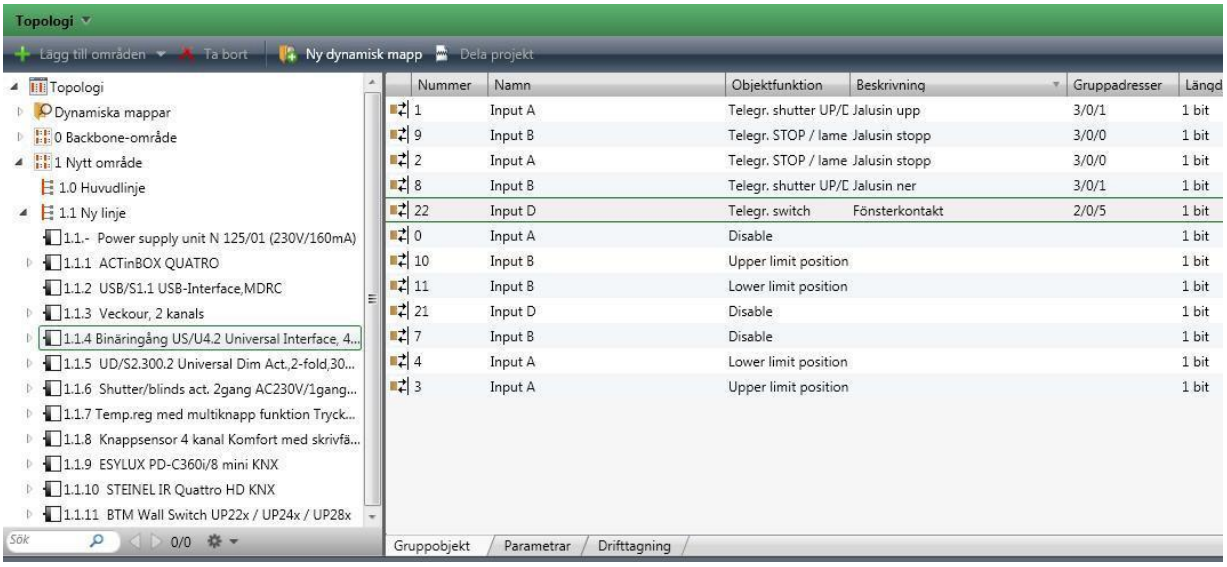
Vi börjar med att ansluta en gruppadress till kommunikationsobjektet fönsterrkontakt:



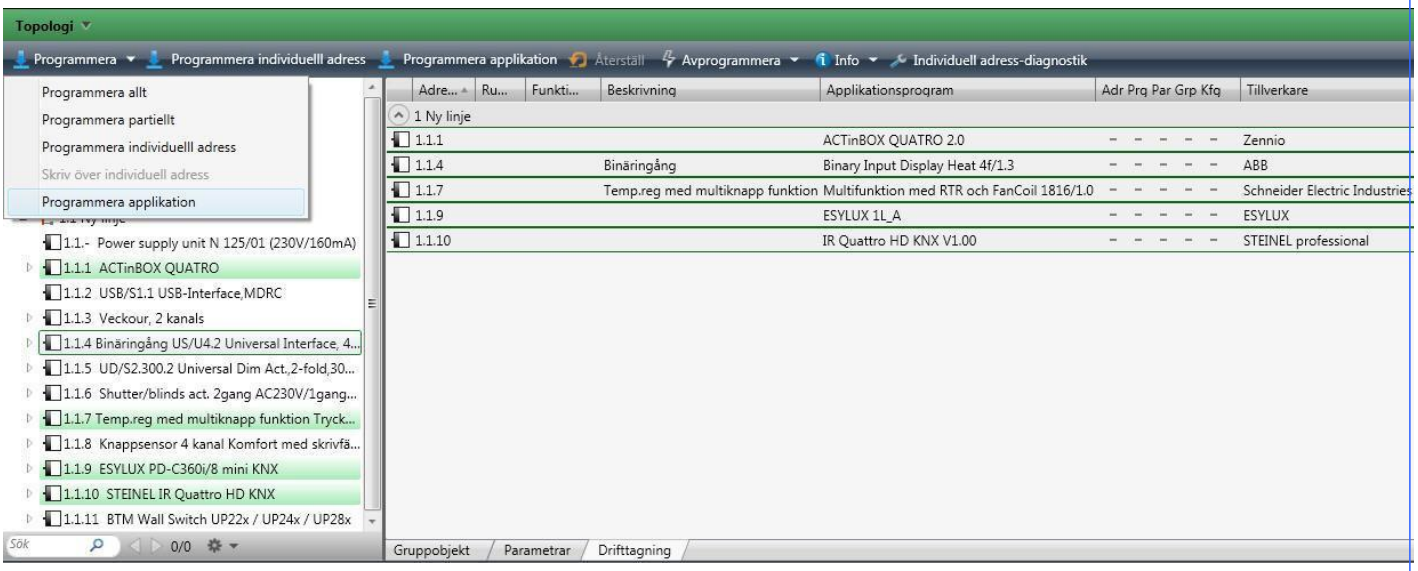
Då vi inte ha en fönsterkontakt skall vi göra en simulering med hjälp av de deltagarna som vi har tillgång till i vårt paket.
Den två-poliga trycknappen och binäringången skall vi använda för att skapa en ”fönsterkontakt”.
Binäringångens kanal D ställer vi in följande parametrar:



Och gruppadressen som vi ansluter till binärutgången är samma som vi anslöt till temp.reg. fönster status
Alltså 2/0/5



Programmera nu samtliga deltagare som du har förändrat från övning 10.



Testa nu och avprova denna funktion ihop med den i övning 10.
Observera att du måste kanske kyla ner eller värma upp temp.reg. för att du skall kunna läsa ut hur din funktion är gjord.
Det kan se ut som på denna inspelning som vi gjorde för att pröva funktionen:
Du kan se hur börvärdes temperaturen förändras av att du öppnar fönstret, den växlar då till 7C° och vid stängt fönster till 22C° eller 20C° beroende på om närvarodetektorn är påverkad av att det är folk i rummet.

Övning 12: Scenario

Scenario funktionen används då ett antal armaturer eller armaturgrupper skall tändas samtidigt på olika belysningsnivåer och eller tänd/släck samt projektor duk upp/ner. Med scenario skapas varierande miljöer med hjälp av belysning.
Exempelvis miljöer för ”välkommen hem, Tv-tittande, filmvisning, vinprovning m.m.” Med andra ord en mycket användbar funktion för att öka sin komfort. Det finns två olika tillvägagångssätt när det gäller att skapa scenarios, vi ska testa båda, därför har övning 12 både A och B uppgift.

a) Denna övning bygger på att man använder sig av en scenariomodul i tryckknappen.
b) Denna övning bygger på att scenerna är lagrade i aktorerna.

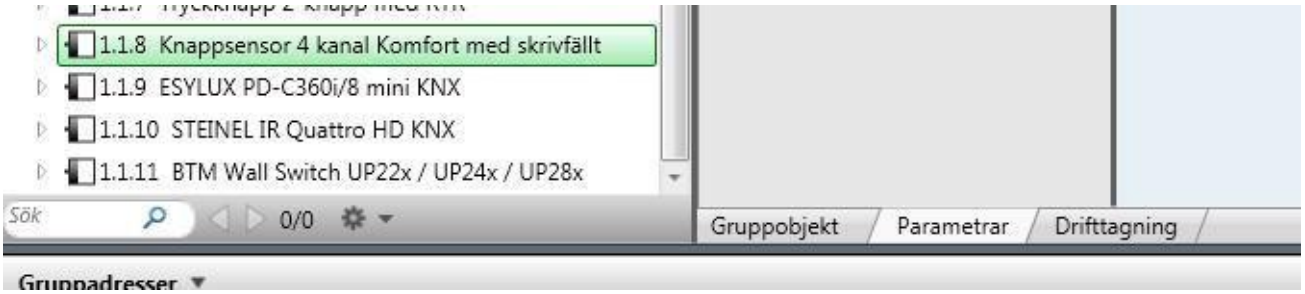
12 a)

Vi har tidigare skapat en tänd/släck + dimmer funktioner för lampa 1, 2, 3.
Vi skall nu lägga till två scenarier på samma lampor + lampa 4.

Produkter som vi använder i denna övning:

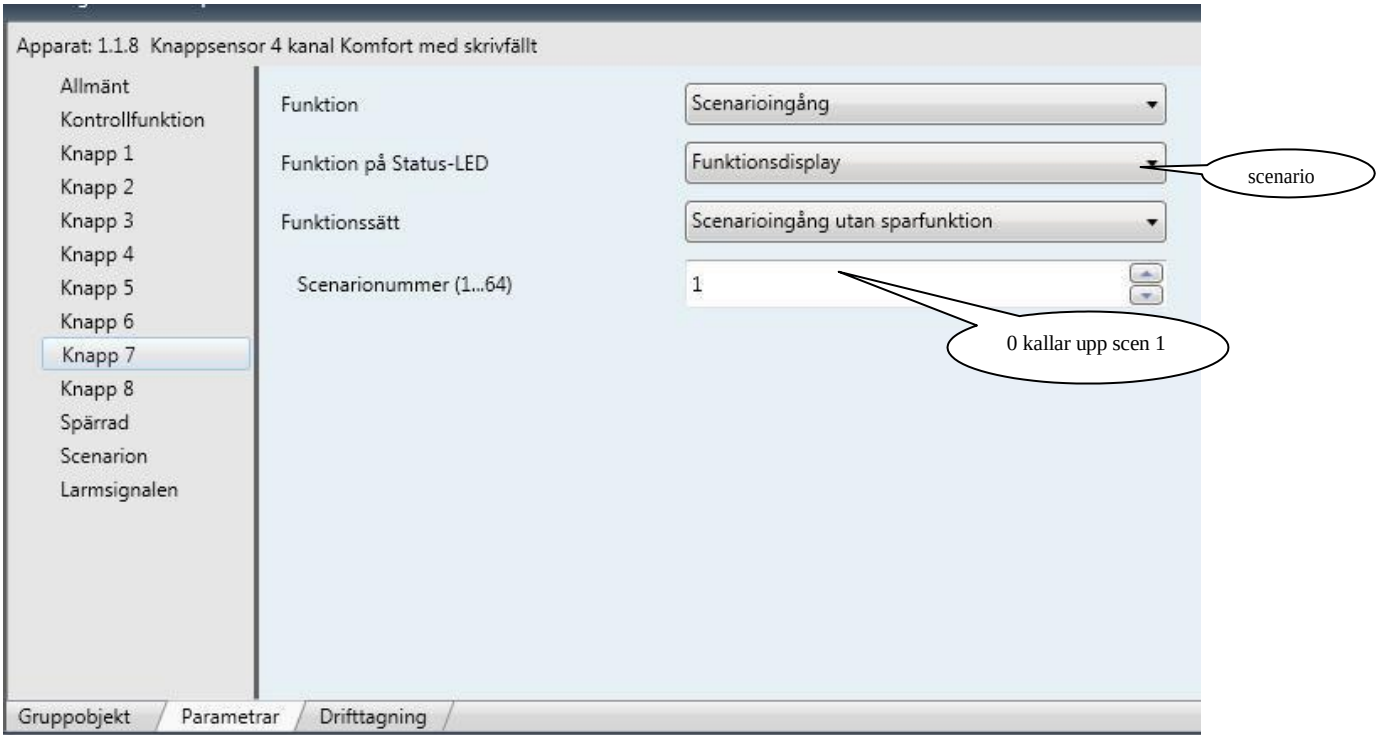
- Knappsensor 4 kanal 8-vippor (1.1.8) tryckknapp 7 & 8
- Universal Dimmeraktor 2-kanal (1.1.5)
- ACTinBOX QUATRO Brytaktor 4-kanal (1.1.1)

Vi har redan ställt in parametrarna på tänd- och släckfunktion genom att markerat produkten och klicka på fliken ”Parametrar” nu gör vi det igen.

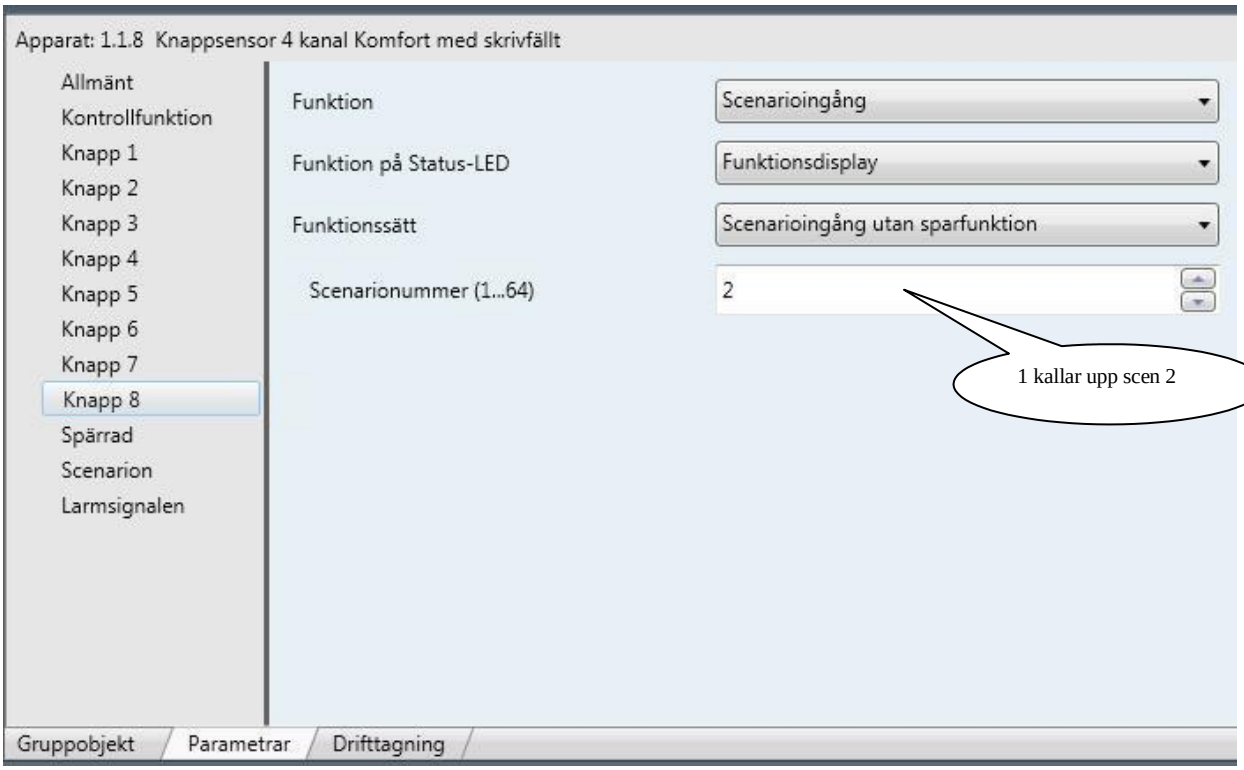


I denna övning skall trycknapparna 7 & 8 ställas in med följande parameter inställning.

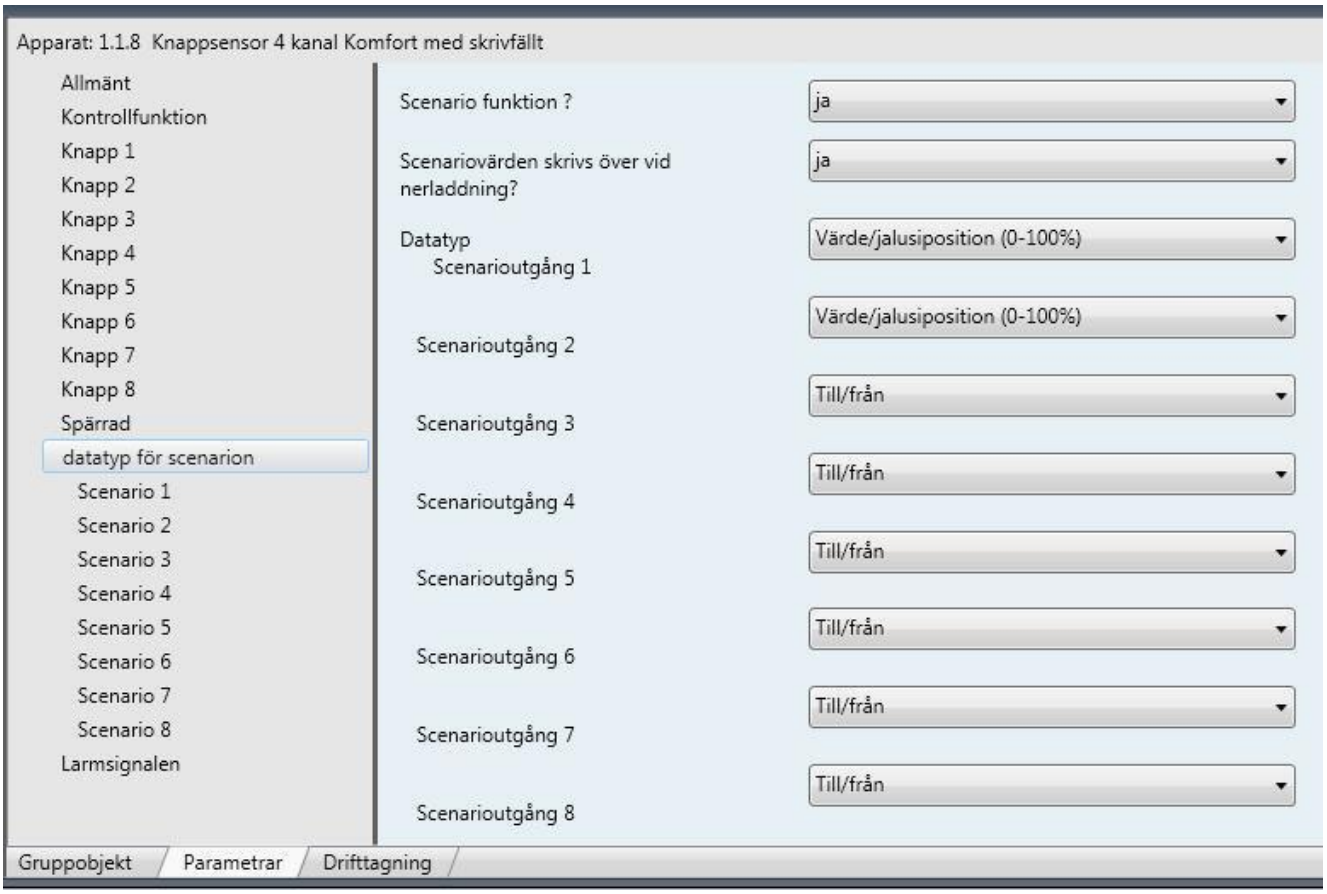
Knapp 7 skall kalla upp scen 1



Knapp 8 skall kalla upp scen 2

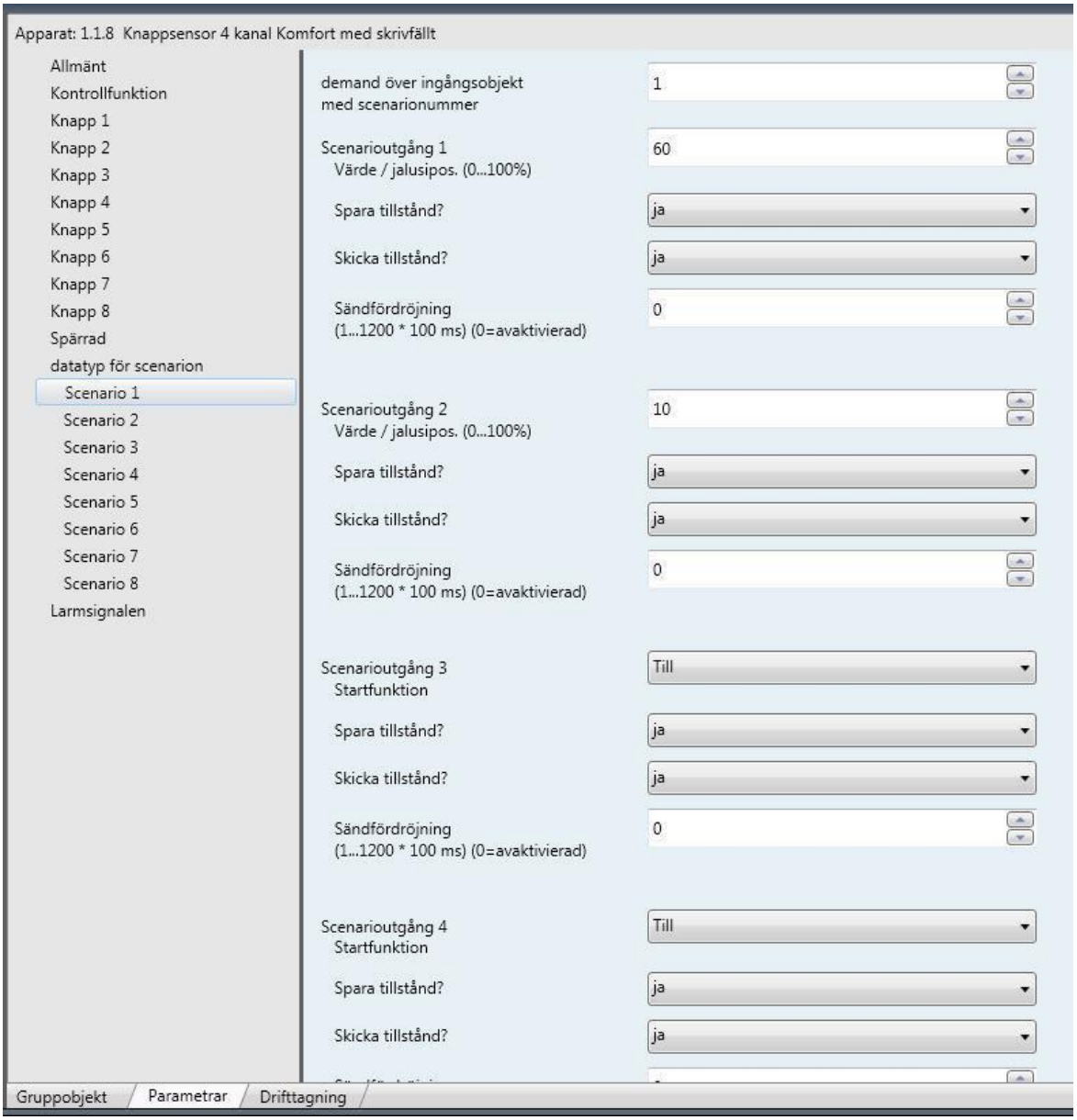


När båda knapparnas funktioner är inställda skall de två scenerna ställas in. Nu skall vi bestämma på vilken belysningsnivå, och de armaturer som inte är dimmbara, skall vara till/från.



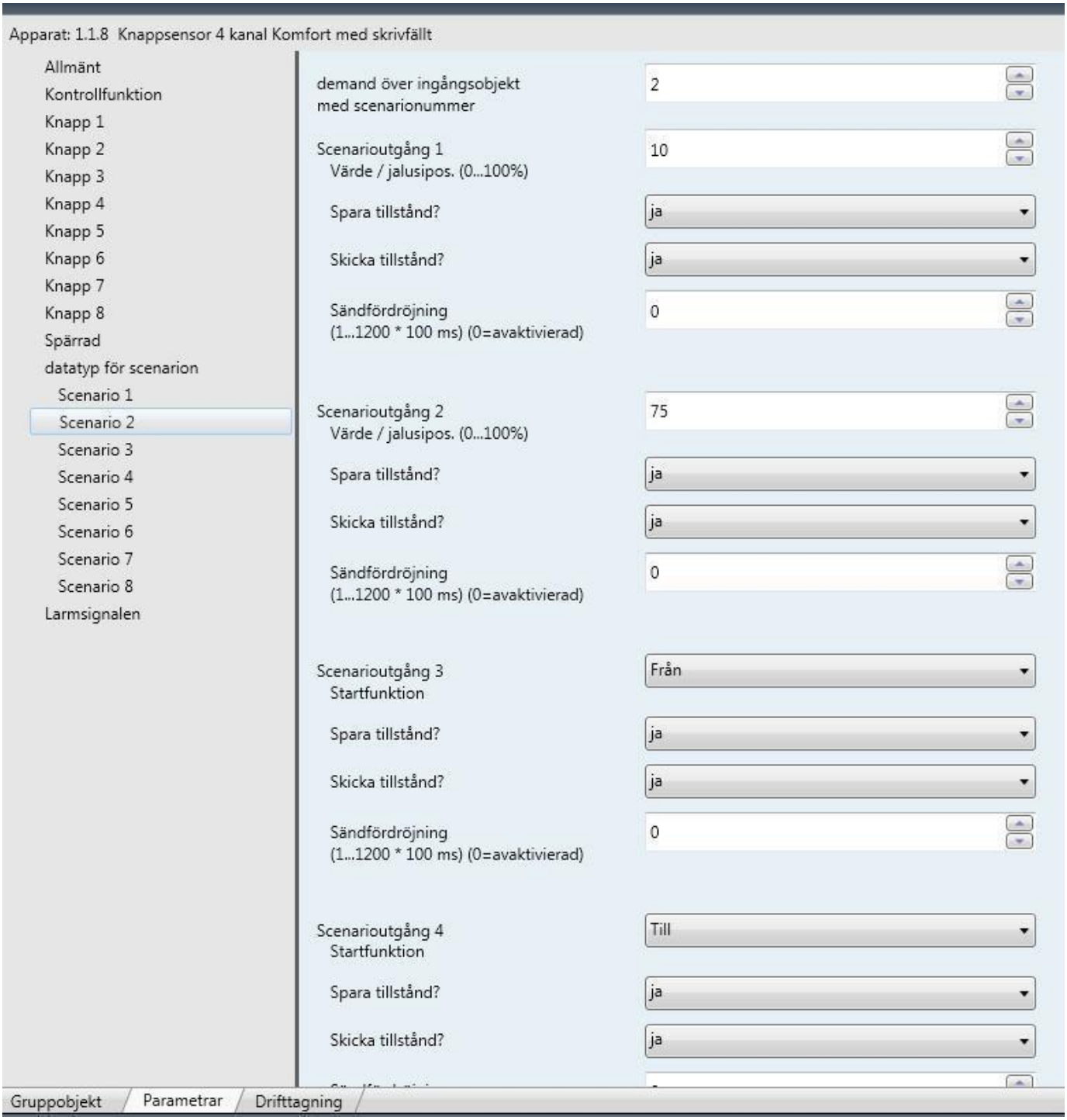
Vi ställer in parametrarna för aktorgrupperna 1,2,3.
För att styra i dimmer nivåer använd inställningen 8bit (1byte) i steg och för den lampa som är ansluten till brytaktorn ställer vin till/från objekt (1bit).

Scen 1



Detta är inställningen för de olika aktorgrupperna i scen 1. Som du ser använder vi bara de tre första grupperna.

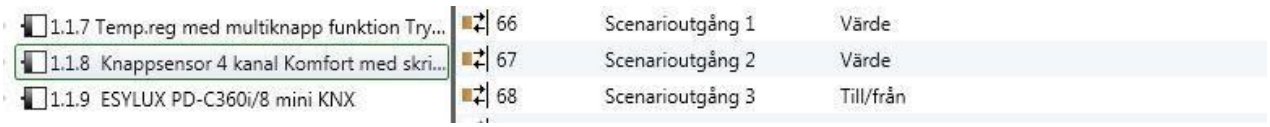
Scen 2


Apparat: 1.1.8 Knappsensor 4 kanal Komfort med skrivfällt
Allmänt
Kontrollfunktion
Knapp 1
Knapp 2
Knapp 3
Knapp 4
Knapp 5
Knapp 6
Knapp 7
Knapp 8
Spärrad
datatyp för scenarion
Scenario 1
Scenario 2
Scenario 3
Scenario 4
Scenario 5
Scenario 6
Scenario 7
Scenario 8
Larmsignalen
demand över ingångsobjekt med scenarionummer
2
Scenarioutgång 1 Värde / jalusipos. (0...100%)
10
Spara tillstånd?
ja
Skicka tillstånd?
ja
Sändfördröjning (1...1200 * 100 ms) (0=avaktivierad)
0
Scenarioutgång 2 Värde / jalusipos. (0...100%)
75
Spara tillstånd?
ja
Skicka tillstånd?
ja
Sändfördröjning (1...1200 * 100 ms) (0=avaktivierad)
0
Scenarioutgång 3 Startfunktion
Från
Spara tillstånd?
ja
Skicka tillstånd?
ja
Sändfördröjning (1...1200 * 100 ms) (0=avaktivierad)
0
Scenarioutgång 4 Startfunktion
Till
Spara tillstånd?
ja
Skicka tillstånd?
ja
Gruppobjekt
Parametrar
Drifttagning

Nu har vi gjort multifunktions knappen klar för scenario funktion på knapparna 7&8.

De kommunikationsobjekt som vi nu har är för knapp 7&8 är ”1byte” för att sända ett scen värde. Som du kan se på tidigare bild så skall knapp 7 kalla upp scen 1 och knappen 8 scen 2.

Kommunikationsobjekt 66,67 och 68 är de tre aktorutgångar där vi skall ansluta gruppadresserna till dimmeraktorn och brytaktorn där lamporna är anslutna.



Vi har skapat de gruppadresser som behövs och förbundit dem med multi-knappen och aktorerna enligt bilden:

Nummer	Namn	Objektfunktion	Beskrivning	Gruppadresser	Längd
1.1.1 ACTinBOX QUATRO					
97	[O2] ON/OFF	N.O. (0=Open Relay; 1=Close)	Värme till/från (signallampa)	2/0/1	1 bit
99	[O4] ON/OFF	N.O. (0=Open Relay; 1=Close)	Lapma 4	1/0/2 0/1/0 0/1/1	1 bit
103	[O4] Status	0=Output OFF; 1=Output ON			1 bit
105	[O2] Block	1=Block; 0=Unblock			1 bit
101	[O2] Status	0=Output OFF; 1=Output ON			1 bit
1	Scenes (Shutter Channels)	0-63(Run 1-64); 128-191(Learn)			1 Byte
0	Scenes (Individual Outputs)	0-63(Run 1-64); 128-191(Learn)			1 Byte
107	[O4] Block	1=Block; 0=Unblock			1 bit
135	Reset 1	Voltage Recovery->Sending of 1			1 bit
134	Reset 0	Voltage Recovery->Sending of 0			1 bit
111	[O4] Timer	0=to turn OFF; 1=to turn ON		1/0/10	1 bit
1.1.5 UD/S2.300.2 Universal Dim Act.,2-fold,300VA,MDRC					
13	Output A	Brightness value	Värde Lampa 3	1/0/8	1 Byte
38	Output B	Brightness value	Värde Lampa 1&2	1/0/7	1 Byte
10	Output A	Switch	Tänd/släck Lampa 3	1/0/1 0/1/0 0/1/1	1 bit
35	Output B	Switch	Tänd/släck Lampa 1&2	1/0/0 0/1/0 0/1/1	1 bit
12	Output A	Relative dimming	Dim Lampa 3	1/0/5	4 bit
37	Output B	Relative dimming	Dim Lampa 1&2	1/0/4	4 bit
58	Output B	Error signal			1 bit
59	Output B	Status byte			1 Byte
1	General	Excess temperature			1 bit
26	Output A	Duration of staircase lighting			2 Byte

På multi-knappen ser gruppadresserna ut så här:

Nummer	Namn	Objektfunktion	Beskrivning	Gruppadresser	Längd
67	Scenarioutgång 2	Värde	Värde Lampa 2&3	1/0/8	1 Byte
66	Scenarioutgång 1	Värde	Värde Lampa 1	1/0/7	1 Byte
68	Scenarioutgång 3	Till/från	Till/från Lampa 4	1/0/9	1 bit
4	Knapp 5	Till/från	Tidsfördröjning Lampa 4	1/0/10	1 bit
5	Knapp 6	Till/från	Stop tidsfördröjning Lampa 4	1/0/10	1 bit
7	Knapp 8	Scenarioingång	Scenario 2	1/0/6	1 Byte
6	Knapp 7	Scenarioingång	Scenario 1	1/0/6	1 Byte
2	Knapp 3	Till/från	Lampa 3 tänd	1/0/1	1 bit
3	Knapp 4	Till/från	Lampa 3 släck	1/0/1	1 bit
20	Knapp 3	Dimra	Lampa 3 dim upp	1/0/5	4 bit
21	Knapp 4	Dimra	Lampa 3 dim ner	1/0/5	4 bit
0	Knapp 1	Till/från	Lampa 1&2 tänd	1/0/0	1 bit
1	Knapp 2	Till/från	Lampa 1&2 släck	1/0/0	1 bit
18	Knapp 1	Dimra	Lampa 1&2 dim upp	1/0/4	4 bit
19	Knapp 2	Dimra	Lampa 1&2 dim ner	1/0/4	4 bit
70	Scenarioutgång 5	Till/från			1 bit
71	Scenarioutgång 6	Till/från			1 bit
72	Scenarioutgång 7	Till/från			1 bit
74	Scenarion	Extern-ingång		1/0/6	1 Byte
73	Scenarioutgång 8	Till/från			1 bit
69	Scenarioutgång 4	Till/från			1 bit

Gruppobjekt | Parametrar | Drifttagning

Denna tryckknapp innehåller en scenario modul med möjlighet att styra ut 8st aktorgrupper.
Det fungerar så att vid ett tryck på exempelvis knappen nr 7 sänds en gruppadress ”internt” till kommunikationsobjekt nr:29, då skickar scenario modulen ut flera gruppadresser samtidigt till de anslutna aktorerna.

På dimmeraktorn 1.1.5 är scen gruppadresserna anslutna till både kanal A&B på värdeobjektet:

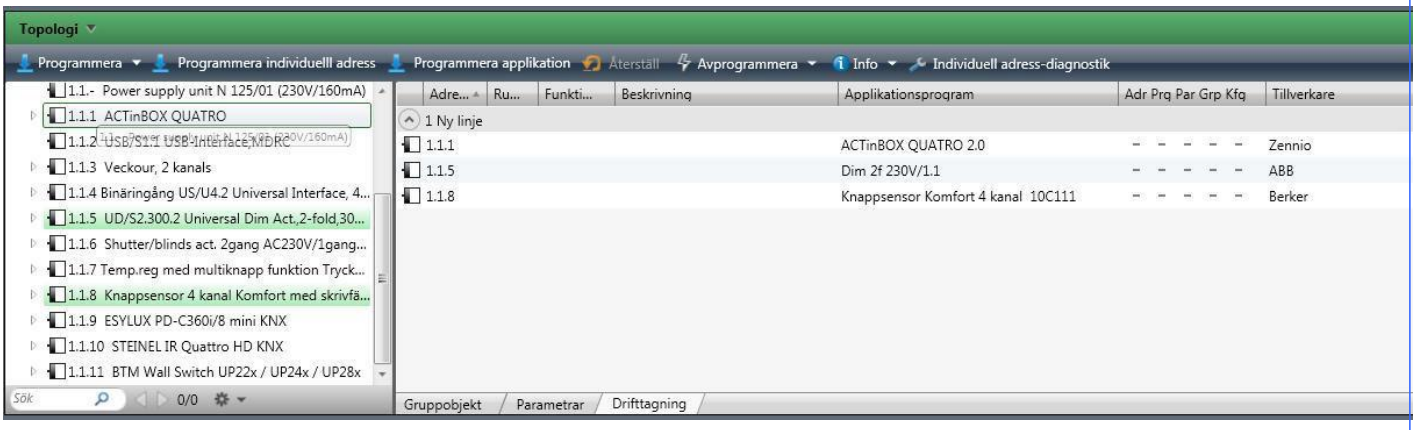
Nummer	Namn	Objektfunktion	Beskrivning	Gruppadresser	Längd
13	Output A	Brightness value	Värde Lampa 3	1/0/8	1 Byte
38	Output B	Brightness value	Värde Lampa 1&2	1/0/7	1 Byte
10	Output A	Switch	Tänd/släck Lampa 3	1/0/1 0/1/0 0/1/1	1 bit
35	Output B	Switch	Tänd/släck Lampa 1&2	1/0/0 0/1/0 0/1/1	1 bit
12	Output A	Relative dimming	Dim Lampa 3	1/0/5	4 bit
37	Output B	Relative dimming	Dim Lampa 1&2	1/0/4	4 bit
27	Output A	Warning staircase lighting			1 bit
50	Output B	Permanent ON			1 bit
52	Output B	Warning staircase lighting			1 bit
58	Output B	Error signal			1 bit

Gruppobjekt / Parametrar / Drifttagning

På brytaktorn 1.1.1 scen gruppadressen ansluten till till/från objektet:

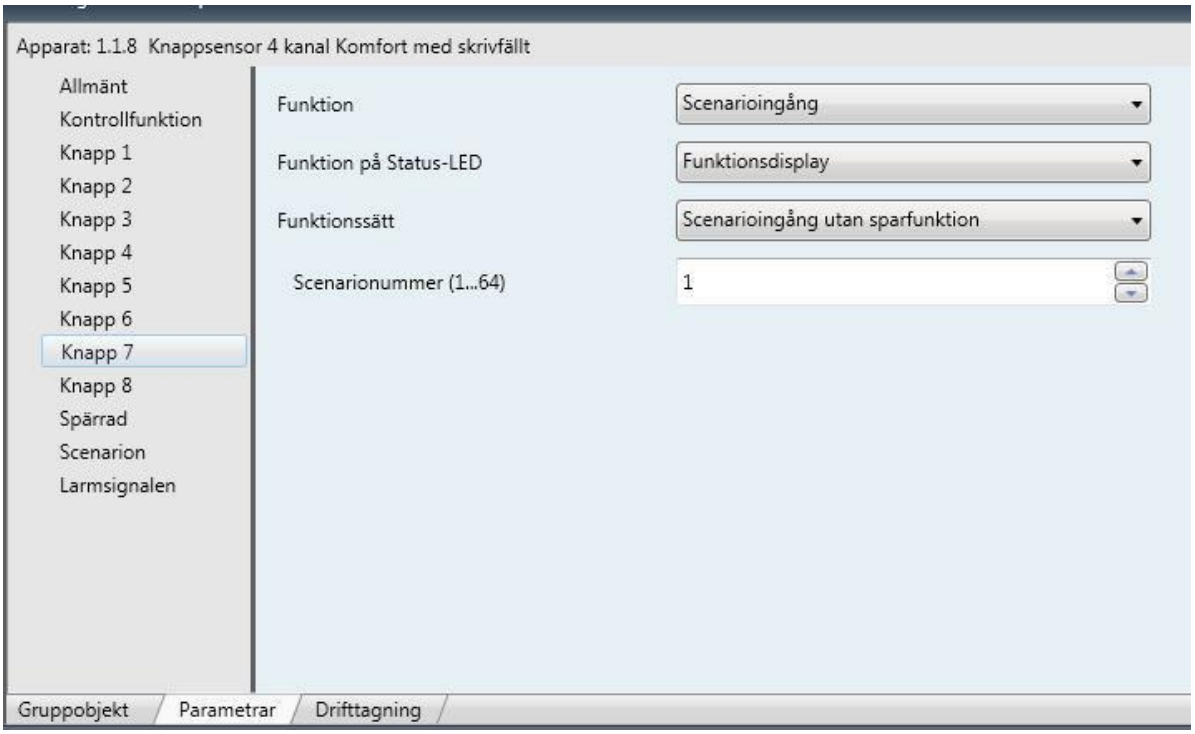
Nummer	Namn	Objektfunktion	Beskrivning	Gruppadresser	Längd
97	[O2] ON/OFF	N.O. (0=Open Relay; 1=Close)	Värme till/från (signallampa)	2/0/1	1 bit
99	[O4] ON/OFF	N.O. (0=Open Relay; 1=Close)	Lapma 4	1/0/2 0/1/0 0/1/1	1 bit
105	[O2] Block	1=Block; 0=Unblock			1 bit
111	[O4] Timer	0=to turn OFF; 1=to turn ON		1/0/10	1 bit
135	Reset 1	Voltage Recovery->Sending of 1			1 bit

Vi är nu klara med parametrar och gruppadresser nu återstår att programmera de komponenter som vi använder i denna scenario funktion. Vi har använt samtliga tidigare så de har redan sina individuella adresser.

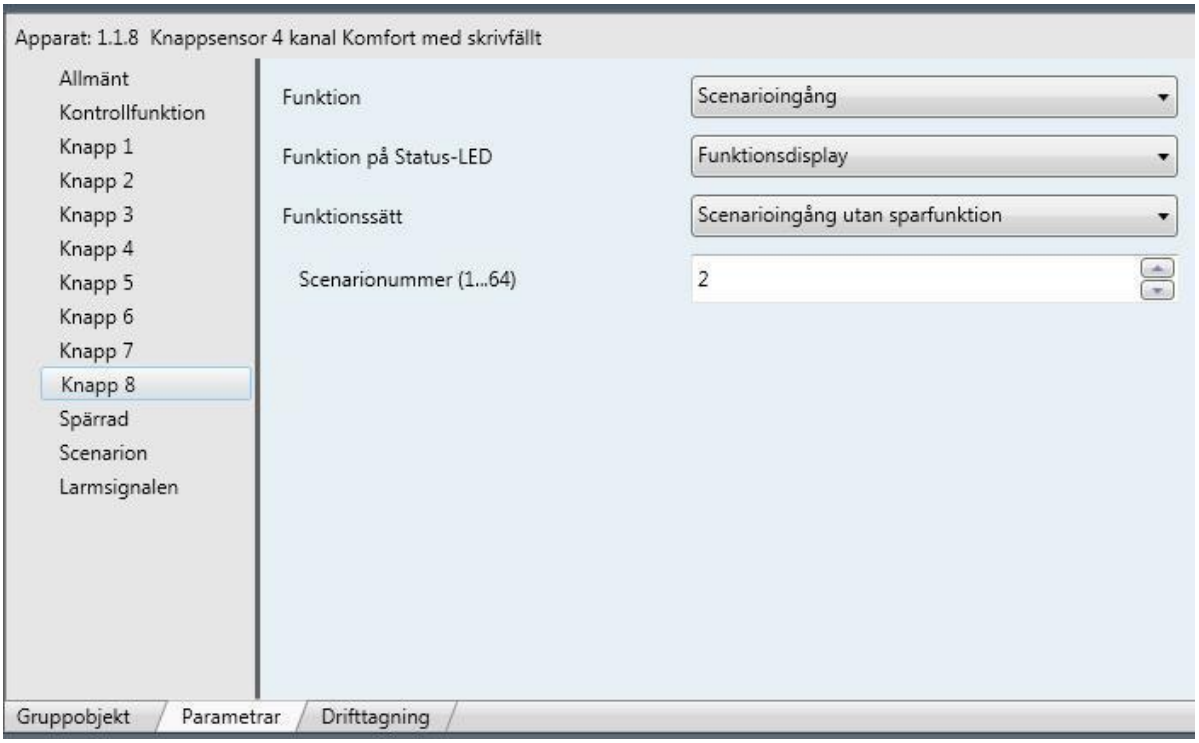


12 b)

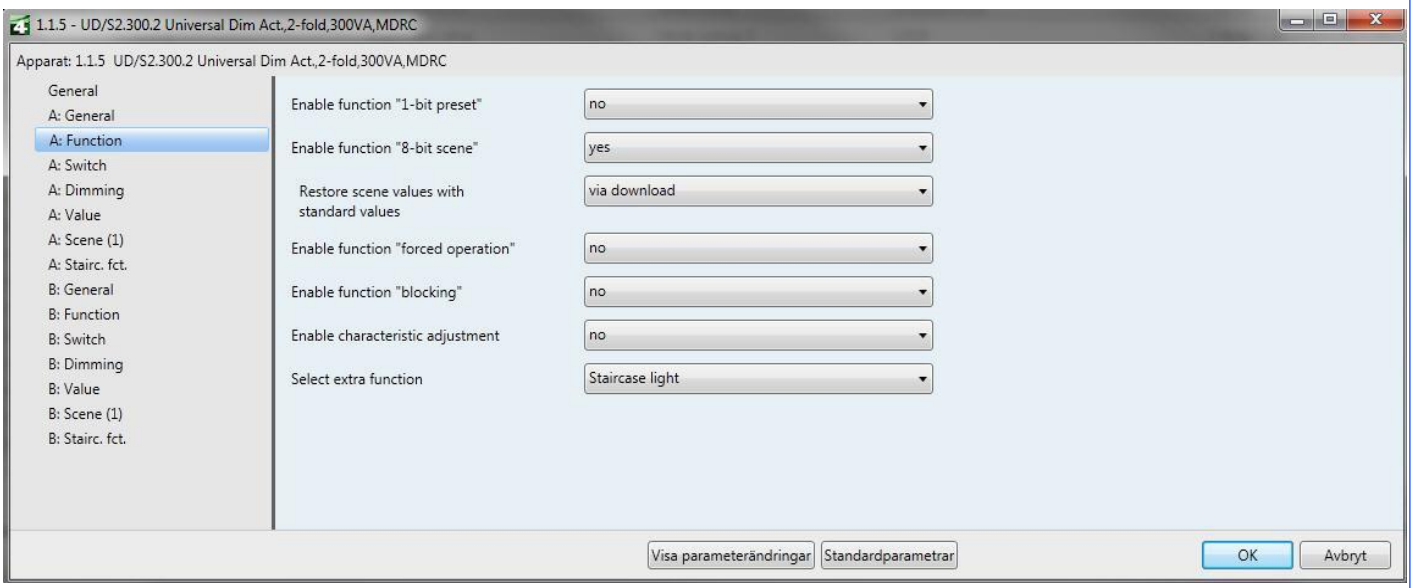
När det gäller knapparna är det ingen skillnad från a:



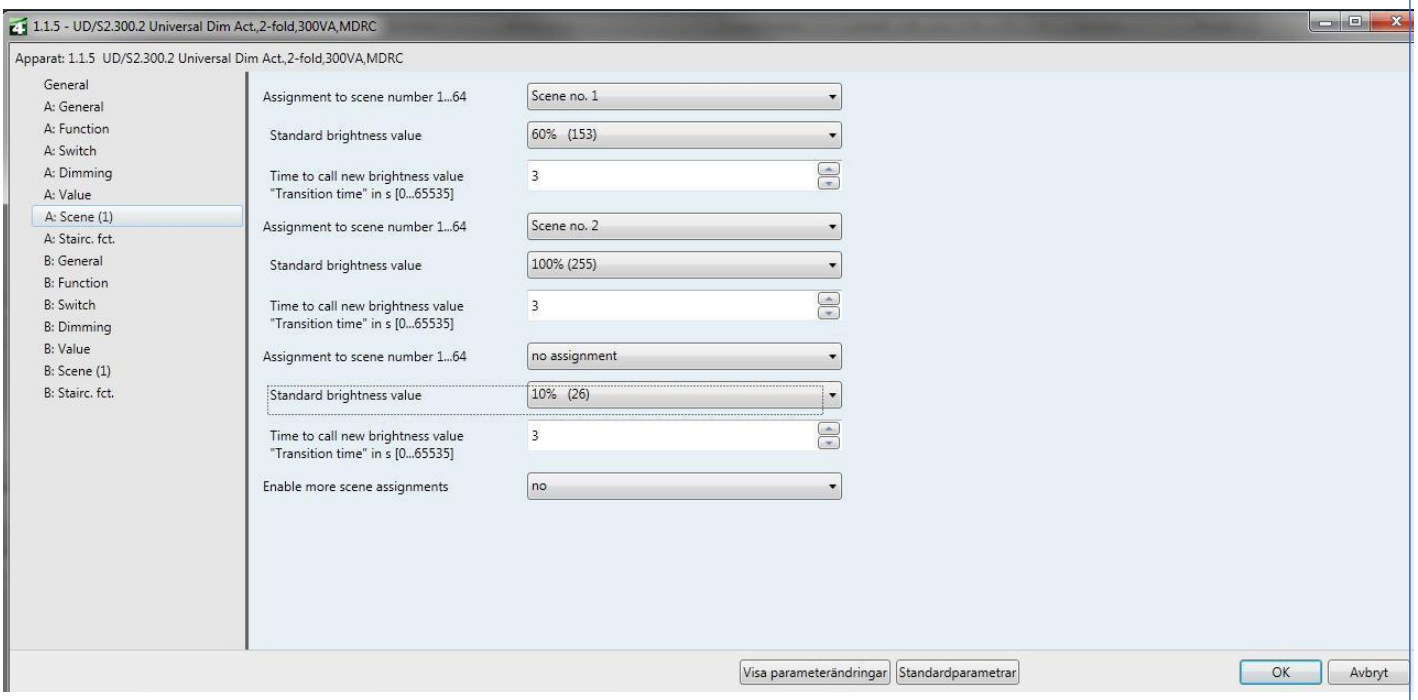
Knapp 8



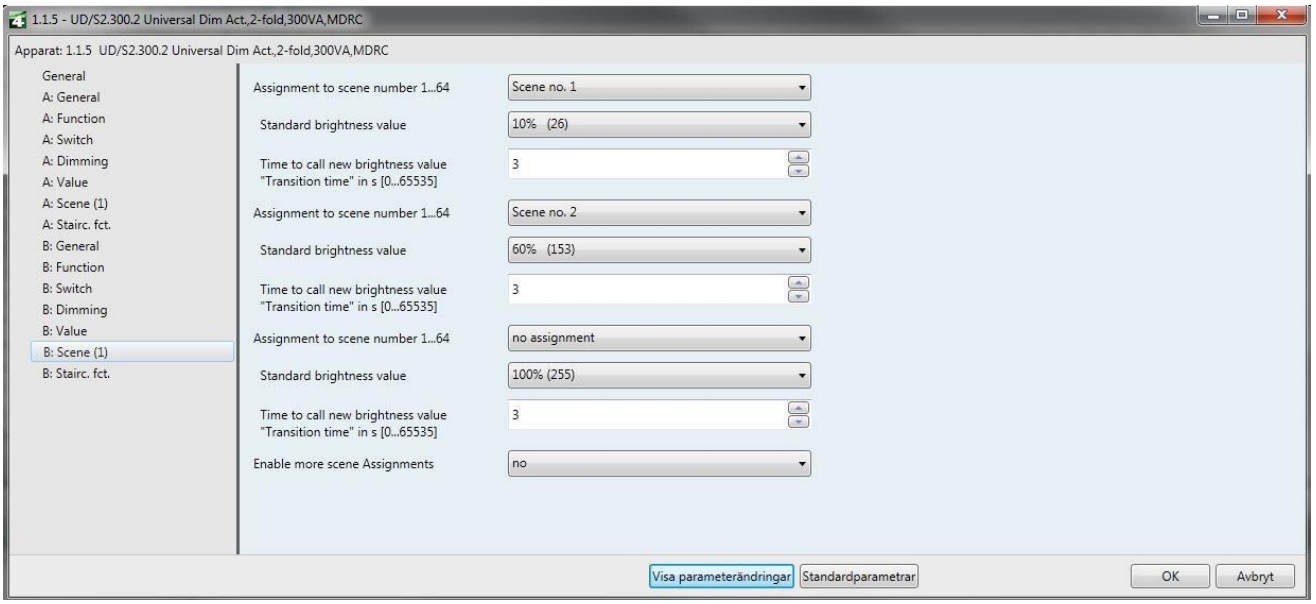
Så istället för att gå in på scenariomodulen i knappen går vi nu till dimmeraktorn och väljer följande parametrar:



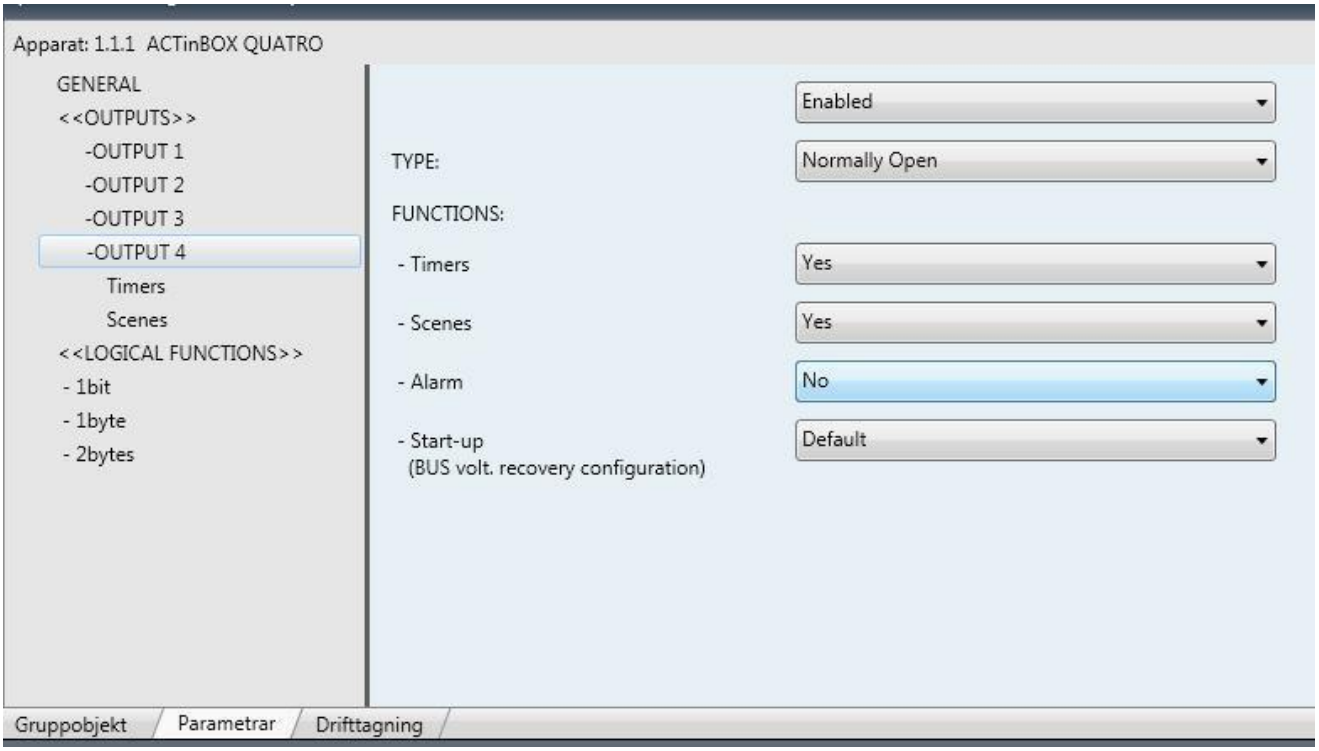
Här ställer vi in hur Kanal A ska bete sig när scen 1 anropas



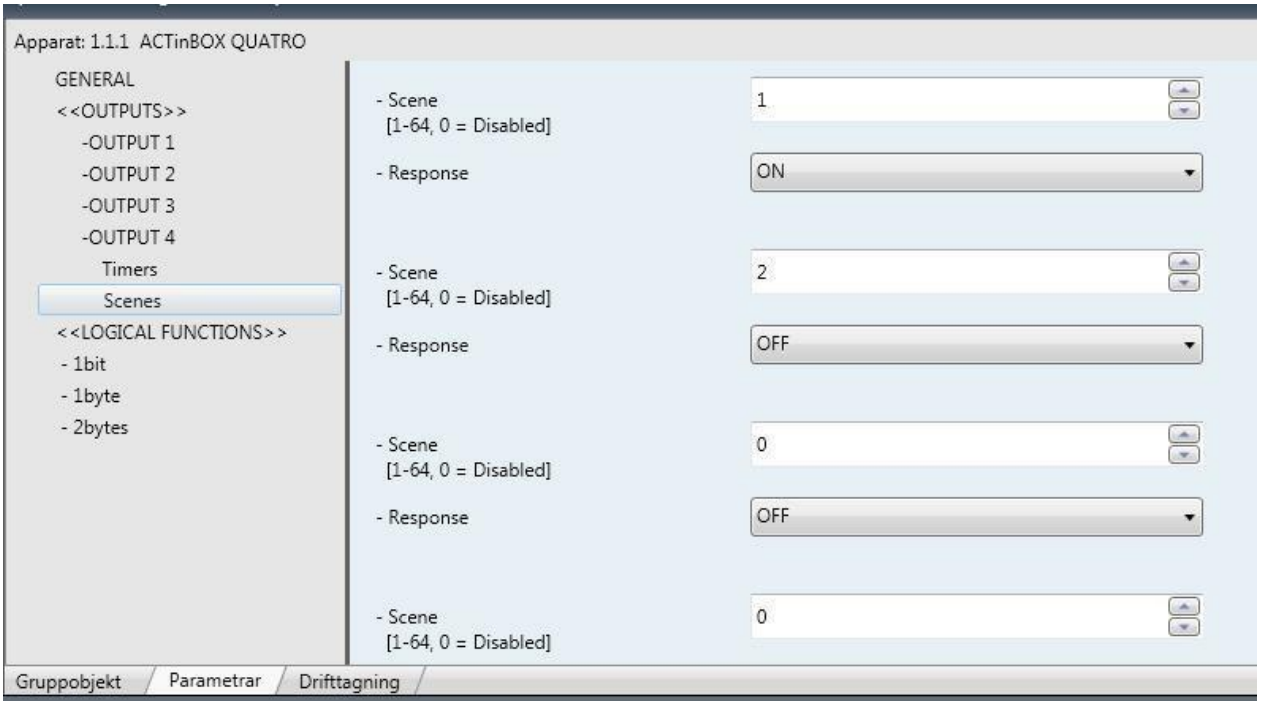
Sedan gör vi likadant för Kanal B



Vi går sedan in på brytaktorn och ställer in följande parameterar:



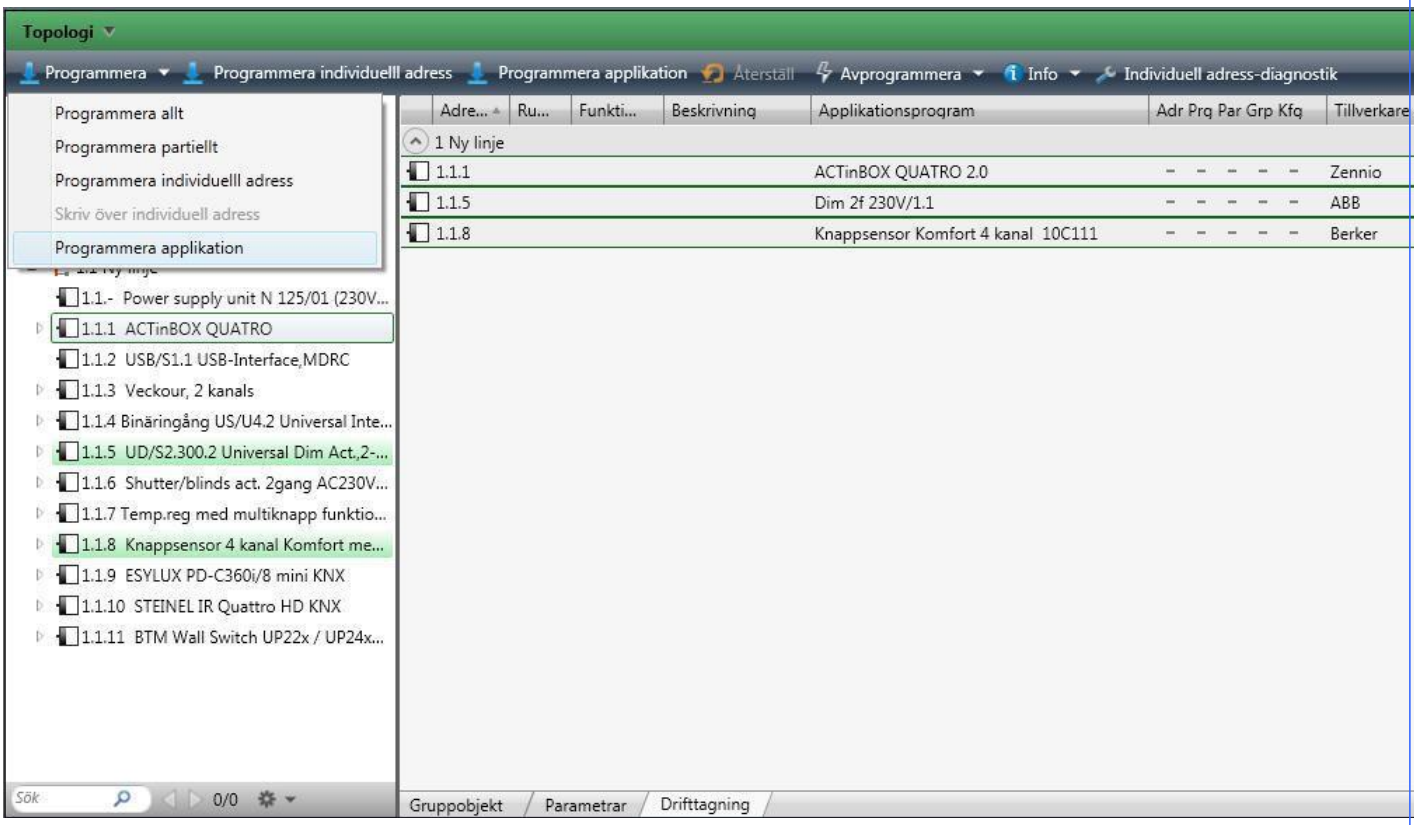
När vi har frigjort ”Scenes” blocket på brytaktorn så gör vi följande parameter inställningar:



Sedan knyter vi ihop gruppadress 1/0/6 med följande objekt på dimmer och brytaktorn:

Nummer	Namn	Objektfunktion	Beskrivning	Gruppadresser	Längd
1.1.1 ACTinBOX QUATRO					
97	[O2] ON/OFF	N.O. (0=Open Relay; 1=Close)	Värme till/från (signallampa)	2/0/1	1 bit
1	Scenes (Shutter Channels)	0-63(Run 1-64); 128-191(Learn)	Kalla Scen	1/0/6	1 Byte
99	[O4] ON/OFF	N.O. (0=Open Relay; 1=Close)	Lapma 4	1/0/2 0/1/0 0/1/1	1 bit
111	[O4] Timer	0=to turn OFF; 1=to turn ON		1/0/10	1 bit
0	Scenes (Individual Outputs)	0-63(Run 1-64); 128-191(Learn)			1 Byte
101	[O2] Status	0=Output OFF; 1=Output ON			1 bit
103	[O4] Status	0=Output OFF; 1=Output ON			1 bit
105	[O2] Block	1=Block; 0=Unblock			1 bit
107	[O4] Block	1=Block; 0=Unblock			1 bit
134	Reset 0	Voltage Recovery->Sending of 0			1 bit
135	Reset 1	Voltage Recovery->Sending of 1			1 bit
1.1.5 UD/S2.300.2 Universal Dim Act.,2-fold,300VA,MDRC					
13	Output A	Brightness value	Värde Lampa 3	1/0/8	1 Byte
38	Output B	Brightness value	Värde Lampa 1&2	1/0/7	1 Byte
21	Output A	8-bit-scene	Kalla scen	1/0/6	1 Byte
46	Output B	8-bit-scene	Kalla scen	1/0/6	1 Byte
12	Output A	Relative dimming	Dim Lampa 3	1/0/5	4 bit
37	Output B	Relative dimming	Dim Lampa 1&2	1/0/4	4 bit
10	Output A	Switch	Tänd/släck Lampa 3	1/0/1 0/1/0 0/1/1	1 bit
35	Output B	Switch	Tänd/släck Lampa 1&2	1/0/0 0/1/0 0/1/1	1 bit

Programmera och testa övning 12 b)



Montage- und Betriebsanleitung
Installation and Operating Instructions
Mode d´emploi
Montage- en bedieningshandleiding
Istruzioni per l´uso
Instrucciones de montaje de servicio
Bruksanvisning för montering och drift

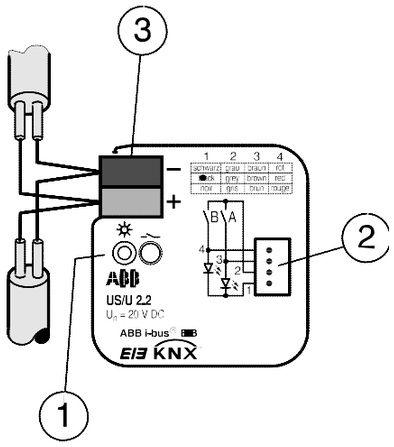
US/U 2.2

Universal-Schnittstelle, 2fach, UP
Universal interface, 2-fold, UP
Interface universelle double, UP
Universele interface, 2-voudig, UP
Interfaccia, 2 vie, universale, UP
Interface universal, 2 vias, UP
Universalgränssnitt, 2polig, UP

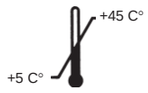
ABB i-bus® EIB

GH Q630 7073 P0002

1



IP20



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D

1

Bedien- und Anzeigeelemente

G) LED (rot) und Taste	zur Eingabe der physikalischen Adresse

Geräte-Anschlüsse

O Ein-/Ausgänge	4 Leitungen ca. 30 cm lang mit Stecker
@ ABB i-bus® EIB	Busanschlussklemme

Geräte-Beschreibung
Das Gerät enthält 2 Kanäle, die als Eingang oder Ausgang durch Auswahl des Anwendungsprogramms mit der ETS2 parametriert werden können. Ca. 30 cm lange Anschlussleitungen mit Stecker dienen zum Anschluss von konventionellen Tastern, potenzialfreien Kontakten oder von Leuchtdioden. Die Kontaktabfragespannung für Kontakte und die Speisespannung für LED werden vom Gerät zur Verfügung gestellt. Im Gerät sind die Vorwiderstände für externe Leuchtdioden integriert. Die Universal-Schnittstelle wird Unterputz in eine Installationsdose ø 55 mm hinter dem Taster eingelegt. Der Busanschluss erfolgt über Busanschlussklemme.

Technische Daten

Stromversorgung	über ABB i-bus® EIB
Ein/Ausgänge	2, parametriebar als Ein- bzw. Ausgang
Zulässige Leitungslänge	max. 10 m
Eingang	
Abfragespannung	20 V impulse
Eingangsstrom	0,5 mA
Ausgang	
Versorgungsspannung	5 VDC
Ausgangsstrom	max. 2 mA, über Vorwiderstand begrenzt
Sicherheit	Kurzschlussfest, Überlastschutz, Verpolungsschutz
Schutzart	IP 20 nach DIN 40050
Schutzklasse	II
Betriebstemperaturbereich	-5…45°C
Abmessungen (H x B x T)	39 x 40 x 12 mm
Gewicht	0,05 kg

Montage
Zum Einbau unterputz in Installationsdose ø 55 mm hinter dem Taster.
Die Zugänglichkeit des Gerätes zum Betreiben, Prüfen, Besichtigen, Warten und Reparieren muss sichergestellt sein.

Anschluss
Der Anschluss an den Bus erfolgt durch Aufstekken der Busanschlussklemme (im Lieferumfang enthalten).
Der Anschluß der Ein-/Ausgänge erfolgt gemäß Anschlussbild über 4 ca. 30 cm lange steckbare Anschlussleitungen die bis auf maximal 10 m verlängert werden dürfen.

Inbetriebnahme
Die Vergabe der physikalischen Adresse sowie das Einstellen der Parameter erfolgt mit der Engineering Tool Software ETS (ab Version ETS2 V1.2a). Nicht benutzte Leitungslängen müssen isoliert werden.

Eine ausführliche Beschreibung der Parametrierung und Inbetriebnahme finden Sie in den technischen Daten des Gerätes.
Diese finden Sie zum Download im Internet unter www.abb.de/stotz-kontakt.

Wichtige Hinweise
Montage und Inbetriebnahme darf nur von Elektrofachkräften ausgeführt werden. Bei der Planung und Errichtung von elektrischen Anlagen sind die einschlägigen Normen, Richtlinien, Vorschriften und Bestimmungen zu beachten.

- Gerät bei Transport, Lagerung und im Betrieb vor Feuchtigkeit, Schmutz und Beschädigung schützen!
- Gerät nur innerhalb der spezifizierten technischen Daten betreiben!
- Gerät nur im geschlossenen Gehäuse (Verteiler) betreiben!

Reinigen
Verschmutzte Geräte können mit einem trockenen Tuch gereinigt werden. Reicht dies nicht aus, kann ein mit Seifenlösung leicht angefeuchtetes Tuch benutzt werden. Auf keinen Fall dürfen ätzende Mittel oder Lösungsmittel verwendet werden.

Wartung
Das Gerät ist wartungsfrei. Bei Schäden (z.B. durch Transport, Lagerung) dürfen keine Reparaturen vorgenommen werden.

Beim Öffnen des Gerätes erlischt der Garantieanspruch!

EN

1

Operating and display elements

G) LED (red) and pushbutton	To enter the physical address

Device connections

O Inputs/outputs	4 leads, approx. 30 cm long, with plugs
@ ABB i-bus® EIB	Bus connection terminal

Device description
The device contains 2 channels that can be parameterized as an input or output with the ETS2 by selecting the application program.
Approx. 30 cm long connection leads with plugs are used to connect conventional pushbuttons, floating contacts or light-emitting diodes.
The contact query voltage for contacts and the power voltage for LEDs are provided by the unit. The dropping resistors for external light-emitting diodes are integrated in the unit. The universal interface is flush mounted in a box (diameter: 55 mm) behind the pushbutton. The bus is connected via a bus connection terminal.

Technical Data

Power supply	Via ABB i-bus® EIB
Inputs/outputs	
Number	2, can be set as inputs or outputs
Max. line length	< 10 m
Input	
Polling voltage	20 V pulses
Input current	0.5 mA
Output	
Supply voltage	5 VDC
Output current	Max. 2 mA, limited by dropping resistor
Safety	Short-circuit proof, overload protection, polarity-reversal protection
Protection rating	IP 20 in accordance with DIN 40050
Protection category	II
Operating temperature range	- 5 to 45°C
Dimensions (h x w x d)	39 x 40 x 12 mm
Weight	0.05 kg

Montage
Designed for flush mounting in boxes with a diameter of 55 mm behind the pushbutton.
Ensure that after the installation the device is always accessible for operation, testing, inspection, maintenance or repair.

Connection
Designed for flush mounting in boxes with a diameter of 55 mm behind the pushbutton.
The bus connection is established by attaching the bus connection terminal (is supplied with the module).
The inputs/outputs are connected in accordance with the connection diagram via 4 plugable connection lines that are about 30 cm long and are allowed to be extended to a maximum of 10 m.

Commissioning
The physical address and the parameter settings are set using the Engineering Tool Software ETS (from Version ETS2 V1.2a). The cable ends off all unused connection lines must be insulated.

A detailed description of the parameter configuration and commissioning steps can be found in the technical data. This information can be downloaded from the Internet site www.abb.de/stotz-kontakt.

Important notes
Installation and commissioning of the device may only be carried out by trained electricians. The relevant standards, directives, regulations and instructions must be observed when planning and implementing the electrical installation.

- Protect the device against moisture, dirt and damage during transport, storage and operation!
- Do not operate the device outside the specified technical data (e.g. Temperature range)!
- The device may only be operated in closed enclosures (e.g. distribution boards)

Cleaning
Should the device become soiled, it may be cleaned with a dry cloth. If this does not suffice, a cloth lightly moistened with soap solution may be used. On no account should caustic agents or solvents be used.

Maintenance
The device is maintenance free. Should damage have occurred, e.g. due to transport or storage, no repairs should be carried out.

The warranty expires if the device is opened!

FR

1

Eléments de commande et d'affichage

G) LED (rouge) et touche	pour la saisie de l'adresse physique

Raccordement de l'appareil

O Entrées / sorties	4 câbles d'une longueur approx. de 30 cm avec connecteurs
@ ABB i-bus® EIB	borne de connexion au bus

Description de l'appareil
L'appareil est doté de 2 canaux pouvant être paramétrés en entrée ou en sortie par sélection du programme d'application avec connecteurs, sont prévus pour raccordement, d'une longueur approx. de 30 cm avec connecteurs, sont prévus pour raccorder des boutons conventionnels, des contacts à potentiel flottant ou des diodes LED. L'appareil met à disposition la tension de scrutation pour les contacts et la tension d'alimentation pour les LED. Il intègre également les résistances pour des LED externes. L'interface universelle est destinée à l'intégration en montage encastré dans la boîte d'installation électrique ø 55 mm derrière le bouton-poussoir. Le raccordement au bus se fait par l'intermédiaire de la borne correspondante.

Caractéristiques techniques

Alimentation électrique	via le bus ABB i-bus® EIB
Entrées / sorties	
Nombre	2, paramétrables en entrée ou sortie
Longueur de câble admissible	≤ 10 m
Entrée	
Tension de scrutation	impulsions de 20 V
Courant d'entrée	0,5 mA
Sortie	
Tension d'alimentation	5 VDC
Courant de sortie	2 mA maximum, limité par résistance
Sécurité	protection contre les courts-circuits, les surcharges et l'inversion de polarité
Indice de protection	IP 20 selon DIN 40 050
Classe de protection	II
Plage de température de fonctionnement	-5...45°C
Dimensions (hxlxp)	39 x 40 x 12 mm
Poids	0,05 kg

Montage
Appareil destiné au montage encastré à l'intérieur de la boîte d'installation électrique ø 55 mm derrière le bouton-poussoir.

Raccordement
Le raccordement au bus se fait par enfichage de la borne correspondante (fournie).
Le raccordement des entrées/sorties se fait d'après le schéma de câblage via 4 câbles de raccordement d'une longueur de 30 cm, avec rallonge possible jusqu'à 10 m maximum.

Mise en service
L'attribution de l'adresse physique, ainsi que le réglage des paramètres s'effectuent à l'aide du logiciel Engineering Tool ETS (à partir de la version ETS2 V1.2a). Les embouts non utilisés des câbles doivent être isolés.

Vous trouverez une description détaillée du paramétrage et de la mise en service dans la documentation technique de l'appareil. Vous pouvez télécharger celles ci par Internet, sur le site www.abb.de/stotz-kontakt.

Remarques importantes
L'installation et le montage ne doivent être effectués que par des électriciens qualifiés. Les normes, directives, règlements et stipulations en vigueur doivent être respectés lors de la planification et de la mise en place d'installations électriques.

- Protéger l'appareil de l'humidité, de la saleté et de dommage lors du transport, du stockage et de l'utilisation !
- N'utiliser l'appareil que dans le cadre des caractéristiques techniques spécifiées !
- N'utiliser l'appareil que dans un boîtier fermé (coffret) !

Nettoyage
Les appareils sales peuvent être nettoyés à l'aide d'un chiffon sec. Si cela ne suffit pas, un chiffon légèrement imprégné de solution savonneuse peut être utilisé. N'utiliser en aucun cas des produits caustiques ou des solvants.

Entretien
L'appareil ne nécessite aucun entretien. En cas de dommage (par ex. lors du transport, du stockage), aucune réparation ne doit être entreprise.

L'ouverture de l'appareil annule la garantie !

NL

1

Bedienings- en aanwijselementen

G) LED (rood) en toets — invoer van het fysiek adres

Aansluiting

O In-/uitgangen — 4 kabels ca. 30 cm lang met stekker

@ ABB i-bus® EIB — Aansluitklem bus

Beschrijving

Het apparaat is uitgerust met 2 kanalen, die kunnen worden geparameteriseerd als ingang of uitgang door met de ETS2 het applicatieprogramma te selecteren. Ca. 30 cm lange aansluitkabels met stekker dienen voor het aansluiten van conventionele tasters, spanningvrije contacten of LED's. De spanning voor het opvragen van de contacten en de voedingsspanning voor de LED's worden door het apparaat voorzien. In het apparaat zijn voorschakelweerstanden ingebouwd voor externe lichtdioden. De universele interface wordt in de muur in een montagedoos met een diameter van 55 mm achter de toets ingebouwd. De busaansluiting gebeurt met behulp van de busaansluitklem.

Technische specificaties

Voeding	via ABB i-bus® EIB
In-/uitgangen	
Aantal	2, naar keuze als in- of uitgang instelbaar
Toegelaten lengte van de leiding	≤ 10 m
Ingang	
Opvraagspanning	20 V impuls
Ingangsstroom	0,5 mA
Uitgang	
Voedingsspanning	5 VDC
Uitgangsstroom	max. 2 mA, begrensd door voorschakelweerstand
Beveiliging	Beschermd tegen kortsluiting Overbelastingsveiligheid, Bescherming tegen verkeerde poolaansluiting
Beschermklasse	IP 20 conf. DIN 40 050
Beschermcategorie	II
Bedrijfstemperatuur	-5°C tot +45°C
Afmetingen (hxbxd)	39 x 40 x 12 mm
Gewicht	0,05 kg

Montage

Voorzien voor inbouw in de muur in montagedoos met diameter van 55 mm achter de druktoets.
De toegankelijkheid van het apparaat voor bedrijf, controle, inspectie, onderhoud en reparatie moet gewaarborgd zijn.

Aansluiting

Voorzien voor inbouw in de muur in montagedoos met diameter van 55 mm achter de druktoets. Het aansluiten aan de bus gebeurt door opsteken van de busaansluitklem (wordt bijgeleverd). Het aansluiten van de in- en uitgangen gebeurt conform het schema met behulp van 4 aansluitleidingen van ca. 30 cm die verlengd kunnen worden tot max. 10m.

Inbedrijfstelling

De toekenning van het fysieke adres alsmede het instellen van de parameters vindt plaats met behulp van de Engineering Tool Software ETS (vanaf versie ETS2 V1.2a). Niet benodigde aders moeten worden geïsoleerd, anders kunnen valse inschakelingen het gevolg zijn.

Voor een uitvoerige beschrijving van de parameterisering en inbedrijfstelling wordt verwezen naar de technische gegevens van het apparaat. U kunt deze van het internet downloaden via www.abb.de/stotz-kontakt.

Belangrijke aanwijzingen

Installatie en montage mogen uitsluitend worden uitgevoerd door bevoegde elektriciens. Bij de planning en bouw van elektrische installaties dienen de ter zake geldende normen, richtlijnen, voorschriften en bepalingen in acht te worden genomen.

- Bescherm het apparaat tijdens transport, opslag en bedrijf tegen vocht, vuil en beschadiging!
- Gebruik het apparaat uitsluitend binnen de gespecificeerde technische gegevens!
- Gebruik het apparaat uitsluitend in een gesloten behuizing (verdeler)!

Reinigen

Verontreinigde apparaten kunnen worden gereinigd met een droge doek. Indien dat niet voldoende is, kan een enigszins met zeepsop bevochtigde doek worden gebruikt. Gebruik in geen geval bijtende middelen of oplosmiddelen.

Onderhoud

Het apparaat is onderhoudsvrij. Bij beschadiging (bijv. door transport of opslag) mogen geen reparaties worden uitgevoerd.

Als het apparaat wordt geopend, vervalt het recht op garantie!

IT

1

Strumenti di commando ed indicatori

G) LED (rosso) e pulsante — per l'immissione degli indirizzi fisici

Allacciamento dell'apparecchio

O Ingressi/uscite — 4 cavi lunghi circa 30 cm con spinotto

@ i-bus® EIB ABB — Morsettiera di connessione al bus

Descrizione dell'apparecchio

Il dispositivo è dotato die 2 canali che possono essere configurati come ingressi o uscite previa selezione del programma applicativo mediante ETS. I cavi di connessione con spinotti lunghi circa 30 cm consentono la connessione di tastiere convenzionali, contatti a potenziale zero o LED. La tensione di interrogazione dei contatti e la tensione di alimentazione per i LED sono disponibili sul dispositivo. Nel dispositivo stesso sono integrate le resistenze addizionali per i diodi luminosi esterni. L'interfaccia universale viene collocata in una scatola d'installazione di Ø 55 mm dietro il pulsante. La connessione al bus avviene per mezzo della morsettiera di connessione al bus.

Dati tecnici

Alimentazione	su i-bus® EIB ABB
Ingressi/uscite	
Numero	2, parametrabili come ingresso o uscita
Lunghezza conduttura ammessa	≤ 10 m
Ingresso	
Tensione rilevazione	20 V impulsiva
corrente in ingresso	0,5 mA
Uscita	
Tensione di alimentazione	5 VCC
corrente in uscita	max. 2 mA limitata da resistenze addizionali
Sicurezza	A prova di cortocircuito protezione sovraccarico protezione inversione polarità
Tipo protezione	IP 20 conf. DIN 40050
Classe di protezione	II
Ambito temperatura di utilizzo	da -5°C a +45°C
Dimensioni (alt. x largh. x prof.)	39 x 40 x 12 mm
peso	0,05 kg

Montaggio

Montaggio incassato in scatola d'installazione Ø 55 mm dietro il pulsante.
Die Zugänglichkeit des Gerätes zum Betreiben, Prüfen, Besichtigen, Warten und Reparieren muss sichergestellt sein.

Allacciamento

La connessione al bus avviene per mezzo dell'innesto ai morsetti di connessione bus (contenuti nella confezione).
La connessione degli ingressi e delle uscite avviene secondo lo schema di connessione per mezzo di 4 condutture lunghe circa 30 cm che possono essere prolungate sino a un massimo di 10 m.

Messa in funzione

L'assegnazione dell'indirizzo fisico e l'impostazione dei parametri si esegue tramite Engineering Tool Software ETS (a partire dalla versione ETS2 V1.2a).
I conduttori non necessari devono essere isolati per evitare cablaggi errati.

I dati tecnici dell'apparecchio, che possono essere scaricati da Inter net all'indirizzo www.abb.de/stotz-kontakt, offrono una descrizione dettagliata dei parametri e della relativa messa in funzione.

Indicazioni importanti

Il montaggio deve essere eseguito soltanto da elettricisti. Per quanto riguarda la progettazione e l'installazione di impianti elettrici è necessario osservare le norme, le prescrizioni e le disposizioni relative.

- Proteggere l'apparecchio durante il trasporto, la conservazione e il funzionamento da umidità, sporcizia ed eventuali danneggiamenti!
- Utilizzare l'apparecchio solo in conformità ai dati tecnici specificati!
- Utilizzare l'apparecchio solo in alloggiamenti chiusi (quadro di distribuzione)!

Pulizia

Pulire gli apparecchi sporchi con un panno asciutto. Se questo non dovesse bastare, è possibile utilizzare un panno leggermente inumidito con una soluzione di sapone. Non utilizzare mai sostanze o soluzioni corrosive.

Manutenzione

L'apparecchio non necessita di manutenzione. In caso di danneggiamento (per es. durante il trasporto, la conservazione) evitare di eseguire qualsiasi intervento di riparazione.

L'apertura dell'apparecchio provoca il decadimento della garanzia!

ES

1

Elementos de mando e indicadores

G) LED (rojo) y tecla — para ingresar la dirección física

Conexión de los aparatos

O Entradas/salidas — 4 cables de aprox. 30 cm de longitud con enchufe

@ ABB i-bus EIB — Borne de conexión a bus

Descriptión de los aparatos

El aparato contiene 2 canales que se pueden parametrizar como entrada o salida mediante la selección del programa de aplicación con el ETS2. Unos cables de conexión de aprox. 30 cm de longitud con enchufe sirven para la conexión de teclas convencionales, contactos libres de potencial o diodos luminosos.
La tensión de consulta para los contactos y la tensión de alimentación para los LED son suministradas por el aparato. En este se han integrado los resistores adicionales para diodos luminiscentes externos. La interfase universal se incorpora empotrada en una caja de instalación de 55 mm ø, detrás del pulsador. La conexión al bus se efectúa por medio del respectivo borne de conexión.

Datos técnicos

Alimentación de corriente	por medio de ABB i-bus EIB
Entradas/Salidas	
Número	2, parametrizables como entrada o salida
Largo permisible de la línea	≤ 10 m
Entrada	
Tensión de consulta	20 V impulsos
Corriente de entrada	0,5 mA
Salida	
Tensión de alimentación	5 VDC
Corriente de salida	máx. 2mA, limitada por medio de resistor adicional
Seguridad	Resistente al corto circuito, protección contra sobrecarga, protección contra polarización inversa
Tipo de protección	IP 20 según DIN 40050
Clase de protección	II
Margen de temperatura de servicio	-5 ... 45 °C
Dimensiones (alt. x anch. x prof.)	39 x 40 x 12 mm
Peso	0,05 kg

Montaje

Para montaje empotrado en caja de instalación de 55 cm ø detrás del pulsador.
Die Zugänglichkeit des Gerätes zum Betreiben, Prüfen, Besichtigen, Warten und Reparieren muss sichergestellt sein.

Conexión

Para montaje empotrado en caja de instalación de 55 cm ø detrás del pulsador.
La conexión al bus se efectúa calando el borne de conexión al bus (incluido en el suministro).
La conexión de las Entradas/Salidas se efectúa conforme al diagrama de conexiones, utilizando 4 líneas de aprox. 30 cm de largo, que pueden ser prolongadas hasta 10 m, como máximo.

Puesta en servicio

La asignación de la dirección física así como el ajuste de los parámetros se realiza con el Engineering Tool Software ETS (a partir de la versión ETS2 V1.2a).
Los conductores eléctricos que no se necesiten deben ser aislados; de lo contrario pueden producirse conexiones erróneas.

Una descripción detallada de la parametrización y puesta en servicio las puede encontrar en los datos técnicos del aparato. Estos se encuentran listos para su descarga en Internet bajo www.abb.de/stotz-kontakt.

Observaciones importantes

La instalación y montaje sólo puede ser realizado por electricistas. En la planificación e instalación de instalaciones eléctricas se deberán respetar las normas, directivas y disposiciones existentes.

- Proteger el aparato en el transporte, almacenamiento y servicio frente a la humedad, suciedad y daños.
- Poner en funcionamiento el aparato sólo dentro de los datos técnicos especificados.
- Poner en funcionamiento el aparato sólo en una caja cerrada (distribuidor)

Limpieza

Los aparatos sucios se pueden limpiar con un trapo seco . Si esto no es suficiente, se puede emplear un trapo humedecido ligeramente con una solución jabonosa. En ningún caso se pueden utilizar productos corrosivos o disolventes.

Mantenimiento

El aparato no precisa de mantenimiento. En caso de daños (p. ej., por el transporte o almacenamiento) no se pueden realizar reparaciones.

Si se abre el aparato se extingue la garantía!

SE

1

Drifts- och indikationselement

G) LED (röd) och knapp — för inmatning av fysiska adresser

Apparatanslutning

O In-/utgångar — 4 Ledningar ca 30 cm långa med stickkontakt

@ ABB i-bus® — bussanslutningsklämma

Apparatbeskrivning

Enheten har 2 kanaler, som kan parametriseras som ingång eller utgång med ETS2 genom val av program. Ca. 30 cm långa anslutningsledningar med stickkontakt används för anslutning av konventionella tryckknappar, potentialfria kontakter eller lysdioder.
A vkänningsspänning för kontakter och spänningsmatning för lysdioder levereras av enheten. Förkopplingsmotstånd för externa lysdioder finns inbyggda i enheten.
Universalgränssnittet installeras försänkt bakom avkännaren i en installationsdosa med 55 mm diameter. Bussanslutning via bussanslutningsklämma.

Tekniske data

Strömförsörjning	via ABB i-bus® EIB
In-/utgångar	
Antal	2, kan specificeras som in- resp. utgångar
Tillåten ledningslängd	högst 10 m
Ingång	
Sökspänning	20 V impulser
Ingångsström	0,5 mA
Utgång	
Matningsspänning	5 VDC
Utgångsström	max. 2 mA, begränsat av förkopplingsmotstånd
Säkerhet	kortslutningssäker, överlastskydd, polfelsskydd
Skyddstyp	IP 20 enligt DIN 40050
Skyddsklass	II
Arbetstemperatur-område	-5 till +45°C
Mått (hxbxd)	39 x 40 x 12 mm
Vikt	0,05 kg

Montering

För infälld montering i installationsdosa (dia 55 mm) bakom avkännaren.
Die Zugänglichkeit des Gerätes zum Betreiben, Prüfen, Besichtigen, Warten und Reparieren muss sichergestellt sein.

Anslutning

Anslutning till bussen sker via bussanslutningsklämma (ingår vid leverans).
Anslutning av in-/utgångar sker enligt kopplingsschema med 4 ca 30 cm långa anslutningsledningar som kan förlängas till högst 10 m.

Idrifttagning

Tilldelning av fysisk adress samt inställning av parametrar sker med Engineering Tool Software ETS (fr.o.m. version ETS2 V1.2a).
Ledare som inte behövs ska isoleras, annars kan det bli felkopplingar.

En utförlig beskrivning av parametrar och idrifttagande finns i den tekniska dokumentationen för apparaten. Denna information kan hämtas på www.abb.de/stotz-kontakt.

Viktiga upplysningar

Montering får endast utföras av fackpersonal. Vid planering och upprättande av elektriska anordningar måste gällande normer, riktlinjer, föreskrifter och bestämmelser beaktas.

- Skydda apparaten från fukt, smuts samt skador vid transport, lagring och drift.
- Apparaten får endast användas enligt tekniska data.
- Apparaten får endast användas i sluten kapsling (fördelning).

Rengöring

Nedsmutsade apparater kan rengöras med en torr trasa. Om detta inte räcker kan en lätt fuktad trasa med tvållösning användas. Under inga omständigheter får lösningsmedel eller frätande kemikalier användas.

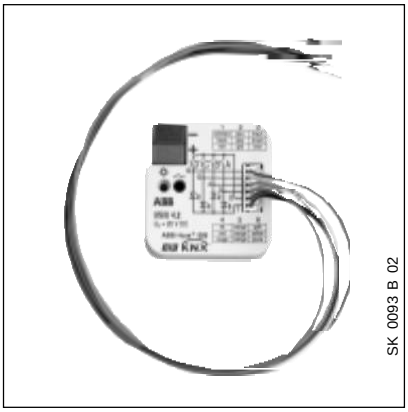
Underhåll

Apparaten är underhållsfri. Vid skador (genom t.ex. transport eller lagring) får inga reparationer utföras.

Om apparaten öppnas upphör garantianspråken att gälla!

ABB i-bus® EIB

Universal Interface, 4-fold, FM
US/U 4.2, GH Q631 0070 R0111



The device has four channels which can either be parameterised as inputs or outputs by selecting the application in the ETS2 program.

Using the colour-coded connecting cables, it is possible to connect conventional push buttons, floating contacts or light-emitting diodes.

The scanning voltage for the contacts and the supply voltage for the LEDs are made available by the device.

Series resistors for external LEDs are integrated in the device.

The universal interface is inserted in a conventional 60 mm combined wall and joint box.

The bus connection is carried out via the bus connecting terminal supplied.

4

4

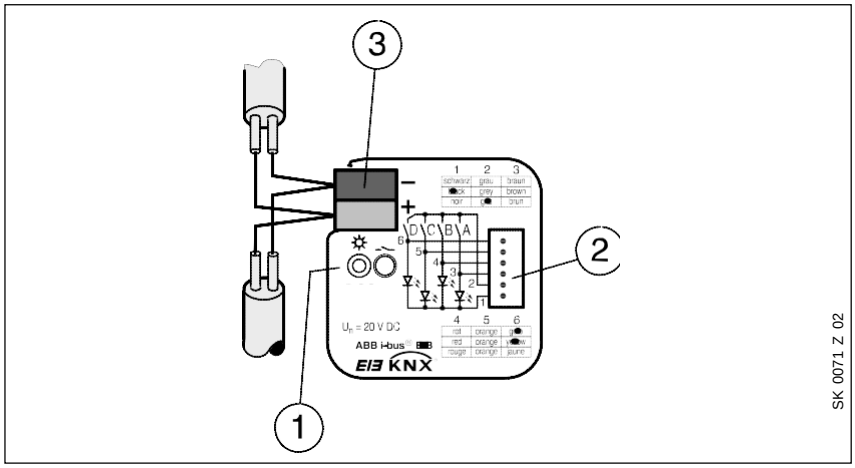
Technical Data

Power supply	– EIB	24 V DC, via the bus line Power consumption < approx. 10 mA
Inputs/outputs	– Number	4, can be parameterised as inputs or outputs (depending on the application)
	– Permitted cable length	10 m
Input	– Scanning voltage	20 V DC
	– Input current	0.5 mA
Output	– Supply voltage	5 V DC
	– Output current	max. 2 mA, limited via 1.5 kn series resistor
	– Safety	short-circuit-proof, overload protection, reverse voltage protection
Operating and display elements	– Red LED and push button	for assigning the physical address
Connections	– Inputs/outputs	6 cables of approx. 30 cm in length can be extended to max. 10 m
	– EIB	Bus connecting terminal included with supply
Type of protection	– IP 20, EN 60 529 when installed	
Protection class	– III	
Ambient temperature range	– Operation	- 5 °C … 45 °C
	– Storage	- 25 °C … 55 °C
	– Transport	- 25 °C … 70 °C
Dimensions	– 39 x 40 x 12 mm (H x W x D)	
Weight	– 0.05 kg	
Certification	– EIB-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

Application programs	Number of communication objects	Max. number of group addresses	Max. number of associations
Binary Input Display Heat 4f/1	29	254	254

4

Circuit diagram



1 Programming LED/push button
2 Inputs/outputs
3 Bus terminal

Note

Please note that you can only program the universal interface using ETS2 from version 1.2 onwards.

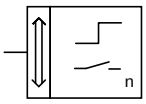
The grey wire forms a common reference potential for the connected push button or switch contacts.

The black wire forms a common reference potential for the LEDs.

Wires that are not required should be insulated.

Further detailed information about the installation, programming and application can be found in the "Product manual for US/U 2.2 and US/U 4.2".

Binary Input Display Heat 4f/1



Selection in ETS2

– ABB
  └In/Output
    └Binary/binary

The application program makes a separate set of parameters and communication objects available for each input. Further parameters or different communication objects are displayed depending on the parameter settings.

Bus voltage recovery

After bus voltage recovery, the interface does not start to send immediately but only once an adjustable delay has elapsed.

The initialisation period of 2 s is already included in the sending delay.

Limit telegram rate

On the general parameter page, it is possible to limit the number of telegrams that are sent over a specific time period. This factor should be noted primarily on bus voltage recovery when a large number of bus devices send their current status simultaneously.

Function of inputs/outputs

The parameter setting “Function of the channel” defines the operating mode of the input. The following functions can be selected:
– switch sensor,
– switch/dimming sensor,
– shutter sensor,
– value / forced operation,
– scene control,
– control of electronic relay (heating actuator),
– LED control,
– switching sequence (“latching relay”),
– push button with multiple operation
– or pulse counter.

Alternatively, it is possible to fully deactivate an input with the setting “no function”.

Disable

It is possible to disable an input via the 1 bit communication object. To do so, a telegram with the value “1” must be received. A telegram with the value “0” cancels the lock-out. The disable object is activated for all the input functions, except for the operation of an electronic relay and LED control.

Switch sensor

If the function of the input is set as a switch sensor, it is possible to connect conventional push buttons to the inputs of the universal interface. The ETS2 program makes at least one 1 bit communication object “Input ... - Telegr. switch” available for each switch sensor input.

If the setting “Distinction between long and short operation” is set to “yes”, the switch sensor can distinguish between a short and a long input signal. A further object “Input ... -long - Telegr. switch” can be activated via the parameter “Number of objects for short/long operation” so that it only reacts to long operations.

Both normally closed and normally open contacts can be connected to the respective input. If normally open contacts are used for example, the setting “Connected contact type” must be set to “normally open”.

The information that should be sent when the push button is pressed is defined separately for each switch object. Either an ON or OFF telegram can be triggered. Alternatively, no reaction can take place after a push button operation.

It is possible to specify the period which is interpreted as a long operation by the input. Intervals from 200 ms upwards can be set. The period comprises a base and a factor.

Period for long operation =
*Base * Factor*

An adjustable debounce time can be set to prevent a bounce at the contacts of conventional push buttons or switches from having a negative influence. The default setting of 50 ms should normally be sufficient for conventional push buttons.

If the switch sensor input should not distinguish between a short and long operation, the input sends telegrams to the object “Input ... - Telegr. switch” after an operation at the input.

In this case, the object value can be sent cyclically. It is possible to send either each object value cyclically on the bus (setting: “always”) or only specific object values (setting: “if ‘switch’ = ON” or “if ‘switch’ = OFF”).

The reaction at the closing and opening of the input contact can also be defined. For both cases, it is possible to set separately whether an ON, OFF or TOGGLE telegram is triggered. Alternatively, it is possible to stop the cyclical sending.

The cyclic interval required for cyclical sending is composed of a base and a factor.

*Cyclic sending interval=Base*Factor*

If only one object is activated, it can be sent after bus voltage recovery. However, the parameter “Transmit object value after bus voltage recovery” is deactivated by default.

If there is no distinction between a short and long operation, the contact bounce can either be removed via a debounce time or a minimum operating time. The default setting of 50 ms should also be sufficient in this case for standard push buttons and switches.

Switch/dimming sensor

If an input is parameterised as a switch/dimming sensor, the ETS2 program displays by default a 1 bit communication object “Input ...-short - Telegr. switch” and a 4 bit communication object “Input ... - Telegr. dimming”.

Both normally closed and normally open contacts are connected to the respective input. If normally open contacts are used for example, the setting “Connected contact type” must be set to “normally open”.

The 1 bit object “Input ...-short - Telegr. switch” can be masked via the parameter “Dimming functionality”. the 4 bit object is then only available for dimming.

This function is advisable e.g. if a series push button occupies two inputs of the universal interface. The left push button should only be able to switch on and the right push button should only be able to dim.

If both objects are displayed (setting: “Dimming and switching”), the type of telegram that is sent to the 1 bit object is defined via the parameter “Reaction on short operation”. The parameter “Reaction on long operation” defines which information should be sent to the 4 bit object after a long operation.

The period which is interpreted as a long operation by the input can be set between 0.3 s and 10 s.

It is possible to choose between two dimming modes for different applications. The default setting is “Start-stop dimming”. This means that the command to dim brighter by 100% is sent to the 4 bit object after a long operation. When the input signal is cancelled, the command to stop dimming is sent.

If “Dimming steps” is selected, the preset value “Brightness change on every sent telegram” is sent to the 4 bit object. This is repeated cyclically at an adjustable cyclic interval.

Step dimming is always used if dimming should be carried out via several line couplers in large installations. This ensures that all the affected dimming actuators can be dimmed exactly to the same brightness value. In the case of “Start-stop dimming”, a dimming telegram can be retained temporarily in the memory of a coupler because there is currently bus traffic on the main line. The dimming actuators on the secondary line can no longer display the same brightness value as on the main line.

The adjustable debounce time prevents the unwanted contact bounce of conventional push buttons or switches from having a negative effect.

Shutter sensor

When using the inputs of the universal interface as a shutter sensor, the respective inputs can be adapted exactly to the application. It is possible to select either a 1 push button operation, a 1 switch operation, a 2 push button operation or a 2 switch operation.

During operation as a shutter sensor, the ETS2 program displays two 1 bit communication objects: one for moving the shutter UP/DOWN and one for STOP/louvre adjustment.

The other two communication objects enable the shutter actuator to report the upper or lower limit position. If the shutter is in the upper limit position, the object “Upper limit position” has the value “1”. Otherwise the value of the object is “0”. If the shutter is in the lower limit position, the object “Lower limit position” has the value “1”. Otherwise the value is “0”.

The limit position objects are particularly necessary in single push button mode. A push button operation normally triggers either a movement or louvre adjustment command in the opposite direction. However, if the shutter is located in the upper limit position, it is not able to move its louvres upwards.

In single push button mode, the shutter sensor normally distinguishes between a short and a long operation.

Both normally open and normally closed contacts can be connected to the respective input. If normally open contacts are used for example, the setting “Connected contact type” is set to “normally open”.

The period which is interpreted as a long operation by the input can be set between 0.3 s and 10 s.

The adjustable debounce time prevents the unwanted contact bounce of conventional push buttons or switches from having a negative effect.

If a long operation should trigger a movement command, the operating functionality “1 push button, short = stepping, long = moving” must be selected. The louvre adjustment is then always carried out in the opposite direction to the last movement of the blind.

If a short operation should trigger a movement command, the operating functionality “1 push button, short = moving, long = stepping” must be selected. A long operation in this case triggers louvre adjustment telegrams. These are sent cyclically.

If a blind should be moved in 1 push button or 1 switch operation mode, there is no distinction between a short and a long operation. The movement command in this case is applied for the duration of the input signal.

All the 2 push button or 2 switch operation modes enable two inputs of the universal interface to be used as shutter inputs. In the setting “2 push button, standard”, a stop or louvre adjustment telegram is triggered after a short operation while a long operation triggers a movement command.

The setting “Reaction on short/long operation” defines whether the shutter should be raised or lowered or the louvres should be opened or closed.

In the operating functions “2 switch operation, moving (shutter)” and “2 push button, moving (shutter)“, there is no distinction between a short and a long operation. A movement command is triggered automatically after each operation and the shutter or blind is stopped at the end of the operation.

In the setting “2 push button, stepping”, a louvre adjustment telegram is sent after each operation. The parameter “Reaction on operation” defines whether a “STOP / Lamella UP” or a “STOP / Lamella DOWN” telegram should be sent.

The louvre adjustment telegram is repeated cyclically for the duration of the input signal. The cyclic interval is specified with the parameter “‘Telegr. STOP/ lamella adj.’ is repeated every”. Intervals between 0.3 s and 10 s can be set.

Value / Forced position

When used as a value or forced position sensor, a 1 bit, a 2 bit, a 1 byte, a 2 byte or a 4 byte communication object is available for the relevant channel, depending on the setting.

If the parameter “Distinction between long and short operation” has been set to “yes”, the ETS2 program displays a further communication object for the respective input. Each communication object has its own set of parameters i.e. a 1 byte object can be selected for the first object “Value ...” while a 2 byte object can be chosen for the second “Value ...” object.

The object type that is assigned to the respective communication object is specified with the parameter “Reaction on ... operation”. Alternatively, the setting “no reaction” can be selected.

The setting “2 bit value (forced position)” makes it possible to address actuators that have a positive drive function in accordance with EIS 8. The forced positioning can be activated (ON or OFF) or deactivated.

In the setting “1 byte value”, values between “0” and “255” can be sent.

If a “2 byte value” is used, it can have the following three functions: values between -32.768 and +32.767, values between 0 and 65.535 or floating point values. Floating point values can be sent between -100.00 and +100.00. They can be received e.g. by EIB room thermostats and thus implement a temporary setpoint adjustment.

The adjustable debounce time prevents the unwanted contact bounce of conventional push buttons or switches from having a negative effect.

If there is no distinction between a short and long operation, the contact bounce can either be removed via a debounce time or a minimum operating time. The default setting of 50 ms should also be sufficient in this case for standard push buttons and switches.

Scene control

The inputs of the universal interface can also be used to recall or store a scene (e.g. a lighting scenario).

Both normally closed and normally open contacts are connected to the respective input. If normally open contacts are used for example, the setting “Connected contact type” must be set to “normally open”.

Depending on the application, it is possible to implement scene control either via “5 separate objects” or via an “8 bit scene”.

When implementing scene control via an “8 bit scene”, the scene number which should be recalled can be set with the parameter “No. of scene (0...63)”. The ETS2 program displays two communication objects in this case: a 1 byte object “Input ... - 8 bit scene” for sending the scene number to an appropriate scene module and a 1 bit object “Input ... - Store scene”. The storing of the current scene can be triggered via this object - if it has been defined in the parameters - by the receipt of the values “0” and “1” in succession. A “1” is sent via this object when a scene is stored. It is thus possible e.g. to switch on a confirmation LED.

The input can differentiate between a short operation signal and a long signal. A short operation can recall a scene while a long operation can store a scene.

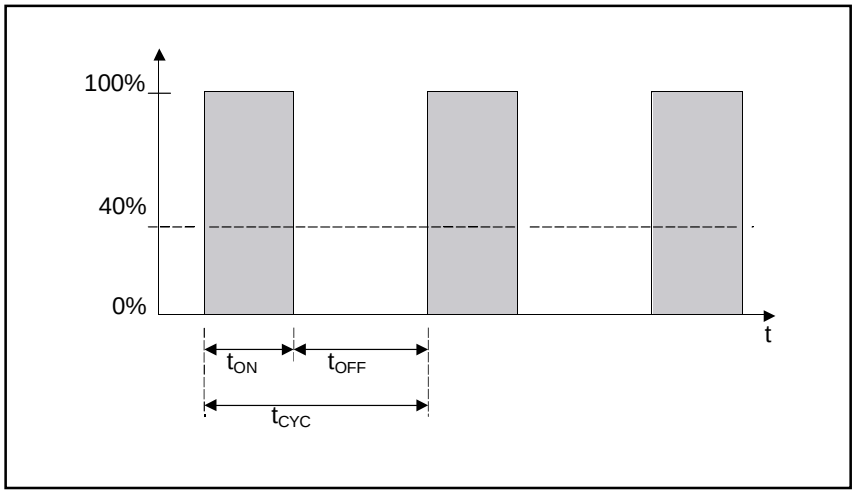
The period which is interpreted as a long operation by the input can be set between 0.3 s and 10 s.

The adjustable debounce time prevents the unwanted contact bounce of conventional push buttons or switches from having a negative effect.

If the implementation of the scene control is carried out via “5 separate objects”, the “8 bit scene” object is no longer displayed and 5 further 1 bit or 1 byte communication objects “Telegr. switch actuator group …” are shown. Switch and/or dimming actuators can be addressed via these 5 objects.

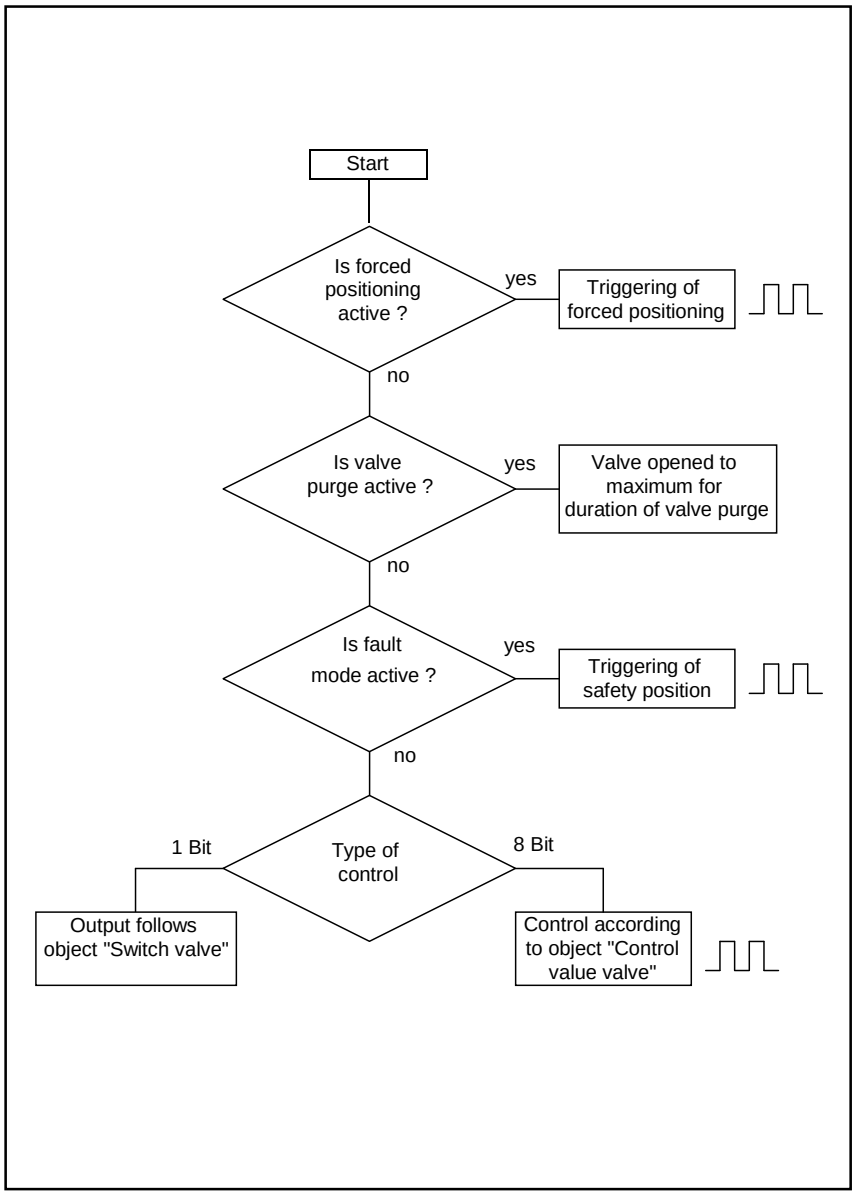
Top right graphic:
Control of electronic relay (heating actuator)

The valve is triggered with OPEN during the period t_{ON} and triggered with CLOSE during the period t_{OFF}. Since t_{ON} = 0.4 x t_{CYC}, the valve is calibrated with an opening of approx. 40%.
t_{CYC} is the so-called PWM cyclic time for continuous control.



Bottom right graphic:
Control of electronic relay (heating actuator)

The actuator can trigger a specific valve position during “Forced positioning”, “Valve purge” as well as a safety position. The following diagram gives an overview:



The ETS2 program makes an additional parameter available on a separate tab for each actuator group. The object type (1 bit or 1 byte) is defined with the parameter “Control of actuator group ... via”. When controlled via a 1 bit object, the preset value can be “ON” or “OFF”. In the case of a 1 byte object, values between “0” and 255” can be entered.

Control of electronic relay (heating actuator)

If the universal interface is used to operate an electronic relay for heating control, the ETS2 program can display up to 5 communication objects for the respective input.

The control is generally carried out via a room thermostat. Depending on whether the room thermostat sends a continuous (1 byte) or switching control value, the respective input can be adapted accordingly. The parameter “Control telegram is received as” is used for this purpose. The ETS2 program makes a 1 bit object “Switch” (setting: “1 bit (PWM or on-off control)”) or a 1 byte object “Control value (PWM)” (setting: “1 byte (continuous)”) available.

When using the 1 bit object, the interface follows the signal of the “Switch” object. When implementing the control value via the 1 byte object, the electronic relay switches the electrothermal heating actuator via pulse width modulation. This means e.g. if the control value is 70%, that the valve opens for 7 min. and closes for
3 min. over a period of 10 min. (See also the graphic on the previous page for controlling an electronic relay).

The current switching state of the respective channel is sent via the object “Telegr. status/ackn.”. A telegram with the value “0” means that the valve has been closed while a telegram with the value “1” means that the valve has been opened.

Note:
With PWM continuous control, this object is sent after each change at the output. The additional telegram should be taken into account, particularly when there is a short PWM cyclic period.

The control mode can be adapted to the various valve types. The following options can be set: “normally closed” or “normally open”.

The parameter “PWM cycle time for continuous control” defines the total period for monitoring the control value.

(See also top right graphic).

A further 1 bit communication object “Valve purge” can be activated via the parameter “Enable object “Telegr. valve purge”. The connected valve can be opened via this object without dependence on the input state. The central object “Telegr. trigger valve purge” which is able to send cyclically on the bus can be used for control.

The “Position of the valve drive on bus voltage recovery” can be adjusted. A setting between 0% (closed) and 100% (open) can be selected in 10% steps.

If the setting “Enable monitoring of the controller, fault message, forced positioning” is set to “yes”, the ETS2 program displays a further tab for selecting the monitoring function, the fault signal and forced positioning.

If the monitoring of the controller is enabled, the universal interface expects a control value to be sent. If no control values are received within a certain monitoring period, the interface develops a fault. This means that the “Position of the valve drive on failure of the control” adopts the preset value.

The “Cyclic monitoring time of room thermostat” can be set. It is composed of a base and a factor.
*Monitoring time = Base * Factor*

If a failure of the room thermostat has been established and the valve is in the fault position, a telegram is sent via the 1 bit object “Telegr. fault”. To do so, the fault object must previously be activated via the parameter “Enable object ‘Telegr. fault’”.

The valve can be moved to a preset position via the 1 bit communication object “Forced positioning”. Forced positioning or the regular valve purge are used during the summer months, so that deposits cannot build up on the valves. The “Valve position during forced positioning” can be set between 0%

(closed) and 100% (opened).

Please take the order of priority for forced positioning, valve purge, fault operation and normal control from the second graphic in the bottom right-hand corner.

LED control

When using the universal interface for controlling LEDs, a maximum of three 1 bit communication objects are available for each channel. The object “Output ... - LED switching” is used by default to switch on the connected LED. A telegram with the value “1” normally switches the LED on while a telegram with the value “0” switches it off again. The behaviour can be inverted with the parameter “LED is switched ON, if ...”.

With a further object “Output ... - LED permanent ON”, the LED can be switched on independently of the object “LED, switching”. This means that as soon as the object “LED permanent ON” has the value “1”, the LED is switched on, regardless of the value of the object “LED, switching”.

If the LED functionality is modified from “switch ON/OFF” to “Flashing”, the communication object “Output ... - LED, switching” is replaced by the 1 bit object “Output ... - LED, flashing”. The setting in the parameter “LED flashes, if ...” determines whether a connected LED starts to flash with an ON or an OFF telegram.

It is possible to select the period that the LED is switched ON or OFF for when it flashes. Both periods can be set separately between 100 ms and 60 ms.

It is possible to define a maximum operating time. To do so, the time limit must be enabled with the parameter “Time limit of LED control”. If “yes” is selected, the connected LED only remains switched on after an ON command for the duration of the time limit. This limit is preset with a base and a factor.

Time limit = Base * Factor

The current status of the LED is sent via the object “Telegr. status/ackn.”. The object is however only activated if the parameter “Transmit status via object ‘Telgr. status/ackn.’” has been set to “yes”.

Switching sequence (“latching relay”)

The use of the universal interface as a stepping switch (“latching relay”) enables the flexible switching on or off of up to five 1 bit communication objects via a single input.

Both normally closed and normally open contacts are connected to the respective input. If normally open contacts are used for example, the setting “Connected contact type” must be set to “normally open”.

The parameter “Number of objects” determines the number of objects. That means e.g. if “3 levels” are selected, the ETS2 program displays three 1 bit objects “Input ... - Value ...” for the respective input.

Three different switching sequences can be set. If “sequentially on/off (one push button)” is set, the states of the objects are modified according to the following switching sequence (example with 3 levels):

…>000>001>011>111>011>001>…

If “on/off (several push buttons)” is selected, the states of the objects only change in one direction when the push button is pressed. It is possible to switch upwards (increment) or switch downwards (decrement). For this reason, at least two inputs are required for these switching sequences: one for the following switching sequences (example with 3 levels):

000>001>011>111

and the other switch sensor for the reverse switching sequences (example with 3 levels):

111>011>001>000

If “All combinations” is selected, the states of the objects are modified according to the following switching sequences (example with 3 levels):
…>000>001>011>010>110>111>101>100>…
It is thus guaranteed that the value of only one communication object is changed between two switching levels.

The setting “Function on operation” (only activated for several push buttons) defines whether an input signal switches one level upwards or one level downwards.

The adjustable debounce time prevents the unwanted contact bounce of conventional push buttons or switches from having a negative effect.
With the additional 1 bit communicaiton object “Level increment/decrement”, it is possible to switch upwards or downwards via EIB telegrams. An ON telegram switches down one level while an OFF telegram switches up one level.

Push button with multiple operation

When used as a “Push button with multiple operation”, the universal interface can detect multiple operations at the respective input. These multiple operations are sent to a maximum of four 1 bit communication objects.

Both normally closed and normally open contacts are connected to the respective input. If normally open contacts are used for example, the setting “Connected contact type” must be set to “normally open”.

The ETS2 program makes a large number of objects available depending on the “Max. number of operations”. This means that if e.g. a “single operation“ and a “2-fold operation” should be evaluated, the setting “2-fold operation” should be selected. The ETS2 program displays two objects “Input ... - Telegr. operation ...-fold”.

The setting “Transmitted value (object ‘Telegr. operation ...-fold’)” determines which value is sent after an operation (single, 2-fold, 3-fold or 4-fold). The transmitted value can be an ON, OFF or TOGGLE telegram.

The parameter “Transmit value on every operation” defines whether the interface evaluates the respective operations completely or confirms them individually.

Example:
The “Max. number of operations” has been defined as “3-fold operation”. The parameter “Transmit value on every operation” is set to “no”. In this setting, the interface sends a telegram to the object “Telegr. operation 1-fold” when a single operation has been detected. After a 2-fold operation, a telegram is sent to the object “Telegr. operation 2-fold” while a telegram is sent to the corresponding object after a 3-fold operation.
If the parameter “Transmit value on every operation” is changed to “yes”, the interface can send a telegram after each operation. This means that a telegram is triggered after a three-fold operation to the objects “Telegr. operation 1-fold”, “Telegr. operation 2-fold” and “Telegr. operation 3-fold”.

The “Maximum time between two operations” indicates how long the interval (period) can be between multiple operations so that it can still be considered a multiple operation.

It is possible to activate an additional 1 bit object “Telegr. operation long” for the evaluation of a long push button action. The period which is interpreted as a long operation by the input can be set between 0.3 s and 10 s. The transmitted value on detection of a long push button action can be an ON, OFF or TOGGLE telegram.

The adjustable debounce time prevents the unwanted contact bounce of conventional push buttons or switches from having a negative effect.

Pulse counter

When used as a pulse counter, the universal interface can count up input signals and send them on the EIB. Depending on the parameter setting, up to four communication objects are displayed.

The parameter “Pulse detection on” determines whether input signals with a falling edge (normally closed contact) or a rising edge (normally open contact) are counted.

The interface can send the counter values in three sizes: as 8 bit values (0 … 255), 16 bit values (-32.768 … +32.767 or 0 …65.535) or as 32 bit values (-2.147.483.648 … +2.147.483.647). Depending on the size of the bit value, the ETS2 program displays an 8 bit, a 16 bit or a 32 bit communication object “Input ... - Telegr. counter value ... bytes”. The new counter value is sent to this object after each operation at the input.

The initial counter values can be parameterised. All counter values start with the value “0” by default.

The current counter value can be requested at any time via the EIB with the 1 bit object “Request counter values”. To do so, a telegram with the value “1” must be received. The objects “Input ... - Telegr. counter value ... bytes” and an enabled object “Input ... - Differential counter ... bytes” thus send their current values, regardless of whether these values have already been sent.

The adjustable debounce time prevents the unwanted contact bounce of conventional push buttons or switches from having a negative effect.

After a bus voltage failure, the current counter value can be sent directly on the bus. To do so, the parameter “Transmit counter values after bus voltage recovery” must be set accordingly. After bus voltage failure, the counter values are reset to their initial values.

A further tab is activated in the ETS2 program via the setting “Enable additional options”. Special functions can be set here when the interface is used as a pulse counter.
By default, the pulse counter records every operation at its input. With the parameter “Divider: number of input pulses for one counter step”, the counting function can be adapted to individual requirements.

The setting “Factor: one counter step changes counter value by” indicates how many steps are counted upwards on detection of a pulse. If a negative value is entered, the counter counts backwards.

If the counter values should be sent cyclically, the corresponding parameter should be set to “yes”. The cyclic time is composed of a base and a factor.
*Cyclic time = Base * Factor*

If the differential counter is activated, the ETS2 indicates three further communication objects. The object “Input ... - Differential counter ... bytes” always has the same bit width as the counter value object. The two objects “Input ... - Differential counter overflow” and “Input ... - Reset differential counter” are 1 bit objects.

The differential counter has the same counting function as the absolute counter. In contrast however, it can be reset via the object “Input ... - Reset differential counter”. In addition, a counter overflow can be reported on the bus via the object “Input ... - Differential counter overflow”. It is thus possible e.g. to measure daily consumption values via the differential counter.

The overflow value of the differential counter can be set. If the differential counter reaches the set value, a “1” is sent to the object “Input ... - Differential counter overflow” and the differential counter starts to count from the beginning.

Communication objects
when used as a switch sensor

No.	Type	Object name	Function
0	1 bit	Input A	Disable
1	1 bit	Input A	Telegr. switch
7	1 bit	Input B	Disable
8	1 bit	Input B	Telegr. switch
14	1 bit	Input C	Disable
15	1 bit	Input C	Telegr. switch
21	1 bit	Input D	Disable
22	1 bit	Input D	Telegr. switch

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Communication objects
when used as a switch sensor with detection of long switch operations

No.	Type	Object name	Function
…			
2	1 bit	Input A - long	Telegr. switch
…			
9	1 bit	Input B - long	Telegr. switch
…			
16	1 bit	Input C - long	Telegr. switch
…			
23	1 bit	Input D - long	Telegr. switch

Communication objects
when used as a switch/dimming sensor

No.			
0	1 bit	Input A	Disable
1	1 bit	Input A -short	Telegr. switch
2	4 bit	Input A	Telegr. dimming
7	1 bit	Input B	Disable
8	1 bit	Input B -short	Telegr. switch
9	4 bit	Input B	Telegr. dimming
14	1 bit	Input C	Disable
15	1 bit	Input C -short	Telegr. switch
16	4 bit	Input C	Telegr. dimming
21	1 bit	Input D	Disable
22	1 bit	Input D -short	Telegr. switch
23	4 bit	Input D	Telegr. dimming

Communication objects
when used only as a dimming sensor

No.	Type	Object name	Function
0	1 bit	Input A	Disable
2	4 bit	Input A	Telegr. dimming
7	1 bit	Input B	Disable
9	4 bit	Input B	Telegr. dimming
14	1 bit	Input C	Disable
16	4 bit	Input C	Telegr. dimming
21	1 bit	Input D	Disable
23	4 bit	Input D	Telegr. dimming

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Communication objects
when used as a shutter sensor

No.	Type	Object name	Function
0	1 bit	Input A	Disable
1	1 bit	Input A	Telegr. shutter UP/DOWN
2	1 bit	Input A	Telegr. STOP / lamella adj.
3	1 bit	Input A	Upper limit position
4	1 bit	Input A	Lower limit position
7	1 bit	Input B	Disable
8	1 bit	Input B	Telegr. shutter UP/DOWN
9	1 bit	Input B	Telegr. STOP / lamella adj.
10	1 bit	Input B	Upper limit position
11	1 bit	Input B	Lower limit position
14	1 bit	Input C	Disable
15	1 bit	Input C	Telegr. shutter UP/DOWN
16	1 bit	Input C	Telegr. STOP / lamella adj.
17	1 bit	Input C	Upper limit position
18	1 bit	Input C	Lower limit position
21	1 bit	Input D	Disable
22	1 bit	Input D	Telegr. shutter UP/DOWN
23	1 bit	Input D	Telegr. STOP / lamella adj.
24	1 bit	Input D	Upper limit position
25	1 bit	Input D	Lower limit position

Communication objects
when using the channels for sending values (1 byte)

No.	Type	Object name	Function
0	1 bit	Input A	Disable
1	1 byte	Input A	Telegr. value (0… 255)
7	1 bit	Input B	Disable
8	1 byte	Input B	Telegr. value (0… 255)
14	1 bit	Input C	Disable
15	1 byte	Input C	Telegr. value (0… 255)
21	1 bit	Input D	Disable
22	1 byte	Input D	Telegr. value (0… 255)

Communication objects
when using the channels for forced operation

No.	Type	Object name	Function
…			
1	2 bit	Input A	Telegr. value (forced position)
…			
1	2 bit	Input B	Telegr. value (forced position)
…			
1	2 bit	Input C	Telegr. value (forced position)
…			
1	2 bit	Input D	Telegr. value (forced position)

Communication objects
when using the channels for sending values (2 byte)

No.	Type	Object name	Function
…			
1	2 byte	Input A	Telegr. value (-32768…32767)
…			
1	2 byte	Input B	Telegr. value (-32768…32767)
…			
1	2 byte	Input C	Telegr. value (-32768…32767)
…			
1	2 byte	Input D	Telegr. value (-32768…32767)

Communication objects
when using the channels for sending values (2 byte)

No.	Type	Object name	Function
…			
1	2 byte	Input A	Telegr. value (0…65535)
…			
1	2 byte	Input B	Telegr. value (0…65535)
…			
1	2 byte	Input C	Telegr. value (0…65535)
…			
1	2 byte	Input D	Telegr. value (0…65535)

Communication objects
when using the channels for sending values (floating point)

No.	Type	Object name	Function
…			
1	2 byte	Input A	Telegr. value (temperature)
…			
1	2 byte	Input B	Telegr. value (temperature)
…			
1	2 byte	Input C	Telegr. value (temperature)
…			
1	2 byte	Input D	Telegr. value (temperature)

Communication objects
when using the channels for sending values (4 byte)

No.	Type	Object name	Function
…			
1	4 byte	Input A	Telegr. value (0…4294967295)
…			
1	4 byte	Input B	Telegr. value (0…4294967295)
…			
1	4 byte	Input C	Telegr. value (0…4294967295)
…			
1	4 byte	Input D	Telegr. value (0…4294967295)

Communication objects
when using the channels for sending values with detection of long switch operations

No.	Type	Object name	Function
…			
1	1 byte	Input A -short	Telegr. value (0.1)
2	1 byte	Input A -long	Telegr. value (0…255)
…			
7	1 byte	Input B -short	Telegr. value (forced position)
8	1 byte	Input B -long	Telegr. value (-32768…32767)
…			
14	1 byte	Input C -short	Telegr. value (0…65535)
15	1 byte	Input C -long	Telegr. value (temperature)
…			
16	1 byte	Input D -short	Telegr. value (0…4294967295)
17	1 byte	Input D -long	Telegr. value (0…255)

Communication objects
when used for scene control (actuator groups)

No.	Type	Object name	Function
0	1 bit	Input A	Disable
1	1 bit	Input A	Telegr. switch actuator group A
2	1 bit	Input A	Telegr. switch actuator group B
3	1 bit	Input A	Telegr. switch actuator group C
4	1 bit	Input A	Telegr. switch actuator group D
5	1 bit	Input A	Telegr. switch actuator group E
6	1 bit	Input A	Store scene
7	1 bit	Input B	Disable
8	1 bit	Input B	Telegr. switch actuator group A
9	1 bit	Input B	Telegr. switch actuator group B
10	1 bit	Input B	Telegr. switch actuator group C
11	1 bit	Input B	Telegr. switch actuator group D
12	1 bit	Input B	Telegr. switch actuator group E
13	1 bit	Input B	Store scene
14	1 bit	Input C	Disable
15	1 bit	Input C	Telegr. switch actuator group A
16	1 bit	Input C	Telegr. switch actuator group B
17	1 bit	Input C	Telegr. switch actuator group C
18	1 bit	Input C	Telegr. switch actuator group D
19	1 bit	Input C	Telegr. switch actuator group E
20	1 bit	Input C	Store scene
21	1 bit	Input D	Disable
22	1 bit	Input D	Telegr. switch actuator group A
23	1 bit	Input D	Telegr. switch actuator group B
24	1 bit	Input D	Telegr. switch actuator group C
25	1 bit	Input D	Telegr. switch actuator group D
26	1 bit	Input D	Telegr. switch actuator group E
27	1 bit	Input D	Store scene

Communication objects
when used for scene control (8 bit scene)

No.	Type	Object name	Function
…			
1	1 byte	Input A	Telegr. switch actuator group A
2	1 byte	Input A	Telegr. switch actuator group B
3	1 byte	Input A	Telegr. switch actuator group C
4	1 byte	Input A	Telegr. switch actuator group D
5	1 byte	Input A	Telegr. switch actuator group E
…			

Communication objects
when used for scene control (8 bit scene) with stored function

No.	Type	Object name	Function
0	1 bit	Input A	Disable
1	1 byte	Input A	8 bit scene
6	1 bit	Input A	Store scene
7	1 bit	Input B	Disable
8	1 byte	Input B	8 bit scene
13	1 bit	Input B	Store scene
14	1 bit	Input C	Disable
15	1 byte	Input C	8 bit scene
20	1 bit	Input C	Store scene
21	1 bit	Input D	Disable
22	1 byte	Input D	8 bit scene
27	1 bit	Input D	Store scene

Communcation objects
when used for controlling an electronic relay (1 bit)

No.	Type	Object name	Function
1	1 bit	Output A	Switch
5	1 bit	Output A	Telegr. status/ackn.
8	1 bit	Output B	Switch
12	1 bit	Output B	Telegr. status/ackn.
15	1 bit	Output C	Switch
19	1 bit	Output C	Telegr. status/ackn.
22	1 bit	Output D	Switch
26	1 bit	Output D	Telegr. status/ackn.

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Communication objects
when used for controlling an electronic relay (1 byte)

No.	Type	Object name	Function
1	1 byte	Output A	Control value (PWM)
5	1 bit	Output A	Telegr. status/ackn.
8	1 byte	Output B	Control value (PWM)
12	1 bit	Output B	Telegr. status/ackn.
15	1 byte	Output C	Control value (PWM)
19	1 bit	Output C	Telegr. status/ackn.
22	1 byte	Output D	Control value (PWM)
26	1 bit	Output D	Telegr. status/ackn.

Communication objects
when used for controlling an electronic relay with valve purging and forced positioning

No.	Type	Object name	Function
…			
3	1 bit	Output A	Valve purge
4	1 bit	Output A	Forced positioning
…			
6	1 bit	Output A	Telegr. fault
…			
3	1 bit	Output B	Valve purge
4	1 bit	Output B	Forced positioning
…			
6	1 bit	Output B	Telegr. fault
…			
3	1 bit	Output C	Valve purge
4	1 bit	Output C	Forced positioning
…			
6	1 bit	Output C	Telegr. fault
…			
3	1 bit	Output D	Valve purge
4	1 bit	Output D	Forced positioning
…			
6	1 bit	Output D	Telegr. fault
…			
29	1 bit	Output telegram	Telegr. trigger valve purge

Communication objects
when used for controlling LEDs (swit-ching)

No.	Type	Object name	Function
1	1 bit	Output A	LED, switching
3	1 bit	Output A	LED permanent ON
8	1 bit	Output B	LED, switching
10	1 bit	Output B	LED permanent ON
15	1 bit	Output C	LED, switching
17	1 bit	Output C	LED permanent ON
22	1 bit	Output D	LED, switching
24	1 bit	Output D	LED permanent ON

Communication objects
when used for controlling an LED with status acknowledgement

No.	Type	Object name	Function
…			
4	1 bit	Output A	Telegr. status/ackn.
…			
11	1 bit	Output B	Telegr. status/ackn.
…			
18	1 bit	Output C	Telegr. status/ackn.
…			
25	1 bit	Output D	Telegr. status/ackn.

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Communication objects
when used for controlling an LED (flashing)

No.	Type	Object name	Function
1	1 bit	Output A	LED, flashing
…			
1	1 bit	Output B	LED, flashing
…			
1	1 bit	Output C	LED, flashing
…			
1	1 bit	Output D	LED, flashing
…			

Communication objects
when used as an input for switching sequences (“latching relay”) (3 levels)

No.	Type	Object name	Function
0	1 bit	Input A	Disable
1	1 bit	Input A	Value 1
2	1 bit	Input A	Value 2
3	1 bit	Input A	Value 3
6	1 bit	Input A	Level increment/decrement
7	1 bit	Input B	Disable
8	1 bit	Input B	Value 1
9	1 bit	Input B	Value 2
10	1 bit	Input B	Value 3
13	1 bit	Input B	Level increment/decrement
14	1 bit	Input C	Disable
15	1 bit	Input C	Value 1
16	1 bit	Input C	Value 2
17	1 bit	Input C	Value 3
20	1 bit	Input C	Level increment/decrement
21	1 bit	Input D	Disable
22	1 bit	Input D	Value 1
23	1 bit	Input D	Value 2
24	1 bit	Input D	Value 3
27	1 bit	Input D	Level increment/decrement

Communication objects
when used for switching sequences (“latching relay”) (5 levels)

No.	Type	Object name	Function
…			
4	1 bit	Input A	Value 4
5	1 bit	Input A	Value 5
…			
11	1 bit	Input B	Value 4
12	1 bit	Input B	Value 5
…			
18	1 bit	Input C	Value 4
19	1 bit	Input C	Value 5
…			
25	1 bit	Input D	Value 4
26	1 bit	Input D	Value 5

Communication objects
when used as a push button with multiple operations (3-fold)

No.	Type	Object name	Function
0	1 bit	Input A	Disable
1	1 bit	Input A	Telegr. operation 1-fold
2	1 bit	Input A	Telegr. operation 2-fold
3	1 bit	Input A	Telegr. operation 3-fold
7	1 bit	Input B	Disable
8	1 bit	Input B	Telegr. operation 1-fold
9	1 bit	Input B	Telegr. operation 2-fold
10	1 bit	Input B	Telegr. operation 3-fold
14	1 bit	Input C	Disable
15	1 bit	Input C	Telegr. operation 1-fold
16	1 bit	Input C	Telegr. operation 2-fold
17	1 bit	Input C	Telegr. operation 3-fold
21	1 bit	Input D	Disable
22	1 bit	Input D	Telegr. operation 1-fold
23	1 bit	Input D	Telegr. operation 2-fold
24	1 bit	Input D	Telegr. operation 3-fold

Communication objects
when used as a push button with multiple operations (4-fold) and detection of long switch operations

No.	Type	Object name	Function
…			
4	1 bit	Input A	Telegr. operation 4-fold
6	1 bit	Input A	Telegr. operation long
…			
11	1 bit	Input B	Telegr. operation 4-fold
13	1 bit	Input B	Telegr. operation long
…			
18	1 bit	Input C	Telegr. operation 4-fold
20	1 bit	Input C	Telegr. operation long
…			
25	1 bit	Input D	Telegr. operation 4-fold
27	1 bit	Input D	Telegr. operation long

Communication objects
when used as a pulse counter (4 byte)

No.	Type	Object name	Function
0	1 bit	Input A	Disable
1	4 byte	Input A	Telegr. counter value 4 bytes
3	1 bit	Input A	Request counter values
7	1 bit	Input B	Disable
8	4 byte	Input B	Telegr. counter value 4 bytes
10	1 bit	Input B	Request counter values
14	1 bit	Input C	Disable
15	4 byte	Input C	Telegr. counter value 4 bytes
17	1 bit	Input C	Request counter values
21	1 bit	Input D	Disable
22	4 byte	Input D	Telegr. counter value 4 bytes
24	1 bit	Input D	Request counter values

Communication objects
when used as a pulse counter (4 byte)
with overflow and reset function

No.	Type	Object name	Function
…			
2	4 byte	Input A	Differential counter 4 bytes
…			
4	1 bit	Input A	Differential counter overflow
5	1 bit	Input A	Reset differential counter
…			
9	4 byte	Input B	Differential counter 4 bytes
…			
11	1 bit	Input B	Differential counter overflow
12	1 bit	Input B	Reset differential counter
…			
16	4 byte	Input C	Differential counter 4 bytes
…			
18	1 bit	Input C	Differential counter overflow
19	1 bit	Input C	Reset differential counter
…			
23	4 byte	Input D	Differential counter 4 bytes
…			
25	1 bit	Input D	Differential counter overflow
26	1 bit	Input D	Reset differential counter

Communication objects
when used as a pulse counter (2 byte)

No.	Type	Object name	Function
…			
1	2 byte	Input A	Telegr. counter value 2 bytes
2	2 byte	Input A	Request counter values
…			
8	2 byte	Input B	Telegr. counter value 2 bytes
9	2 byte	Input B	Request counter values
…			
15	2 byte	Input C	Telegr. counter value 2 bytes
16	2 byte	Input C	Request counter values
…			
22	2 byte	Input D	Telegr. counter value 2 bytes
23	2 byte	Input D	Request counter values
…			

Communication objects
when used as a pulse counter (1 byte)

No.	Type	Object name	Function
…			
1	1 byte	Input A	Telegr. counter value 1 byte
2	1 byte	Input A	Request counter values
…			
8	1 byte	Input B	Telegr. counter value 1 byte
9	1 byte	Input B	Request counter values
…			
15	1 byte	Input C	Telegr. counter value 1 byte
16	1 byte	Input C	Request counter values
…			
22	1 byte	Input D	Telegr. counter value 1 byte
23	1 byte	Input D	Request counter values
…			

General **parameters.**
The default setting for the values is **printed in bold type.**

Common for all inputs:	
General:	
– Transmission delay [0…255 sec.]	**2**
after bus voltage recovery	
– The transmission delay time contains the initialization time	**<--- NOTE**
– Limit number of telegrams	yes / **no**
Only if “yes” is selected:	
– Max. number of transmitted telegrams within a period	**20**
– Period	50 ms / …/ **10 s** / … / 1 min
– Transmit object “Telegr. valve purge”	yes
	no
– This parameter is relevant for the controlling of an electronic relay	**<--- NOTE**
Only if “yes” is selected:	
– Transmit telegram every	7 days 14 days **30 days** 50 days
– Period of valve purge	1 min / **2 min** / 5 min / 10 min

Separate for each channel:	
– Function of the channel	**no function** Switch sensor Switch/dimming sensor Shutter sensor Value / forced operation Control scene Control electr. relay (heating actuator) Control LED Switching sequence (“latching relay”) Push button with multiple operation Counter

Parameters when used as a switch sensor. The default setting for the values is **printed in bold type.**

Only when used as a switch sensor:	
– Distinction between long and short operation	yes / **no**
Only if “yes” is selected:	
– Connected contact type	normally closed **normally open**
– Reaction on short operation	**ON** / OFF / TOGGLE / no reaction
– Reaction on long operation	ON / **OFF** / TOGGLE / no reaction
– Long operation after: Base	**100 ms** / 1 s / … / 1 min / … / 1 h
– Factor (2…255)	**5**
– Number of objects for short/long operation	**1 object** 2 objects
– Debounce time	10 ms debounce time / … / **50 ms debounce time** / 150 ms debounce time
Only if “no” is selected:	
– Cyclic transmission of object “Telegr. switch”	**no** if “switch” = ON if “switch” = OFF always
– Reaction on closing the contact (rising edge)	**ON** OFF TOGGLE no reaction terminate cyclic transmission
– Reaction on opening the contact (falling edge)	ON **OFF** TOGGLE no reaction terminate cyclic transmission
Only for cyclical sending:	
– Telegram is repeated every (“transmission cycle time”): base	100 ms / **1 s** / … / 1 min / … / 1 h
– Factor (1…255)	**30**
– Transmit object value after bus voltage recovery	yes / **no**
– Debounce time / min. operation time	10 ms debounce time … **50 ms debounce time** … 150 ms debounce time Minimum operation time

Parameters when used as as switch/ dimming sensor. The default setting for the values is **printed in bold type.**

Only when used as a switch/dimming sensor:	
– Connected contact type	normally closed **normally open**
– Dimming functionality	**Dimming and switching** Only dimming
For dimming and switching:	
– Reaction on short operation	ON / OFF / **TOGGLE** / no reaction
– Reaction on long operation	Dim BRIGHTER Dim DARKER **Dim BRIGHTER/DARKER**
– Long operation after	0.3 s / 0.4 s / **0.5 s** / … / 10 s
For dimming only:	
– Reaction on operation	Dim BRIGHTER Dim DARKER **Dim BRIGHTER/DARKER**
– Dimming mode	**Start-stop dimming** Dimming steps
Only for dimming steps:	
– Brightness change on every sent telegram	100 % / 50 % / 25 % / 12.5 % / 6.25 % / **3.13 %** / 1.56 %
– Transmission cycle time: telegram is repeated every	0.3 s / 0.4 s / **0.5 s** / … / 10 s
For dimming and switching:	
– Debounce time	10 ms debounce time / … / **50 ms debounce time** / 150 ms debounce time
For dimming only:	
– Debounce time / min. operation time	10 ms debounce time … **50 ms debounce time** … 150 ms debounce time Minimum operation time

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Parameters when used as a shutter sensor**.** The default setting for the values is **printed in bold type.**

Only when used as a shutter sensor:	
– Operating functionality of blind	1 push button, short = stepping, long = moving 1 push button, short = moving, long = stepping 1 push button operation, moving 1 switch operation, moving **2 push button, standard** 2 switch operation, moving (shutter) 2 push button, moving (shutter) 2 push button, stepping
Only for 1 push button, short = stepping, long = moving:	
– Long operation: move UP/DOWN Short operation: Lamella	**<--- Note about functionality**
– Connected contact type	normally closed **normally open**
– Long operation after	0.3 s / 0.4 s / **0.5 s** / … / 10 s
– Debounce time	10 ms debounce time / … / **30 ms debounce time** / 150 ms debounce time
Only for 1 push button, short = moving, long = stepping:	
– Long operation: Lamella Short operation: move UP/DOWN	**<--- Note about functionality**
– Connected contact type	normally closed **normally open**
– Long operation after	0.3 s / 0.4 s / **0.5 s** / … / 10 s
– "Telegr. STOP/lamella adj." is repeated every	0.3 s / **0.4 s** / 0.5 s / … / 10 s
– Debounce time	10 ms debounce time / … / **30 ms debounce time** / 150 ms debounce time
Only for 1 push button operation, moving:	
– On every operation in succession UP - STOP - DOWN - STOP	**<--- Note about functionality**
– Connected contact type	normally closed **normally open**
– Debounce time	10 ms debounce time / … / **30 ms debounce time** / 150 ms debounce time
Only for 1 switch operation, moving:	
– On operation: UP/DOWN, end of operation: STOP	**<--- Note about functionality**
– Connected contact type	normally closed **normally open**
– Debounce time	10 ms debounce time / … / **30 ms debounce time** / 150 ms debounce time
Only for 2 push button, standard:	
–Short operation: STOP/Lamella UP/DOWN Long operation: move UP/DOWN	**<--- Note about functionality**
– Connected contact type	normally closed **normally open**
– Reaction on short operation	**STOP / Lamella UP** STOP / Lamella DOWN
– Reaction on long operation	**MOVE UP** MOVE DOWN
– Long operation after	0.3 s / 0.4 s / **0.5 s** / … / 10 s
– Debounce time	10 ms debounce time / … / **30 ms debounce time** / 150 ms debounce time

4

Parameters when used as a shutter sensor**.** The default setting for the values is **printed in bold type.**

Only for 2 switch operation, moving (shutter):	
– On operation: moving, end of operation: STOP	**<--- Note about functionality**
– Connected contact type	normally closed
	normally open
– Reaction on operation	**MOVE UP**
	MOVE DOWN
– Debounce time	10 ms debounce time / ... /
	30 ms debounce time /
	150 ms debounce time
Only for 2 push button, moving (shutter):	
– On operation: moving	**<--- Note about functionality**
– Connected contact type	normally closed
	normally open
– Reaction on operation	**MOVE UP**
	MOVE DOWN
– Debounce time	10 ms debounce time / … /
	30 ms debounce time /
	150 ms debounce time
Only for 2 push button, stepping:	
– On operation: stepping	**<--- Note about functionality**
– Connected contact type	normally closed
	normally open
– Reaction on operation	**STOP / Lamella UP**
	STOP / Lamella DOWN
– "Telegr. STOP/lamella adj." is repeated every	0.3 s / **0.4 s** / 0.5 s / … / 10 s
– Debounce time	10 ms debounce time / … /
	30 ms debounce time /
	150 ms debounce time

Parameters when used as a value / forced position input**.** The default setting for the values is **printed in bold type.**

Only when used as a value / forced position input:	
– Connected contact type	normally closed
	normally open
– Distinction between long and short operation	yes / **no**
Only if "yes" is selected:	
Separate for short/long operation:	
– Reaction on short (long) operation	no reaction
	2 bit value (forced position)
	1 byte value (0…255)
	2 byte value (-32768…32767)
	2 byte value (0…65535)
	2 byte value (floating point)
	4 byte value (0…4294967295)
Only for 2 bit value (forced position):	
– Transmitted value	ON, activate forced position
	OFF, activate forced operation
	Disable forced positioning
Only for 1 byte value:	
– Transmitted value (0…255)	**0**
Only for 2 byte value (-32768…32767):	
– Transmitted value (-32768…32767)	**0**
Only for 2 byte value (0…65535):	
– Transmitted value (0…65535)	**0**
Only for 2 byte value (floating point):	
– Transmitted value	-100.00 / … / **20.00** / … / **100.00**
Only for 4 byte value (0…4294967295):	
– Transmitted value (0…4294967295)	**0**
– Long operation after: Base	**100 ms** / 1 s / … / 1 h
– Factor (2…255)	**4**

Parameters when used as a value / forced position input**.** The default setting for the values is **printed in bold type.**

– Debounce time	10 ms debounce time / … /
	50 ms debounce time / … /
	150 ms debounce time
Only if “no” is selected:	
– Reaction on operation	no reaction
	1 bit value
	2 bit value (forced position)
	1 byte value (0…255)
	2 byte value (-32768…32767)
	2 byte value (0…65535)
	2 byte value (floating point)
	4 byte value (0…4294967295)
Only for 1 bit value:	
– Transmitted value	**0** / 1
Only for 2 bit value (forced position):	
– Transmitted value	ON, activate forced position
	OFF, activate forced operation
	Disable forced positioning
Only for 1 byte value:	
– Transmitted value (0…255)	**0**
Only for 2 byte value (-32768…32767):	
– Transmitted value (-32768…32767)	**0**
Only for 2 byte value (0…65535):	
– Transmitted value (0…65535)	**0**
Only for 2 byte value (floating point):	
– Transmitted value	-100.00 / … / **20.00** / … / 100.00
Only for 4 byte value (0…4294967295):	
– Transmitted value (0…4294967295)	**0**
– Transmit object value after bus voltage recovery	yes / **no**
– Debounce time / min. operation time	10 ms debounce time
	…
	50 ms debounce time
	…
	150 ms debounce time
	Minimum operation time

Parameters when used for controlling scenes. The default setting for the values is **printed in bold type.**

Only when used for controlling scenes:	
– Connected contact type	normally closed **normally open**
– Control the scene via	**5 separate objects** 8 bit scene
Only for 8 bit scene:	
– No. of scene (0…63)	**0**
– Reaction on short operation	no reaction **Recall scene**
– Store scene	**no** on long operation with object value = 1 on long operation (if object value = 1)
– Long operation after	0.3 s / … / **3 s** / … / 10 s
– Debounce time	10 ms debounce time / … / **50 ms debounce time** / 150 ms debounce time
Only for 5 separate objects, separate for each actuator group:	
– Control of actuator group … via	**1 bit object** 8 bit object
Only for 1 bit object:	
– Preset value actuator group …	**ON** / OFF
Only for 1 byte object:	
– Preset value actuator group …	**0**

Parameters when used for controlling an electronic relay (heating actuator). The default setting for the values is **printed in bold type.**

Only when used for controlling an electronic relay (heating actuator):	
– Control telegram is received as	**1 bit (PWM or on-off control)**
	1 byte (continuous)
– Connected valve type	**normally closed**
	normally open
– PWM cycle time for continuous control	20 s / 30 s / … / **1 min** / … / 1 h
– Enable object “Telegr. valve purge”	yes / **no**
– Enable monitoring of the controller, fault message, forced positioning	yes / **no**
– Position of the valve drive on	0 % (closed)
bus voltage recovery	100 % (opened)
	10 %
	20 %
	…
	90 %
Only when monitoring of the controller is enabled:	
– Monitoring of the room thermostat	yes / **no**
Only if “yes” is selected:	
– Cyclic monitoring time of room thermostat: base	100 ms / … / **1 min** / … / 1 h
– Factor (1…155)	**20**
– Position of the valve drive on	0 % (closed)
failure of the control	100 % (opened)
	10 %
	20 %
	…
	90 %
– Enable object “Telegr. fault”	yes / **no**
– Forced positioning	yes / **no**
Only if “yes” is selected:	
– Valve position during forced positioning	0 % (closed)
	100 % (open)
	10 %
	…
	50 %
	…
	90 %

Parameters when used for controlling LEDs. The default setting for the values is **printed in bold type.**

Only when used for controlling LED:	
– LED functionality	**switch ON/OFF** Flashing
Only for “switch ON/OFF”:	
– LED is switched ON, if	**Object “Telegr. switch” = 1** Object “Telegr. switch” = 0
Only for “Flashing”:	
– LED flashes, if	**Object “LED flashing” = 1** Object “LED flashing” = 0
– LED is switched ON for	200 ms / … / **1 s** / … / 60 s
– LED is switched OFF for	200 ms / … / **1 s** / … / 60 s
– Time limit of LED control	yes / **no**
Only if “yes” is selected:	
–Time limit: base	100 ms / 1 s / **10 s** / … / 1 h
– Time limit: factor (1…255)	**5**
– Transmit status via object “Telegr. status/ackn.”	yes / **no**
– Status of LED on bus voltage recovery	**OFF** / ON

Parameters when used for switching sequences. The default setting for the values is **printed in bold type.**

Only when used for switching sequences (“latching relay”):	
– Connected contact type	normally closed **normally open**
– Number of objects	2 levels **3 levels** 4 levels 5 levels
– Type of switching sequence	**sequentially on/off (one push button)** on/off (several push buttons) All combinations
With only one push button:	
– Example for switching sequence …>000>001>011>111>011>001>000>…	**<--- NOTE**
With several push buttons:	
– Example for switching sequence 000>001>011>111	**<--- NOTE**
– Function on operation	**switch upwards** switch downwards
Only for all combinations:	
– Example for switching sequence …>000>001>011>010>110>111>101>…	**<--- NOTE**
– Debounce time / min. operation time	10 ms debounce time … **50 ms debounce time** … 150 ms debounce time Minimum operation time

Parameters when used as a push button with multiple operation. The default setting for the values is **printed in bold type.**

Only when used as a push button with multiple operation:	
– Connected contact type	**normally open** normally closed
– Max. number of operations (= number of objects)	single operation 2-fold operation **3-fold operation** 4-fold operation
– Transmitted value (object "Telegr. operation ...-fold")	ON / OFF / **TOGGLE**
– Transmit value on every operation	yes / **no**
– Maximum time between two operations	0.3 s / … / **1 s** / … /10 s
– Additional object for long operation Only if "yes" is selected:	yes / **no**
– Long operation after	0.3 s / … / **0.5 s** / … /10 s
– Transmitted value (object "Telegr. operation long")	ON / OFF / **TOGGLE**
– Debounce time	10 ms debounce time / … / **50 ms debounce time** / … / 150 ms debounce time

4

Parameters when used as a pulse counter. The default setting for the values is **printed in bold type.**

Only when used as a pulse counter:	
– Pulse detection on	**closing contact (rising edge)** opening contact (falling edge)
– Data width of counter	8 bit (0…255) 16 bit (-32.768…32.767) 16 bit (0…65.535) **32 bit (-2.147.483.648 …2.147.483.647)**
Only for 8 bit:	
– Counter starts at (0…255)	**0**
Only for 16 bit (-32.768…32.767):	
– Counter starts at (-32.768…32.767)	**0**
Only for 16 bit (0…65.535):	
– Counter starts at (0…65.535)	**0**
Only for 32 bit (-2.147.483.648…2.147.483.647):	
– Counter starts at (-2.147.483.648…2.147.483.647)	**0**
– Debounce time / min. operation time	10 ms debounce time … **50 ms debounce time** … 150 ms debounce time Min. operation time
– The debounce time must be shorter than the pulse period of the input signal	**<--- NOTE**
– Transmit counter values after bus voltage recovery	yes / **no**
– Enable additional options (factor/divider, cyclical transmission)	yes / **no**
Only if additional options are enabled:	
– Divider: number of input pulses for one counter step (1…32767)	**1**
– Factor: one counter step changes counter value by (-32768…32767)	**1**
– Transmit counter values cyclically	yes / **no**
Only if “yes” is selected:	
– Counter values are being transmitted every: Base	**1 s** / … / 1 h
– Factor (1…255)	**30**
– Enable differential counter	yes / **no**
Only if “yes” is selected:	
– Over-/underrun of differential counter at (-2147483648… 2147483647)	**1000**
– The overrun value must be greater than the factor	**<--- NOTE**

Montage- und Betriebsanleitung

ABB i-bus® EIB Universal-Dimmaktor UD/S 2.300.1

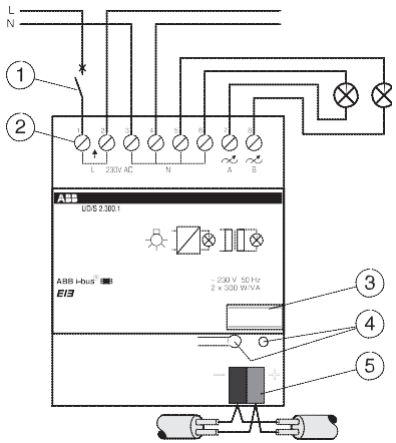
D

Bed.-Anl. Nr. GH Q630 7047 P0001

ABB STOTZ-KONTAKT GmbH
Postfach 101 680, D-69006 Heidelberg
Telefon (06221) 701-543, Fax (06221) 701-724

Druckschrift-Nr. G STO 4065 00 D,E,F,H,I,SP,S

Anschlußbild



Wichtige Hinweise

Diese Betriebsanleitung enthält die erforderlichen Informationen für den bestimmungsgemäßen Gebrauch des o.g. Gerätes in einer ABB i-bus EIB Anlage.
Für die Planung und Projektierung der Busgeräte in einer Installationsbus-Anlage EIB stehen detaillierte Beschreibungen der Anwendungsprogramme sowie Unterlagen zur Planungsunterstützung vom Hersteller zur Verfügung.

Normen und Bestimmungen
Bei der Planung und Errichtung von elektrischen Anlagen sind die einschlägigen Normen, Richtlinien, Vorschriften und Bestimmungen des jeweiligen Landes zu beachten.

Wichtige Hinweise

Arbeiten am Installationsbus dürfen nur von geschulten Elektro-Fachkräften ausgeführt werden. Verlegung und Anschluss der Busleitung, sowie der Anwendungsgeräte müssen gemäß den gültigen Richtlinien unter Beachtung des Handbuches Gebäude-Systemtechnik der jeweiligen EIBA durchgeführt werden. Die jeweils gültigen Sicherheitsbestimmungen, z.B. Unfallverhütungsvorschriften, Gesetz über technische Arbeitsmittel sind auch für die angeschlossenen Betriebsmittel und Anlagen einzuhalten.

Wichtige Hinweise

Gefahrenhinweise
- Gerät bei Transport, Lagerung und im Betrieb vor Feuchtigkeit, Schmutz und Beschädigung schützen
- Gerät nicht außerhalb der spezifizierten technischen Daten betreiben
- Nur im geschlossenen Gehäuse (Verteiler) betreiben
- Gerät an den dafür vorgesehenen Anschlussklemmen – wenn vorhanden – erden
- Kühlung der Geräte nicht behindern

Technische Daten

Mit dem Universal-Dimmaktor können zwei voneinander unabhängige Leuchtengruppen über ABB i-bus® EIB gedimmt werden. An beiden dimmbaren Ausgängen können unterschiedliche Lastenarten unabhängig voneinander betrieben werden, wie Glühlampen, Hochvolt-Halogenlampen oder Niedervolt-Halogenlampen mit elektronischen oder konventionellen Transformatoren. Bei Anschluss von Niedervolt-Halogenlampen werden Transformatoren von ABB empfohlen.
Bei Wiedereinschalten der Versorgungsspannung (nach Spannungsfreiheit von länger als ca. 10 Sekunden) oder nach einem Reset über den EIB-Bus führt das Gerät einen Lasttest durch und passt die Betriebsart entsprechend an. Während einer Änderung der Lastart ist das Gerät spannungsfrei zu schalten.

Technische Daten

Werden dimmbare Transformatoren verwendet, so müssen diese über eine eingebaute thermische Absicherung verfügen. VDE-Zulassung der Transformatoren wird empfohlen.

Geräteversorgung	über ABB i-bus® EIB
Leistungseingänge	2 Klemmen zum Anschluss von Phase L und Neutralleiter N 230 V AC +/-10% , 50 Hz
Leistungsausgänge	2 unabhängige Dimmkanäle, gedimmt über Phasenan– und –abschnittsteuerung 2 Klemmen für Neutralleiter der gedimmten Lasten, 2 Klemmen L und N zum Durchschleifen

Technische Daten

Ausgangsleistung je Kanal	300 W / VA maximal (500 W / VA wenn nur ein Kanal in Betrieb ist) 40 W / VA minimale Last
Betriebstemperaturbereich	–5°C bis 45°C
max. Verlustleistung	5 W
Schutzart	IP 20 nach DIN EN 60529
Bedien- und Anzeigeelemente	
@ Schilderträger	
© LED (rot) und Taste	zur Eingabe der physikalischen Adresse
Anschluss	
G) Vorsicherung	10A, Sicherungsautomat, z.B. S260 B10 [1)]
(1) Ein- und Ausgänge	Schraubklemmen
@ ABB i-bus® EIB	Busanschlussklemme (im Lieferumfang enthalten)

Technische Daten

Abmessungen

(HxBxT)	90 x 72 x 64 mm
Einbautiefe	68 mm
Breite	4 Module à 18 mm

Gewicht 0,25 kg

Innerhalb des gesamten Betriebstemparaturbereichs steht die volle Ausgangsleistung zur Verfügung.

[1)] Eine besondere Vorsicherung ist nur notwendig bei Durchschleifen des L- und N-Leiters

Inbetriebnahme/Betrieb

Die Vergabe der physikalischen Adresse, der Gruppenadresse, sowie das Eingeben der Parameter erfolgt mit der ETS (EIBA Tool Software).

Die aktivierten Dimmausgänge sollten nicht ohne Last betrieben werden.

Es sind ausschließlich fest montierte Verbraucher zulässig. Defekte Lampen sind umgehend auszutauschen. Während einer Laständerung ist das Gerät spannungsfrei zu schalten.

Unterschiedliche Lastarten mit induktivem und kapazitivem Anteil dürfen an einem Ausgang nicht gemischt werden, z.B. konventioneller und elektronischer Transformator.

Das Programmieren von Transformatoren, die über das Schalten der Leistungseingänge programmierbar sind, kann nicht mit dem Dimmer durchgeführt werden.

Montage

Zum Einbau in Verteiler oder Kleingehäuse. Schnellbefestigung auf Tragschiene 35mm, DIN EN 50022. Der Anschluss an den Bus erfolgt durch Aufstecken der Busanschlussklemme. Der Anschluss der Ein- und Ausgänge erfolgt über Schraubklemmen.

Bei Einbau in einen Verteiler ist sicherzustellen, dass die Abwärme ausreichend abgeführt wird. Das Gerät dar f nur senkrecht mit Lüftungsschlitzen nach oben montiert werden.

Montage

Beim Durchschleifen des L- und des N-Leiters ist zu beachten, dass der maximale Klemmenstrom von 10A nicht überschritten wird. Der Strang ist entsprechend abzusichern.

Bei Isolationsprüfungen, die – entgegen der Norm DIN VDE 0100,Teil 610 – Ader gegen Ader messen, muss das Gerät abgeklemmt werden, da es sonst zerstört werden kann.

Anschlussquerschnitt

fein- oder eindrähtig 0,2–2,5mm²

Installation and Operating Instructions

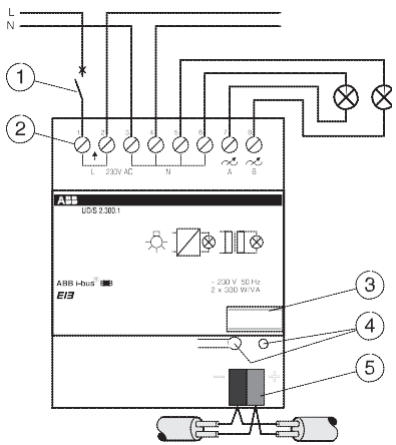
ABB i-bus® EIB Universal Dimmer UD/S 2.3001

GB

Instr.-no. GH Q630 7047 P0001

ABB STOTZ-KONTAKT GmbH
Postfach 101 680, D-69006 Heidelberg
Telephone (06221) 701-543, Fax (06221) 701-724

Connection diagram



Important notes

These operating instructions contain the necessary information for the correct use of the aforementioned unit in an ABB i-bus EIB system.

Detailed descriptions of the user programs and documentation on planning support by the manufacturer are available for planning and configuring the bus units in an ABB i-bus EIB system.

Standards and regulations

The relevant standards, guidelines, specifications and regulations of the country in question must be observed for planning and setting up electrical systems.

Important notes

Work on the installation bus may only be carried out by trained electricians.The bus line and the units must be installed and connected in accordance with the relevant guidelines, observing the EIB user manual Building Systems Engineering of the national EIBA.

The relevant safety regulations, e.g. accident prevention regulations, law on technical work equipment, must also be observed for the connected equipment and systems.

Important notes

Safety instructions

- Protect the unit against moisture, dirt and damage during transpor t, storage and operation.
- Do not operate the unit outside the specified technical data
- Operate only in a closed housing (distribution cabinet)
- Earth the unit at the terminals provided – if existing – for this purpose
- Do not obstruct cooling of the units.

Technical data

The universal dimmer allows two independent two independent groups of luminaries to be dimmed via ABB i-bus® EIB. Both dimmer outputs can be used in conjunction with different load types, e.g., incandescent lamps, 230V halogen lamps or low voltage halogen lamps with electronic and wound transformers.ABB transformers are recommended for use in low voltage lighting circuits.

On initial power up (device previously without supply voltage for >10 seconds) or after an EIB-reset the universal dimmer automatically tests for the type of load connected and configures its mode of operation accordingly. The universal dimmer must be isolated when carrying out a change of load type.

All dimmable transformers connected to the universal dimmer must have built in thermal protection.

Technical data

Supply of device	via ABB i-bus® EIB
Power inputs	230 V AC +/-10%, 50Hz 2 terminals for phase L and neutral N
Power outputs	2 independent dimming channels, 2 terminals for neutral N of dimmed loads, 2 terminals L and N for loop through
max. output power per channel	300 W / VA maximum (500 W / VA one channel only in operation) 40 W / VA minimum load
Operating temperature range	-5°C to +45°C
Max. power loss	5 W
Protection	IP 20 to EN 60 529

Technical data

Operating and display elements

@ Label carrier	
© LED (red) and button	for entering the physical address

Connection

G) Circuit protection	10A circuit breaker, e.g., S260 B10 [1]
(1) Inputs and outputs	screw terminals
@ ABB i-bus® EIB	bus connection terminal (included)

Dimensions

(h x w x d)	90 x 72 x 64 mm
Installation depth	68 mm
width	4 modules @ 18 mm
Weight	0.25 kg

The full output power is guaranteed over the complete operating temperature range.

[1] An extra circuit protection is only necessary if phase L and neutral N are looped through.

Commissioning/Operation

The physical and group addresses are issued and the parameters entered with the ETS (EIB Tool Software)

Activated dimmer outputs should not be operated without load.

Only fix mounted loads are permitted. Defective lamps should be exchanged immediately. The universal dimmer must be isolated when carrying out a change of load type.

Different types of luminary loads must not be mixed on the same dimmer output channel, e.g., low voltage wound transformers together with electronic ballasts.

Transformators that are programmed by switching the 230 V power inputs are not programmable over the dimmer.

Installation

For installation in distribution panels or small enclosures.Snap fixing onto 35 mm mounting rails, EN 50022.Connection to the bus is by attachment of bus connection terminal. Connection to the inputs and outputs is via screw terminals.

Ensure proper ventilation for the unit. The device must be mounted vertically with the ventilation slits at the top.

If phase Land neutral N are being looped through, the maximum terminal current of10Amust be taken into consideration. The unit should be protected with a 10A circuit breaker, e.g. S260 B10.

If high voltage insulation-tests are to be carried out, the device must be disconnected, otherwise the unit may be damaged.

Cable cross section

single or multi-core 0,2-2,5mm^2

Instructions de montage et d'utilisation

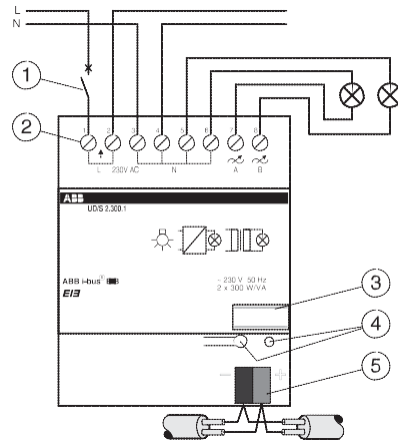
ABB i-bus® EIB
Acteur-variateur universel
Type UD/S 2.3001

F

Inst. empl. N° GH Q630 7047 P0001

ABB STOTZ-KONTAKT GmbH
Postfach 101680, D-69006 Heidelberg
Telephone (06221) 701-543, Fax (06221) 701-724

Schéma de raccordement



Remarques importantes

Ces instructions d'emploi comportent les informations nécessaires à l'utilisation conforme de l'appareil ci-dessus au sein d'un système ABB i-bus EIB.

Des descriptions détaillées des programmes d'application, de même qu'une documentation destinée à l'assistance technique pour la planification sont disponibles pour tout ce qui concerne la planification et la mise en oeuvre d'un appareil dans un système EIB. Ces documents sont disponibles auprès du constructeur.

Normes et règlements
Les normes, directives, règlements et stipulations en vigueur dans le pays concerné

Remarques importantes

doivent être respectés lors de la planification et de la mise en place d'installations électriques.

Les travaux au niveau du bus de l'installation ne doive nt êtr e réalisés que par des électriciens formés à ce type d'équipements. Le bus et les appareils de l'application doivent être posés et connectés en conformité avec les directives en vigueur et le manuel utilisateur domotique EIBA.

Les règlements de sécurité en vigueur, comme les directives de prévention des accidents ou la législation en matière d'équipement technique doivent être observés pour les équipements et installations reliés.

Remarques importantes

Remarques relatives aux risques

- Protéger l'appareil lors du transport, du stockage et du fonctionnement vis-à-vis de l'humidité, de la poussière et des dommages.
- Ne jamais faire fonctionner l'appareil en dehors des caractéristiques techniques spécifiées.
- Ne faire fonctionner l'appareil que dans des enveloppes fermées (répartiteur).
- Mettre l'appareil à la terre par l'intermédiaire des bornes de connexion prévues - si prévu
- Ne pas entraver le refroidissement de l'appareil

Caractéristiques techniques

Cet acteur-variateur universel permet de varier simultanément la luminosité de deux groupes de luminaires indépendants via le bus ABB i-bus® EIB. C'est ainsi que des charges de différent type, comme par exemple des ampoules, des lampes à halogène à haute ou à faible tension et équipées de transformateurs électroniques ou conventionnels, peuvent être couplées de manière indépendante l'une de l'autre sur les deux sorties sur variateur.
Dans le cas d'un raccordement de lampes à halogène à faible niveau de tension, l'utilisation de transformateurs ABB est fortement recommandée.
Lors de la remise en marche de la tension d'alimentation (après absence de tension pendant plus de 10 s) ou après remise à l'état initial via le bus EIB, l'appareil exécute un contrôle de la charge et adapte le mode de fonctionnement en fonction des appareils en place.
Lors d'un changement du type de charge, il convient de mettre l'appareil hors tension.

Caractéristiques techniques

Si des transformateurs pouvant être variés sont mis en oeuvre, ceux-ci doivent disposer d'une protection thermique interne.

Alimentation

de l'appareil	via ABB i-bus® EIB
Entrées de puissance	2 bornes pour le raccordement de la phase L et du neutre N 230 V AC +/- 10 %, 50 Hz
Sorties de puissance	2 canaux à variateur indépendants actionnés par commande de retard et de section de phase 2 bornes pour le neutre des charges variées, 2 bornes L et N pour le bouclage

Caractéristiques techniques

Puissance de sortie par canal	300 W / VA max. (500 W / VA si seulement un canal est en service) 40 W / VA charge minimale
Plage de température de fonctionnement	-5 °C à +45 °C
Puissance de perte max.	5 W
Indice de protection	IP 20 selon EN 60 529

Eléments de commande et d'affichage
@ porte-plaquettes
© LED (rouge) et touche pour l'entrée de l'adresse physique

Caractéristiques techniques

Raccordement	
G) Préfusible	10 A, coupe-circuit, p. ex. S260 B 10 [1]
(1) Entrées et sorties	bornes à vis
@ ABB i-bus® EIB	borne de raccordement au bus (fournie d'origine)
Dimensions	
(h x l x p)	90 x 72 x 64 mm
Profondeur d'encastrement	68 mm
Largeur	4 modules de 18 mm
Poids	0,25 kg

La puissance de sortie complète est disponible au sein de la plage intégrale de la température de service.
[1] Un préfusible spécifique n'est nécessaire que lors d'un bouclage du conducteur L et N.

Mise en service/fonctionnement

L'affectation d'une adresse physique, d'une adresse de groupe ainsi que l'entrée de paramètres s'effectuent au moyen du logiciel ETS (EIBA Tool Software).

Les sorties sur variateur activées ne devraient pas être mises en œuvre lorsqu'il n'y a pas de charge d'appliquée.
Seuls des consommateurs montés de manière fixe sont autorisés. Toute lampe défectueuse doit être remplacée immédiatement. Lors d'une modification du type de charge, l'appareil doit être mis hors tension.
Des types de charge différents avec une part inductive et capacitive (p. ex. des transformateurs électroniques et conventionnels) ne doivent pas être connectés à la fois sur une seule et unique sortie.
La programmation de transformateurs pouvant être exécutée par commutation de sentrées de puissance n'est pas possible avec le variateur de lumière.

Montage

Le montage doit être effectué dans un distributeur ou dans une boîte de petite taille ou par fixation rapide sur rails-support de 35 mm selon DIN EN 50 022.
Pour le raccordement au bus, emboîter la borne de raccordement au bus.
Le couplage des entrées et des sor ties s'effectue par l'intermédiaire de bornes à vis.
Lors du montage dans un distributeur, il convient d'assurer une dissipation fiable de la chaleur. L'appareil doit toujours être monté dans sa position debout, les fentes d'aération dirigées vers le haut.

Montage

Lors du bouclage des conducteurs L et N, il convient d'éviter un dépassement par le haut du courant maximum de la borne de 10 A. Le faisceau doit être sécurisé convenablement.
Lors de la vérification de l'isolation moyennant la comparaison fil - fil, ce qui s'oppose aux stipulations de la norme DIN VDE 0100, partie 610, il convient de couper l'appareil de l'alimentation en tension étant donné que sinon, il risque d'être détruit.
Section de raccordement fil mince ou fil unique 0,2 – 2,5 mm².

Montage- en gebruiksaanwijzing

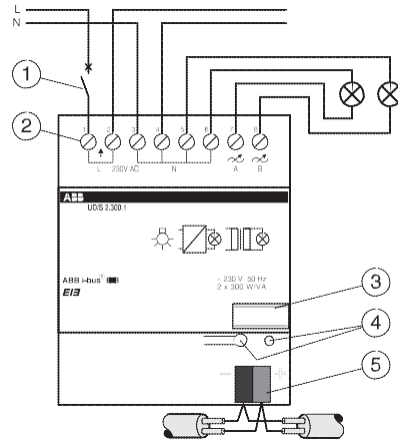
ABB i-bus® EIB
Universele dimmer
Type UD/S 2.300.1

NL

Gebruiksaanwijzing QH Q630 7047 P0001

ABB STOTZ-KONTAKT GmbH
Postfach 101 680, D-69006 Heidelberg
Telephone (06221) 701-543, Fax (06221) 701-724

Aansluitschema



Belangrijke aanwijzingen

Deze gebruiksaanwijzing bevat de vereiste informatie voor het reglementair gebruik van het hierboven genoemde apparaat in een installatie ABB i-bus EIB.

Voor de planning en het ontwerp van de busapparaten in een installatie-EIB staan gedetailleerde beschrijvingen van de toepassingsprogramma's alsmede documentaties t.b.v de planningsondersteuning van de fabrikant ter beschikking.

Normen en bepalingen

Bij de planning en bouw van elektrische installaties dienen de ter zake geldende normen, richtlijnen, voorschriften en bepalingen van het betreffende land in acht te worden genomen.

Belangrijke aanwijzingen

Werkzaamheden aan de installatiebus mogen uitsluitend door geschoolde elektriciëns worden uitgevoerd. Het aanleggen en aansluiten vandebuslijnenvandetoepassings-apparatuur dient te worden uitgevoerd conform de geldende richtlijnen met inachtneming van het Handboek systeem-techniek voor gebouwen van het desbetreffende nationale EIBA.

De ter zake geldende veiligheidsbepalingen, bijvoorbeeld: ongevalpreventievoorschriften, wet over technische hulpmiddelen dienen ook voor de aangesloten produktiemiddelen en installaties te worden nageleefd.

Belangrijke aanwijzingen

Gevareninstructies

- Bescherm het apparaat bij transport, opslag en in bedrijf tegen vocht, vuil en beschadiging
- Gebruik het apparaat niet buiten de gespecificeerde technische gegevens
- Gebruik het apparaat alleen in een gesloten huis (verdeler)
- Het apparaat aarden met de hiervoor bestemde aansluitklemmen (indien voorhanden)
- Belemmer de koeling van de apparaten niet

Technische gegevens

Met de universele dimmer kunnen twee van elkaar onafhankelijke armatuurgroepen via de ABB i-bus® worden gedimd.Aan beide dimbare uitgangen kunnen verschillende belastingtypes onafhankelijk van elkaar worden geregeld, zoals gloeilampen, hoogvolt-halogeenlampen of laagvolt-halogeenlampen met elektronische of conventionele transformator. Bij het aansluiten van laagvolt-halogeenlampen adviseren we transformatoren van ABB te gebruiken.
Bij het opnieuw aanzetten van de voedingsspanning (na een spanningloosheid van meer dan ca. 10 seconden) of na het terugzetten via de EIB-bus voert het apparaat een belastingstest uit en past het bedrijf hieraan aan. Als het belastingtype wordt veranderd, dient het apparaat spanningsvrij te worden geschakeld.

Technische gegevens

Als dimbare transformatoren worden gebruikt, dienen deze over een ingebouwde thermische zekering te beschikken.

Voeding van het apparaat	via ABB i-bus® EIB
Vermogensingangen	2 klemmen voor het aansluiten van fase L en neutrale leider N 230 V AC +/- 10%, 50 Hz
Vermogensuitgangen	2 onafhankelijke dim-kanalen, gedimd via faseaan- en afsnijsturing 2 klemmen voor de neutrale leider van de gedimde belastingen, 2 klemmen L en N voor het doorlussen

Technische gegevens

Uitgangsvermogen per kanaal	300 W/VA maximaal (500 W/VA als slechts een kanaal in gebruik is) 40 W/VA minimale belasting
Bedrijfstemperatuur-bereik	-5 °C tot 45 °C
max. vermogensverlies	5 W
Beschermklasse	IP 20 conf. DIN EN 60529

Bedien- en displayelementen

@ Plaathouder	
© LED (rood) en toets	voor het invoeren van het fysieke adres

Technische gegevens

Aansluiting

G) Voorzekering	10A, stroombreker, b.v. S260 B 10 [1]
(1) In- en uitgangen	schroefklemmen
@ ABB i-bus® EIB	busaansluitklem (bijgeleverd)

Afmetingen

(H x B x D)	90 x 72 x 64 mm
Inbouwdiepte	68 mm
Breedte	4 modules van 18 mm
Gewicht	0,25 kg

Binnen het volledige bedrijfstemperatuurbereik staat het volledige uitgangsvermogen ter beschikking.

[1] Een speciale zekering is alleen nodig als de L- en N-leider wordt doorgelust.

Ingebruikneming/Bedrijf

Het toewijzen van het fysieke adres, de groeps-adressen en de invoer van de parameters gebeurt met de ETS (EIBA Tool Software).
De geactiveerde dimuitgangen mogen niet onbelast worden gebruikt.
Alleen vast gemonteerde verbruikers zijn toegestaan.
Defecte lampen dienen onmiddellijk te worden vervangen. Tijdens het veranderen van een belasting dient het apparaat spanningsvrij te worden geschakeld.
Verschillende belastingtypes met een inductief en capacitief gedeelte mogen op een uitgang niet door elkaar worden gebruikt, b.v. een conventionele en een elektronische trans-formator.
Het programmeren van transformators die programmeerbaar zijn via het schakelen van de vermogensingangen, kan niet worden uitgevoerd met de dimmer.

Montage

Voorzien voor inbouw in verdeelkasten of compacte behuizingen. Snelbevestiging op een 35mm draagrail, DIN EN 50022.
Het aansluiten aan de bus gebeur t door opsteken van de busaansluitklem.
Het aansluiten van de in- en uitgangen gebeurt met behulp van schroefklemmen.
Bij het inbouwen in een verdeler dient men te zorgen dat de restwarmte voldoende wordt afgevoerd. Het apparaat mag alleen verticaal met de verluchtingssleuven naar boven worden gemonteerd.

Montage

Bij het doorlussen van de L- en N-leider dient men erop te letten dat de maximale klemmenstroom van 10A niet wordt overschreden. De leiding dient hiervoor te zijn beveiligd.
Bij isolatiecontroles die - in tegenstelling tot norm DIN VDE 0100, Deel 610 - ader tegen ader meten, dient het apparaat te zijn afgeklemd omdat anders storingen kunnen optreden.
Aansluitdiameter fijne draad of eendraads 0,2 - 2,5 mm²

Montaggio e guida all'uso

ABB i-bus® EIB
Dimmer universale variazione
Type UD/S 2.3001

I

Istr. no. GH Q 630 7047 P0001

ABB STOTZ-KONTAKT GmbH
Postfach 101680, D-69006 Heidelberg
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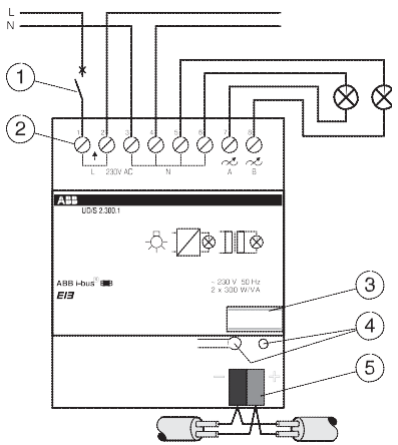
Schema delle connessioni



Indicazioni importanti

Questo libretto d'istruzione contiene le informazioni necessarie per la corretta utilizzazione dell'apparecchio sopraccitato in un sistema ABB i-bus EIB.

Per la programmazione e progetta zione dell'apparecchio in un'installazione d'impianto bus EIB sono disponibili descrizioni dettagliate del costruttore in riferimento ai programmi d'impiego e documentazioni d'assistenza alla progettazione delle apparecchiature stesse.

Norme e disposizioni
La programmazione e l'installazione di impianti elettrici deve avvenire attenendosi alle norme, direttive, prescrizioni e disposizioni in vigore nella rispettiva nazione.

Indicazioni importanti

Le attività tecniche necessarie e relative al bus d'installa zione devono essere eseguite esclusivamente da personale con rispettiva specializzazione. L'installazione ed il collegamento della linea bus e degli strumenti impiegati devono essere eseguiti in conformità alle direttive vigenti secondo il manuale dell'utente EIB della tecnica dei sistemi per fabbricati dello EIBA-nazionale.

Ogni norma di sicurezza vigente, come per esempio norme antinfortunistiche o leggi su mezzi o strumenti di lavoro devono essere rispettate anche per quanto concerne i mezzi di produzione e gli impianti collegati.

Indicazioni importanti

Le norme di sicurezza, come per esempio norme antinfortunistiche o leggi sugli strumenti tecnici di lavoro, devono essere rispettate anche per quanto concerne i mezzi di produzione e gli impianti collegati.

Indicazioni di pericolo
- Proteggere l'apparecchio da umidità, sporcizia, guasti durante trasporto, immagazzinaggio e funzionamento.
- Non utilizzare l'apparecchio in modo non conforme ai dati tecnici specifici.
- Utilizzare solamente nell'involucro chiuso (ripartitore).
- Per la messa a terra collegare l'apparecchio agli appositi morsetti (se disponibili).
- Non ostacolare il raffreddamento dell' apparecchio.

Dati tecnici

Il dimmer universale consente la variazione di luminosità di due gruppi indipendenti di luci mediante i-bus® EIB ABB. Mediante le due uscite variabili è possibile comandare indipendentemente tipi di carico differenti, come lampade a incandescenza,lampade alogene ad alta tensione con trasformatori elettronici o convenzionali o lampade alogene a bassa tensione con trasformatori elettronici o convenzionali. Per la connessione di lampade alogene a bassa tensione è consigliato l'utilizzo di trasformatori ABB.
Alla riattivazione della tensione di alimentazione dopo disattivazione di quest'ultima per periodi superiori a ca.10 secondi o dopo un reset tramite EIB-bus, il dispositivo esegue un test di carico e adatta in modo corrispondente la propria modalità operativa. Durante eventuali variazioni del carico è necessario sconnettere il dispositivo dalla tensione.

Dati tecnici

In caso di utilizzo di trasformatori variabili, questi devono disporre di una sicurezza termica integrata.

Alimentazione del dispositivo	Tramite i-bus® EI ABB
Ingressi di potenza	2 morsetti per la connessione di conduttore di fase L e conduttore neutro N 230 V CA ±10%, 50 Hz
Uscite di potenza	2 uscite variabili indipendenti, variate mediante comando ritardo e anticipo di fase 2 morsetti per conduttore neutro dei carichi variati, 2 morsetti L e N variabili.

Dati tecnici

Potenza in uscita per canale	300 W/VA massimi (500 W/VA se viene utilizzato un solo canale) carico minimo 40W/VA
Ambito temperatura di esercizio	Da +5° C a +45° C
Massima potenza dissipata	5 W
Tipo protezione	IP 20 conf. EN 60 529

Elementi di comando e visualizzazione

@ Portatarghetta	
© LED rosso e tasto	Per l'immissione degli indirizzi fisici

Dati tecnici

Connessione

G) Sicurezza a monte	10 A, sicurezza automatica, es. S280 B10[1)]
(1) Ingressi e uscite	Morsetti a vite
@ i-bus® EIB ABB	Morsetto di connessione bus (contenuto nella confezione)

Dimensioni	
(H x L x P)	90 x 72 x 64mm
Profondità di montaggio	68 mm
Larghezza	4 moduli da 18 mm
Peso	0,25 kg

La potenza in uscita è pienamente disponibile all'interno di tutto l'ambito della temperatura di esercizio.

[1)] Una sicurezza a monte particolare è necessaria solo per la messa in cortocircuito dei conduttori L e N.

Messa in esercizio

L'immissione degli indirizzi fisici, degli indirizzi di gruppo e dei parametri avviene mediante l'ETS (EIBA Tool Software).
Le uscite variabili attivate non devono essere azionate senza carico presente.
Sono consentiti esclusivamente utilizzatori in posa fissa.Le lampade difettose devono essere sostituite immediatamente. Durante eventuali variazioni del carico è necessario sconnettere il dispositivo dalla tensione.
Non è devono essere mischiati su una stessa uscita carichi di tipo differente, con componenti induttive e capacitive, ad esempio trasformatori convenzionali con trasformatori elettronici.
La programmazione di trasformatori programmabili tramite la commutazione degli ingressi di potenza non può essere effettuata mediante il dimmer.

Montaggio

Per il montaggio in distributore o in alloggiamento ridotto. Fissaggio rapido a rotaia por tante da 35 mm DIN EN 50022. La connessione al bus avviene mediante innesto sui morsetti di connessione bus. La connessione degli ingressi e delle uscite avviene mediante morsetti a vite. In caso di montaggio in distributore è necessario assicurarsi che la dissipa zione di calore sia sufficiente. Il dispositivo deve essere montato esclusivamente in verticale con le feritoie di aerazione verso l'alto.

Montaggio

In caso di cortocircuito dei conduttori L e N è necessario assicurarsi che la massima corrente ai morsetti di 10 A non venga superata. La linea deve essere dotata di adeguata protezione.
In caso di prove d'isolamento che, in conformità a quanto previsto dalla norma DIN VDE 0100, parte 610, misurino conduttore contro conduttore, il dispositivo deve essere scollegato per evitarne la possibile distruzione.
Sezione di connessione cavetto o trecciola 0,2 – 2,5 mm²

Instrucciones de montaje y de servicio

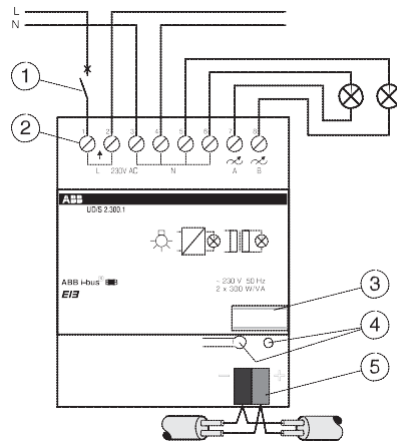
ABB i-bus® EIB
Universal-Dimmaktor
Tipo UD/S 2.300.1

E

Instrucciones de manejo:
GH Q630 7047 P0001

ABB STOTZ-KONTAKT GmbH
Postfach 101680, D-69006 Heidelberg
Telephone (06221) 701-543, Fax (06221) 701-724

Diagrama de conexión



Advertencias importantes

Este manual de instrucciones contiene la información necesaria para el uso correcto del aparato en una instalación ABB i-bus bus EIB, en relación a la finalidad para la que ha sido diseñado.

Más información sobre programas de usuario, documentación, desarrollo de proyecto y configuración de las unidades de bus en una instalación EIB, están disponibles por el fabricante.

Normativas y reglamentos
En la planificación y desarrollo de instalaciones eléctricas, han de tenerse en cuenta las normativas, directivas y reglamentos vigentes en cada país.

Advertencias importantes

Los trabajos en instalaciones Bus deben ser realizados exclusivamente por electricistas debidamente formados. El tendido y conexión de líneas Bus así como de los equipos de aplicación deben ejecutarse según las directivas en vigor y conforme el manual de usuario EIB, técnica de sistema en edificios de las normas EIBA nacionales para instalaciones eléctricas.

También deben observarse las correspondientes disposiciones de seguridad, p.ej., normas para la prevención de accidentes, le gislación sobre equipos técnicos de producción para los bienes de equipo e instalaciones, conectados.

Advertencias importantes

Instrucciones de seguridad

- Proteger el aparato contra la humedad, suciedad y deterioros durante el transporte, almacenamiento y servicio.
- No utilizar el aparato para rangos distintos a los especificados en los datos técnicos.
- El aparato debe instalarse exclusivamente en caja cerrada (cuadros de distribución).
- Conectar el aparato a tierra mediante el bornaje previsto a esta finalidad (si existen).
- No impedir la refrigeración del aparato.

Datos técnicos

Con el Universal-Dimmaktor se puede atenuar la luz de dos grupos de lámparas independientes entre si a través del ABB i-busÒ EIB . En las dos salidas atenuables se pueden activar de modo independiente diferentes tipos de cargas como lámparas incandescentes, lámparas de halógeno de alto o bajo voltaje con transformadores electró-nicos o convencionales. En la conexión de las lámparas de halógeno de bajo voltaje se recomiendan transformadores de ABB.
Al volver a conectar la tensión de suministro (tras una ausencia de tensión de más de aprox. 10 segundos) o tras un reset a través del EIB-bus, el aparato realiza un test de carga y adapta el tipo de servicio del modo adecuado. Durante una modificación del tipo de carga el aparato debe conectarse sin tensión.

Datos técnicos

Si se emplean transformadores aptos para la atenuación de la luz, éstos deberán llevar incorporado un seguro térmico.

Suministro del aparato a través de ABB i-bus® EIB
Entradas de potencia 2 bornes a la conexión de la fase L y conductor neutro N 230V AC +/- 10%, 50 Hz
Salidas de potencia 2 canales de atenuación independientes, atenuados mediante control de corte y sección de onda 2 bornes para conductor neutro de las cargas atenuadas, 2 bornes L y N para el paso en bucle

Datos técnicos

Potencia de salida en cada canal 300 W / VA máximo (500 W / VA si solamente está en servicio un canal) 40 W / VA carga mínima

Gama de temperaturas de servicio -5° hasta +45°

Máxima potencia disipada 5 W

Tipo de protección IP 20 según EN 60 529

Elementos de indicación y manejo
@ Portaplacas
© LED (rojo) y tecla para introducir la dirección física

Datos técnicos

Conexión
G) Fusible previo 10 A, fusible automático, p. ej., S260B10 [1)]
(1) Entradas y salidas Bornes roscados
@ ABB i-bus® EIB borne de conexión de bus (contenido en el suministro)

Dimensiones
(alto x ancho x prof.) 90 x 72 x 64 mm
Profundidad de montaje 68 mm
Anchura 4 módulos de 18 mm

Peso 0,25 kg

Dentro de la totalidad de la gama de temperaturas de servicio se dispone de la plena potencia de salida.
1) Sólo es necesario un fusible previo especial en caso de pasos en bucle de los conductores L y N.

Puesta en servicio/servicio

La asignación de la dirección física, de la dirección de grupo así como la introducción de los parámetros se realiza con el ETS (software EIBA Tool).
No se deben poner en servicio sin carga las salidas activadas de atenuación.
Solamente se permiten consumidores montados fijos. Las bombillas defectuosas se deben cambiar inmediatamente. Durante una modificación de la carga, el aparato se debe conectarse sin tensión.
No se deben mezclar en una salida tipos de cargas diferentes con parte inductiva y capacitiva, p ej., un transformador convencional y electrónico.
La programación de transformadores que son programables a través de la conexión de las entradas de potencia no puede realizarse con el atenuador.

Montaje

Para montarse en distribuidor o caja pequeña. Fijación rápida en rieles portantes de 35 mm, DIN EN 50 022. La conexión en el Bus se realiza enchufando el borne de conexión del Bus. La conexión de las entradas y salidas se realiza mediante bornes roscados. Si se monta en un distribuidor, se deberá asegurar la salida suficiente del calor de escape. El aparato solamente puede montarse en posición vertical con las rejillas de ventilación hacia arriba.

Montaje

En caso de paso en bucle de los conductores L y N se deberá prestar atención a no sobrepasar la máxima corriente de los bornes de 10 A. Se deberá asegurar del modo correspondiente la madeja.
En las comprobaciones de aislamientos que – al contrario de la norma DIN VDE 0100, parte 610- miden conductor contra conductor, el aparato deberá desembornarse pues de lo contrario se podrá destruir. Sección de conexión de hilo fino o monofilar 0,2-2,5 mm2.

Monterings- och bruksanvisning

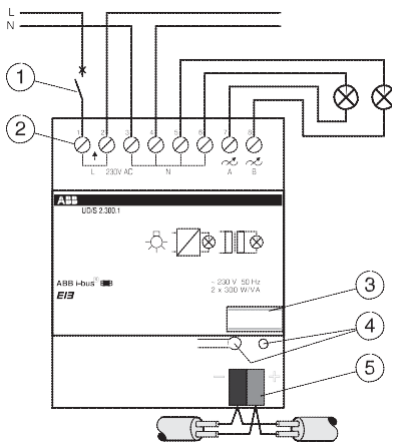
ABB i-bus® EIB
Universal-dimmeraktorn
Typ UD/S 2.300.1

S

Bruksanv. nr GH Q630 7047 P0001

ABB STOTZ-KONTAKT GmbH
Postfach 101 680, D-69006 Heidelberg
Telephone (06221) 701-543, Fax (06221) 701-724

Kopplingsschema



Viktiga upplysningar

Denna bruksanvisning innehåller den erforderliga informationen för att kunna använda den ovan nämnda apparaten i ett ABB i-bus EIB-system.

För planering och projektering av en installations-anläggning av modell EIB finns detaljerade beskrivningar och användarprogram liksom underlag för planeringsstöd från tillverkaren.

Normer och bestämmelser
Vid planeringen och installeringen av elektriska anläggningar måste de tillämpliga normerna, riktlinjerna, föreskrifterna och bestämmelserna för varje aktuellt land beaktas.

Viktiga upplysningar

Arbete vid installationsbussen får endast utföras av elektroniskt utbildad fackpersonal. Dragning och anslutning av bussledningarna och appara-terna måste genomföras enligt de gällande riktlinjerna i användarhandboken för EIB.

De respektive gällande säkerhetsbestämmelserna, t.ex. olycksförebyggande föreskrifter. Lagen för tekniska arbetsredskap måste också läsas noga.

Viktiga upplysningar

Varning

- Skydda apparaten från fukt, smuts och åverkan vid transport lagring och drift.
- Apparaten måste drivas enligt tekniska data
- Får endast drivas i sluten kapsel (fördelare)
- Jorda apparaten med de för ändamålet avsedda anslutningsklämmorna
- Förhindra inte kylningen av apparaten

Tekniska data

Med universal-dimmeraktorn kan två av varandra oberoende belysningsgrupper ljusdämpas via ABB i-bus® EIB. På båda ljusdämpningsbara utgångar kan olika lasttyper drivas oberoende av varandra, som glödlampor, högvolts-halogenlampor eller lågvolts-halogenlampor med elektroniska eller konventionella transformatorer. Vid anslutning av lågvolts-halogenlampor rekommenderas transformatorer från ABB.
Vid återinkoppling av försörjningsspänningen (efter spänningsfrihet längre än ca10 sekunder) eller efter en reset via EIB-bussen genomför enheten ett lasttest och anpassar driftsättet i motsvarande grad. Under en ändring av lasttypen ska enheten kopplas spänningsfri.

Tekniska data

Används ljusdämpningsbara transformatorer måste dessa ha en inbyggd termisk säkring.

Enhetsförsörjning	via ABB i-bus® EIB
Effektingångar	2 klämmor för anslutning av fas L och nolledare N 230 V AC +/-10%, 50 Hz
Effektutgångar	2 oberoende dimmerkanaler, ljusdämpas via fasaktivering och fasavsnittsstyrning 2 klämmor för nolledare på ljusdämpade laster, 2 klämmor L och N för genomkoppling

Tekniska data

Utgångseffekt per kanal	300 W /VA maximal (500 W /VA när endast en kanal är i drift) 40 W /VA minimal last
Arbetstemperatur-område	-5°C till 45°C
Max. förlusteffekt	5 W
Kapslingsklass	IP20enligtDINEN60529

Betjänings- och indikeringselement
@ Skylthållare
© LED (röd) och knapp för inskrivning av fysikalisk adress

Tekniska data

Anslutning

G) Seriesäkring	10A, säkringsautomat, t ex S260 B10 [1]
(1) In- och utgångar	skruvklämmor
@ ABB i-bus® EIB	bussanslutningsklämma (ingår i leveransen)

Mått

(H x B x D)	90 x 72 x 64 mm
Inbyggnadsdjup Bredd	68 mm 4 mod. à 18 mm

Vikt 0,25 kg

Inom hela drifttemperaturområdet står full utgångseffekt till förfogande.
[1] Det krävs en särskild seriesäkring endast vid genomkoppling av L- och N-ledaren.

Idrifttagning/drift

Angivning av fysisk adress, gruppadresser samt inskrivning av parameter sker med ETS (EIBA Tool Software).

De aktiverade dimmerutgångarna ska inte köras utan last.
Uteslutande fast monterade förbrukare är godkända. Defekta lampor ska bytas genast. Enheten ska kopplas spänningsfri under en laständring. Olika lasttyper med induktiv och kapacitiv andel får inte blandas på en utgång, t ex konventionell och elektronisk transformator.

Programmering av transformatorer som är programmerbara genom till/frånslag av effektutgångarna, kan inte genomföras med dimmern.

Montering

För inbyggnad i fördelare eller liten dosa. Snabbfäste på bärskenor 35 mm, DIN EN 50 22. Anslutning av bussen sker genom uppkoppling av bussanslutningsklämma. Anslutningen av in- och utgångar sker med skruvklämmor.Vid inbyggnad i en fördelare ska säkerställas att spillvärmen leds bort på ett tillfredsställande sätt. Enheten får endast monteras vertikalt med ventilationsspringorna uppåt.

Montering

Vid genomkoppling av L- och N-ledare ska beaktas att den maximala klämströmmen på 10A inte överskrids. Lindningsfasen ska säkras på vederbörligt sätt.
Vid isoleringsprovningar, som mäter tvärt emot standarden DIN VDE 0100, del 610 - ledare mot ledare - måste enheten frånskiljas, eftersom den annars kan förstöras.
Anslutningsarea
fin- eller entrådig 0,2 - 2,5 mm^2

ABB i-bus® EIB

Universal Dim Actuator, 2-fold, 300 VA, MDRC UD/S 2.300.1, GH Q631 0045 R0111

The dimming actuator is a DIN rail mounted device for insertion in a distribution board. The connection to the EIB is established via a bus connecting terminal.

It has two independent channels. They can dim different luminaires (load types) as the dimmer has both a phase-aligned and phase-controlled dimming function available.

Using automatic load detection, the device is able to set its output to various loads. It then adopts the operating mode of phase-aligned dimmer or phase-controlled dimmer.

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Technical Data

Power supply	– EIB	24 V DC, via the bus line
Operating and display elements	– LED (red) and push button	for assigning the physical address
Outputs	– Dimming outputs	2
	– Output voltage	230 V AC, dimmed via phase alignment or phase control
	– Max. output capacity (up to 45°C ambient temperature)	300 W (VA) per output 500 W (VA), only one output is connected
	– Min. output capacity	40 W (VA) per output
	– Max. leakage loss	5 W
Connections	– Load circuits	2 screw terminals each
	– Phase connection	2 terminals for the connection of phase and neutral conductor 2 terminals for looping through
	– Wire range	0.2 - 2.5 mm^2
	– EIB	1 bus connecting terminal (included with supply)
Type of protection	– IP 20, EN 60 529	
Protection class	– II	
Ambient temperature range	– Operation	- 5 °C … 45 °C
	– Storage	-25 °C … 55 °C
	– Transport	-25 °C … 70 °C
Design	– Modular installation device, pro*M*	
Housing, colour	– Plastic housing, grey	
Mounting	– on 35 mm mounting rail, DIN EN 50022	
Dimensions	– 90 x 72 x 64 mm (H x W x D)	
Mounting depth/width	– 68 mm / 4 modules at 18 mm	
Weight	– 0.250 kg	
Certification	– EIB-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

Application programs	Number of communication objects	Max. number of group addresses	Max. number of associations
Dim Stairc.fct. Slave /1	16	43	43

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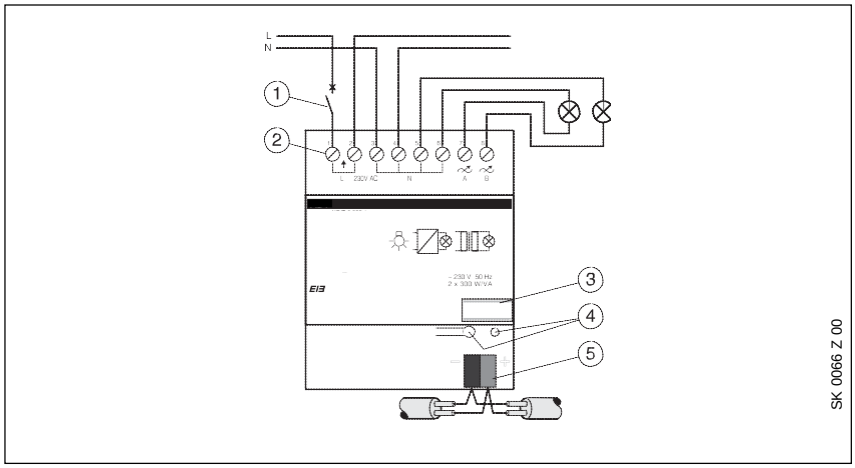
Circuit diagram



1 Back-up fuse, 10 A
2 Supply terminals
3 Labelling fields
4 Programming LED, push button
5 Bus connecting terminal

Note

Both outputs A and B can operate different load types. The mixed operation of inductive and capacitive loads on the same output is however not permitted.

If the device does not function during the commissioning phase, the bus terminal on the dimmer should be removed and reinserted. The device then carries out a new load test.

Caution: Prior to programming, service release B of ETS2 V1.1 or higher must be installed on the commissioning PC. If this is not taken into account, the device cannot function and can no longer be programmed.

Dim Stairc.fct Slave /1

Selection in ETS2

– ABB
  └Illumination
    └Dimmer

The application program makes the same parameters and communication objects available to the two outputs.

displayed depending on the setting in the parameters.

The dimmer has a “soft start” function to protect the lamps when they are switched on. The setting “switch on softly” means that no sudden changes in the brightness can be carried out at the outputs.

The dimming actuator carries out an initialisation phase of approx. 3 s after a reset or after commissioning. This is followed by the automatic load detection during which the actuator checks the loads that are connected to the outputs. The outputs are tripped briefly. This causes the lamps to flicker in most cases. After the detection, the dimming actuator selects phase-controlled or phase-aligned dimming as the operating mode.

Switch

The dimmer is switched on via the 1 bit communication object “Switch / status”. Depending on the setting in the parameter “Switch on via object ... with”, the dimmer is either switched on with the “last brightness value” or a “predefined brightness value”. The predefined value can be set between 0.4% (value “0”) and 100% (value “255”).

It is possible to specify the behaviour of the dimmer when it switches on and off. The starting values can be dimmed on or switched on softly. On receipt of an “Off” telegram, the dimmer can immediately switch the channel off or select “dimming off” or “soft off”.

Dim

With the 4 bit communication object “Relative dimming”, the dimming actuator can be dimmed relatively in accordance with EIS 2.

The period for passing the dimming range from minimum to maximum brightness is specified with the parameter “Time duration for passing the dimming range”. The factor is set at 2 by default. With a fixed base (approx. 2 s), a total dimming time of approx. 4 s is produced.

With the two parameters “Lower dimming threshold ...” and “Upper dimming threshold ...”, it is possible to limit the setting range. It is thus

actuator to a wide variety of luminaires.

If the actuator is switched off, it can be dimmed on via the 4 bit object, provided that the parameter “If dimming UP output switches” is set to “on”. If “not on” is selected, the actuator can only be switched on via the 1 bit or 1 byte object. It can also be parameterised whether the output should be switched off or not when it reaches its lower dimming threshold. If it should also be switched off via the 4 bit object, the parameter “If dimming DOWN and value < lower dimming threshold output switches” should be set to “off”.

Brightness value

With the 1 byte communication object “Brightness value / status”, it is possible to preselect one of 256 brightness values in a range between 0 and 255. These values can be switched on softly or dimmed on.

In a similar way to relative dimming, the setting range can be limited with the two parameters “Lower dimming threshold ...” and “Upper dimming threshold ...”.

It can also be indicated whether the output should be switched off on receipt of a telegram when the brightness value = 0.

It can also be set whether it should be switched on with a brightness value ≥ 1.

Status

The dimming actuator sends its current status via the 1 bit object “Switch / status”. The status report is carried out if it is switched on or off via one of its objects. This also happens if it is switched on via its 1 bit object. The sending of the status is used for example to update status LEDs on switch sensors. In this case, it should be ensured that the transmit flag has been set and that the parameter “After switching ON/OFF object ... transmits” has been set to “its status”.

The 1 byte communication object “Brightness value / status” can also be used to send the current status. A change in the brightness value is sent if the parameter “After dimming object ... transmits” has been set to “the current brightness value”.

If the slave function has been switched on, the status objects are not sent.

Staircase lighting

The channels of the dimming actuator can be assigned a staircase lighting function. The ETS2 program makes the 1 bit object “Switch / status” available as well as an additional 1 bit object “Permanent ON”.

If a telegram with the value “1” is received at the switch object, the dimming actuator activates its output for the staircase lighting period. The period is defined in the parameters with a base and a factor:

Duration of staircase lighting = Base * Factor

If a further “On” signal is received during this period, the time is restarted.

Once the staircase lighting time has elapsed, the dimming down time switches on. This means that the staircase lighting is not switched off immediately but is slowly dimmed down to a brightness value of 20%. There is thus sufficient time to reach the next light switch. The duration of the dimming down time is specified with the parameter “Time for dimming DOWN after enlightment”. The base for this period is preset at 2 s. If a brightness value of 20% is reached, the actuator switches off the output.

The object “Permanent ON” is available to keep the staircase lighting activated. If a telegram with the value “1” is received, the dimming actuator switches its output on continually. This function represents the “Permanent ON button” of a conventional staircase lighting timer.

It is also possible to send the status during the staircase lighting time if required.

Slave

The slave function enables the integration of a dimmer into a constant lighting control system in connection with the lighting controller LR/S 2.2.1.

To make the slave objects available, it is necessary to activate the slave function via the parameters for the respective output.

This function can be switched on or off via the bus using the object “Slave activation/deactivation”. A telegram with the value “1” switches the function on while the value “0” switches it off again.

If the slave function is enabled, the dimmer can only be controlled via the object “Brightness value of slave”. It can be set whether it is switched off with the object value “0”.

The status report is not carried out via the switch object. The brightness objects 4 and 5 are only updated when the slave function is disabled.

Preset

Presets designate predefined brightness values. Brightness values can be recalled on receipt of a telegram at the 1 bit communication object “Preset ...”. It is thus possible to create fixed lightscenes without a great deal of effort or expense.

The preset objects can be hidden or displayed via the parameter settings. 2 preset objects, each with a brightness value, are available for each channel.

The corresponding brightness value can be dimmed on or switched on softly with the object value “1”, depending on the setting in the parameters “Brightness values” and “Switch on values”.

Bus voltage failure/recovery

On bus voltage failure, the dimming actuator switches off all the outputs. The current brightness values are stored beforehand in the memory of the dimming actuator.

It is possible to set the behaviour on bus voltage recovery. It is possible to switch on with the last brightness value or a predefined brightness value.

If the bus voltage does not have a back-up supply, the initialisation phase is carried out after bus voltage recovery or after a reset. This is followed by the automatic load

detection.

If the mains voltage fails, the following situations may occur:

– The bus voltage has a back-up supply:
  The previous brightness value is immediately selected on mains recovery.
– The mains failure is shorter than 10 s:
  After mains recovery, the dimmer restores the previous brightness value and the operating mode (phase alignment or phase control) remains unchanged.
– The mains failure lasts longer than 10 s:
  After mains recovery, the dimmer carries out a reset with automatic load detection.

The error objects are updated in conjunction with the load detection.

Error report/code

In the event of an error, the actuator sends detailed information about its operating state via the communication objects “Error report” and “Error code”.

As soon as the 1 bit object “Error report” has modified its value to “1”, this means that an error has occurred. The 1 byte object “Error code” provides exact information about the type of error. Each bit in the error code stands for a different type of error. Eight different errors can thus be determined:

Bit 0 :	Non-permissible load during load detection at output A
Bit 1 :	Non-permissible load during load detection at output B
Bit 3 :	Low voltage at the 230 V power supply
Bit 4 :	Excess load or low load during operation at output A
Bit 5 :	Excess load or low load during operation at output B
Bit 6 :	Excess temperature in device (T > 70 °C)
Bit 7 :	Critical temperature overload in device (T > 90 °C)

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Communication objects

No.	Type	Object name	Function
0	1 bit	Output A	Switch
1	1 bit	Output B	Switch
2	4 bit	Output A	Relative dimming
3	4 bit	Output B	Relative dimming
4	1 byte	Output A	Brightness value
5	1 byte	Output B	Brightness value
14	1 bit	General	Error report
15	1 byte	General	Error code

Communication objects
with activated status function

No.	Type	Object name	Function
0	1 bit	Output A	Switch / status
1	1 bit	Output B	Switch / status
2	4 bit	Output A	Relative dimming
3	4 bit	Output B	Relative dimming
4	1 byte	Output A	Brightness value / status
5	1 byte	Output B	Brightness value / status

Communication objects
with activated staircase lighting function

No.	Type	Object name	Function
…			
6	1 bit	Output A	Permanent ON
7	1 bit	Output B	Permanent ON
…			

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Communication objects
with activated presets

No.	Type	Object name	Function
…			
8	1 bit	Output A	Preset 1
9	1 bit	Output B	Preset 1
10	1 bit	Output A	Preset 2
11	1 bit	Output B	Preset 2
…			

Communication objects
with activated slave function

No.	Type	Object name	Function
…			
12	1 byte	Output A	Brightness value of slave
13	1 byte	Output B	Brightness value of slave
14	1 bit	Output A	Slave activation/deactivation
15	1 bit	Output B	Slave activation/deactivation
…			

Parameters
The default setting for the values is **printed in bold type.**

Separate for both outputs:	
– Output is	**deactivated** activated
Only if output is activated:	
– After switching ON/OFF object … transmits	**not its status** its status
Only if status is sent:	
– Status report after telegram to object …	**send always** transmit only after changing
– After dimming object … transmits	**not the current brightness value** the current brightness value
– Staircase lighting is	**deactivated** activated
Only if staircase lighting is activated:	
– Duration of staircase lighting: Base	1.0 s / 2.1 s / … / **1.1 min** / … / 1.2 h
– Duration of staircase lighting: Factor (3…127)	**5**
– Time for dimming DOWN after enlightment	**60**
– Time for passing from 100%…0%	
Duration = Entry * 2 s Range of possible entries 1…255	**<--- NOTE**
– Brightness value for staircase lighting 52…255 corresponds to 20%…100%	**255**
– Staircase lighting after bus recovery	switched off **switched on**
– Brightness value at permanent-on 52…255 corresponds to 20%…100%	**255**
– In combination with centralised lighting control output works	**not as slave** as slave
Only if output is operated as a slave:	
– At bus voltage recovery slave function is	**not activated** activated

Dimming general:	
– Time duration for passing the dimming range (0…100%)	**2**
Duration = Entry * 2 s Range of possible entries 1…255	**<--- NOTE**
– At bus voltage recovery dimmer is	switched off **switched on**
Only if dimmer is switched on:	
– Switch on with	**last brightness value** predefined brightness value
Only if value is predefined:	
– Brightness value 1…255 corresponds to 0.4%…100%	**255**
– Switch on via object … with	last brightness value **predefined brightness value**
Only if value is predefined:	
– Brightness value 1…255 corresponds to 0.4%…100%	**255**
– Switch on values	**dimming on** switch on softly
– Brightness values	**dimming on** switch on softly
– Switch off mode	**switch off** dimming off soft off

Parameters
The default setting for the values is **printed in bold type.**

Dimming:	
Relative dimming	
– Lower dimming threshold 1…127 corresponds to 0.4%…49.8%	**51**
– Upper dimming threshold 128…255 corresponds to 50.2%…100%	**255**
– If dimming DOWN and value < lower dimming threshold output switches	**not off** off
– If dimming UP output switches	**not on** on
Brightness value	
– Lower dimming threshold 1…127 corresponds to 0.4%…49.8%	**51**
– Upper dimming threshold 128…255 corresponds to 50.2%…100%	**255**
– Brightness value = 0 switches output	not off **off**
– Brightness value >= 1 switches output	not on **on**

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Preset:	
Separate for both presets:	
– Activate preset … via bus telegram	**no** yes
Only if “yes” is selected:	
– Brightness values	**dimming on** switch on softly
– Brightness value at object value 0 1…255 corresponds to 0.4%…100%	**100**
– Brightness value at object value 1 1…255 corresponds to 0.4%…100%	**255**

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Product documentation

Blinds actuator, 2-gang AC 230 V, 1-gang DC 12-48 V Art.-No.: 2502 REG HE

Blinds actuator, 4-gang AC 230 V, 2-gang DC 12-48 V Art.-No.: 2504 REG HE

Blinds actuator, 8-gang AC 230 V, 4-gang DC 12-48 V Art.-No.: 2508 REG HE

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63yz0x20

Contents

1 Product definition

1.1 Product catalogue

Product name:	Shutter/blinds actuator 2-gang AC 230V / 1-gang DC 12-48V SE / Shutter/ blinds actuator 4-gang AC 230V / 2-gang DC 12-48V SE / Shutter/blinds actuator 8-gang AC 230V / 4-gang DC 12-48V SE
Use:	Actuator
Design:	Rail-mounted device (REG)
Art.-No.:	2502 REG HE / 2504 REG HE / 2508 REG HE

1.2 Function

The Venetian blind actuator receives telegrams from sensors or other controllers using the KNX/EIB and, together with the independent relay contacts, it switches electrically-powered Venetian blinds, roller shutters, awnings, venting louvres or similar blinds for mains voltage 230 V AC (4 or 8-channel, depending on the device) or low voltage 12...48 V DC (either 1, 2 or 4-channel, depending on the device). Each relay output is equipped with mains-operated monostable switching relays so that the preferred contact positions are maintained also during bus voltage failure.

The controls (4 pushbuttons) on the front panel of the device permit switching the relays on and off by hand in parallel with the KNX / EIB even without bus voltage or in a non-programmed state. This feature permits fast checking of connected motors for proper functioning.

The function properties settable independently for each output channel using the ETS comprise, for example, separately configurable movement times, alternatively an automatic limit position detection for 230 V drives with mechanical limit position switches, expanded feedback functions, allocations to up to 5 different safety functions, a sun protection function for a wide range of requirements, and the link to scenes of forced movements (scenes or forced movements for 4/8x device movement only from ETS3.0d). Centralised control of all outputs is also possible. Moreover, the preferred states of the relays in case of bus voltage failure or bus / mains voltage return and after ETS programming can be preset separately.

For project design and commissioning of this device, we recommend using the ETS3.0 from Version d patch A. The advantages with regard to downloading (shorter loading times) are available only if this ETS version or later versions are used. In addition, the full scope of functions with the 4/8-channel device variant is only possible from ETS3.0d onwards. For ETS2 and older versions of ETS3, a separate product database is available.

The shutter actuator has its own mains supply independent of the connected drives. For actuation of the outputs, the 230 V mains supply must always be switched on. The integrated bus coupler is supplied from the bus voltage or the mains voltage, meaning that the device can only be programmed using the ETS when the KNX/EIB bus voltage is switched on.
The device is designed for mounting on DIN rails in closed compact boxes or in power distributors in fixed installations in dry rooms.

2 Fitting, electrical connection and operation

2.1 Safety instructions

Electrical equipment may only be installed and fitted by electrically skilled persons. The applicable accident prevention regulations must be observed.

Failure to observe the instructions may cause damage to the device and result in fire and other hazards.

Before working on the device or exchanging the connected loads, disconnect it from the power supply (switch off the miniature circuit breaker), otherwise there is the risk of an electric shock.

The blind actuator is not suited for safe disconnection of the mains.

For parallel connection of several drives to an output it is indispensable to observe the corresponding instructions of the manufacturers. There is otherwise risk of irreparable damage to the drives.

Use only curtains with mechanical or electronic limit switches. Check the limit switches for correct adjustment.

Do not connect mains voltage and SELV / PELV circuits to the same blind actuator.

Do not connect any three-phase motors.

Make sure during the installation that there is always sufficient insulation between the mains voltage and the bus. A minimum distance of at least 4 mm must be maintained between bus conductors and mains voltage cores.

The device may not be opened or operated outside the technical specifications.

2.2 Device components

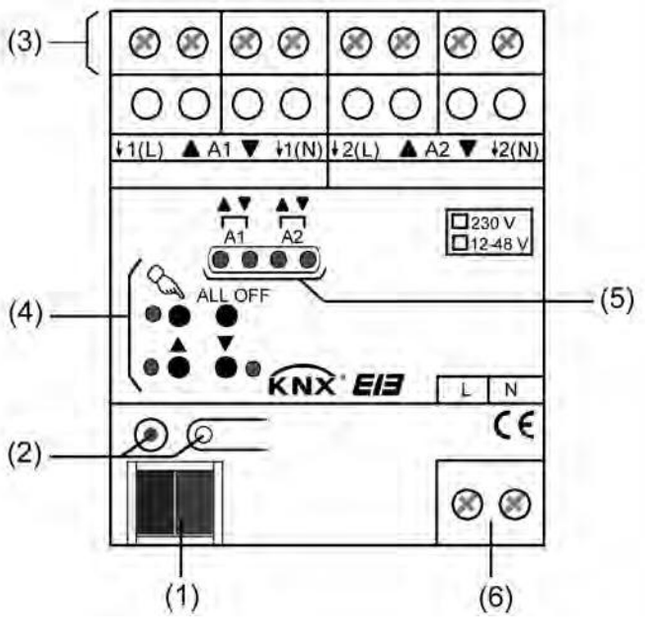

Figure 1: Device components of the shutter actuator 1/2-channel REG

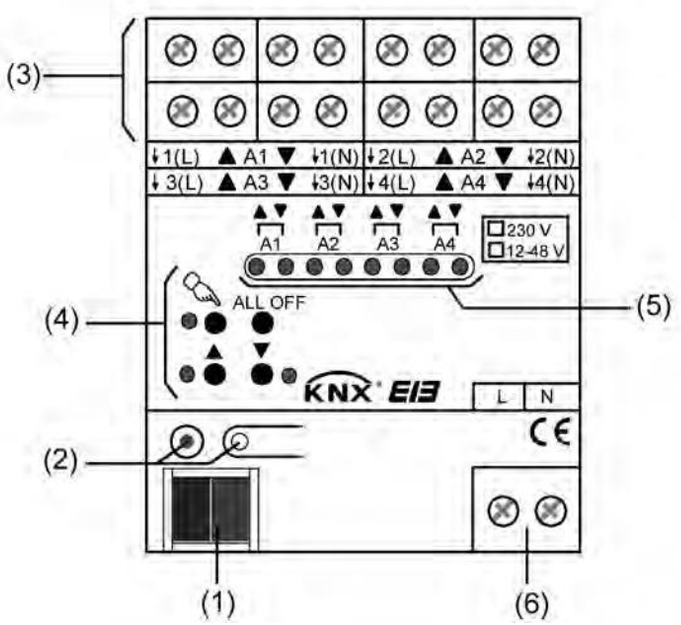

Figure 2: Device components of the shutter actuator 2/4-channel REG

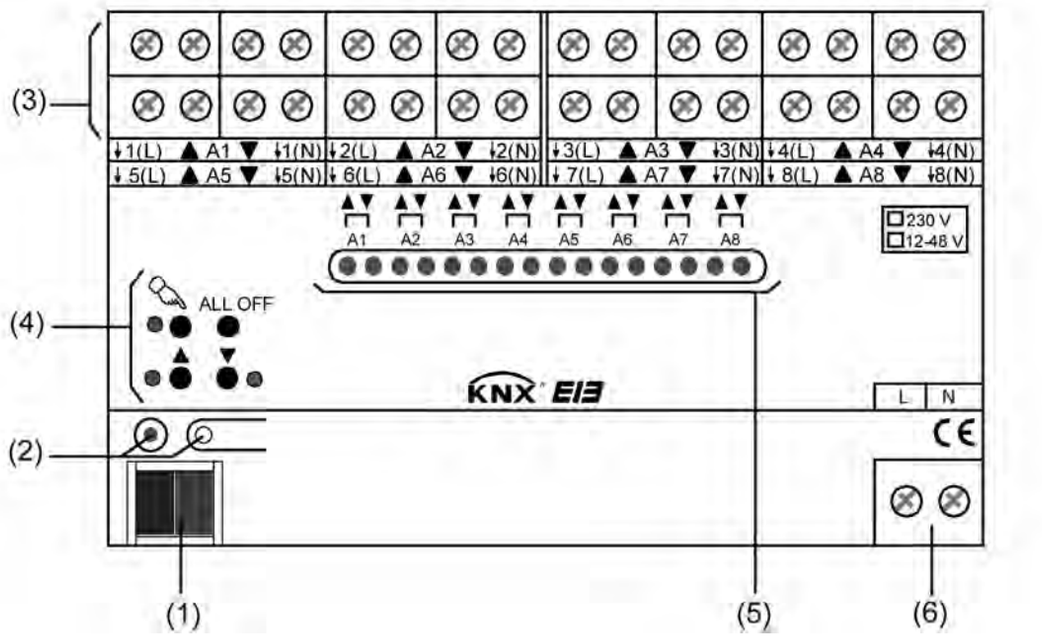

Figure 3: Device components of the shutter actuator 4/8-channel REG

(1) KNX/EIB bus connection

(2) Programming button and programming LED (red). The programming LED flashes slowly when the safe-state mode is active.

(3) Screw terminal for connection of the motors.

(4) Button field for manual control

(5) Status LED of the outputs with direction display (2 LEDs for each output):
LED off: output switched off
LED on: Output switched on (movement up "n" or movement down "o")
LED flashing slowly: output in manual control
LED flashing quickly: output blocked by manual control

(6) Mains voltage terminal for power supply to the device electronics

Dimensions of shutter actuator 1/2-channel REG:
Width (W): 72 mm (4 modules) / height (H): 90 mm / depth (D): 70 mm

Dimensions of shutter actuator 2/4-channel REG:
Width (W): 72 mm (4 modules) / height (H): 90 mm / depth (D): 70 mm

Dimensions of shutter actuator 4/8-channel REG:
Width (W): 144 mm (8 modules) / height (H): 90 mm / depth (D): 70 mm

2.3 Fitting and electrical connection

DANGER!

Electrical shock when live parts are touched.

Electrical shocks can be fatal.

Before working on the device, disconnect the power supply and cover up live parts in the working environment.

CAUTION!

Danger of destruction if several drives are connected in parallel to one output.

Limit switch contacts can weld together and drives, curtains and the shutter actuator can be destroyed.

Observe the manufacturer's instructions and use cutoff relays, if necessary.

Fitting the device

- Fit the device by snapping it onto a mounting rail in acc. with DIN EN 60715. The screw terminals for connection of the motors should be at the top
- A KNX/EIB data rail is not required.
- Observe the temperature range (-5 °C ...+45 °C) and ensure sufficient cooling, if necessary.

Connecting the power supply for the device electronics

- Connect the bus (standard bus terminal) and the mains voltage as shown in the connection diagram .

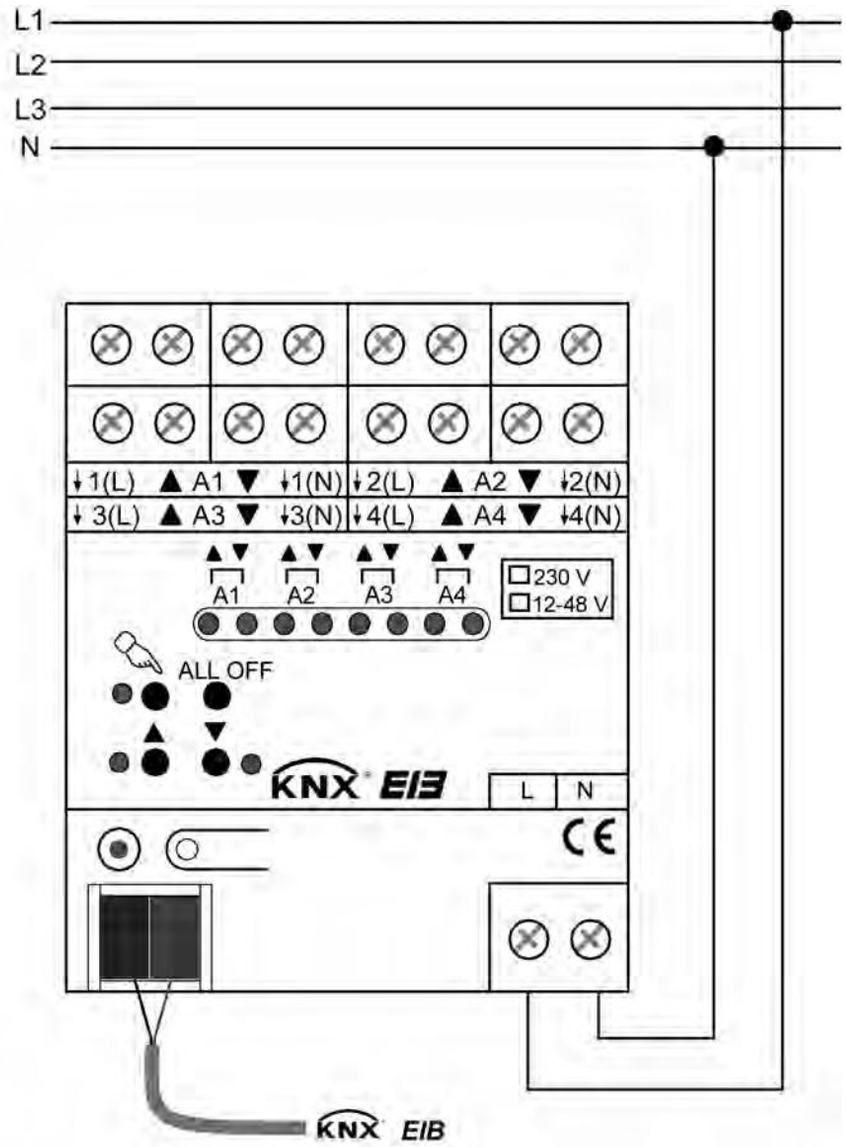

Figure 4: Electrical connection of mains voltage

- The connection diagram shows an example for connection of the power supply to the shutter actuator 2/4-channel REG.
- The device can be used with different phase conductors (L1, L2, L3).
- For actuation of the outputs – even in manual control mode – the mains supply must be on. The power supply for the device electronics (BCU with application program) is drawn from the bus voltage or from the mains voltage.
- The connection of the drives depends on the type of supply (230 V AC or 12 – 48 V DC) and on the automatic end position detection and is described on the following pages.

Connecting the device for 230 V drives (without automatic end position detection)

Without the automatic end position detection, the travelling times of the different blinds are programmed in the ETS independent of one another. After commissioning, the preset times can be changed only by reprogramming of the parameters.

The shutter actuator must be set in the ETS to 230 V operation.

- Connect the drives as shown in the wiring example (figure 5).
- Tick the box "230 V" on the device label.

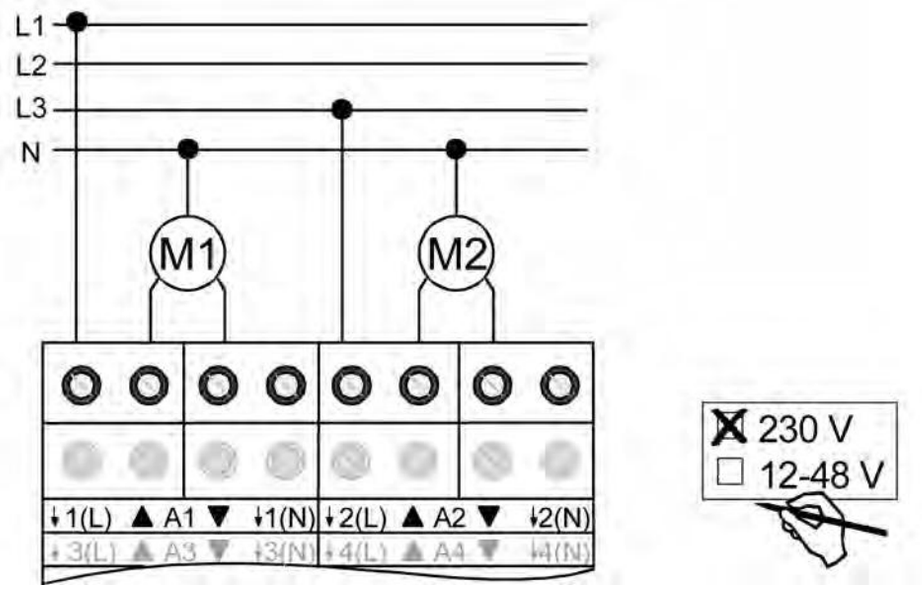

Figure 5: Electrical connection for 230 V drives

- Observe the admissible load ratings (cf. 'Technical data').
- The device can be used with different phase conductors (L1, L2, L3).
- In the type of supply described (figure 5), it is not absolutely necessary to connect the N conductor to the shutter actuator. If, however, drives with high-resistance travel direction inputs (e.g. drives with electronic limit switches) are connected, then it is necessary to also connect the N conductor to the corresponding terminal of the shutter actuator. The data of the drive manufacturer should be observed.
  If the N conductor is connected and the affected output is energised for a long period without an interruption through retriggering, then this may cause unpermitted heating of the Venetian blind actuator. Observe maximum switch-on time (cf. "Technical data").
- The N terminals are used only for automatic end position detection and must not be used as N potential for other loads in the distribution.
- Venting louvres must be connected in such a way that they open in travel direction "UP - n" and close in travel direction "DOWN – o".

Connecting the device to 230 V drive motors (with automatic end position detection)

If programmed and connected accordingly, the Venetian blind actuator auto-detects the travelling time of a connected output and stores it. In drives with mechanical limit switches, the actuator measures the voltage against the N conductor (connected to the device) in order to detect the end positions. In operation, the Venetian blind actuator can adapt itself to changes in the travelling times of the drives (e.g. caused by ageing of the motors).

The shutter actuator must be set in the ETS to 230 V operation.

The automatic end position detection must have been activated in the ETS for the output concerned.

Only 230 V AC drives with mechanical limit switches may be connected to the device.

Connect only one drive to each output.

The blinds controlled by the device must not be blocked.

- Connect the drives as shown in the wiring example (figure 6).
- Tick the box "230 V" on the device label.

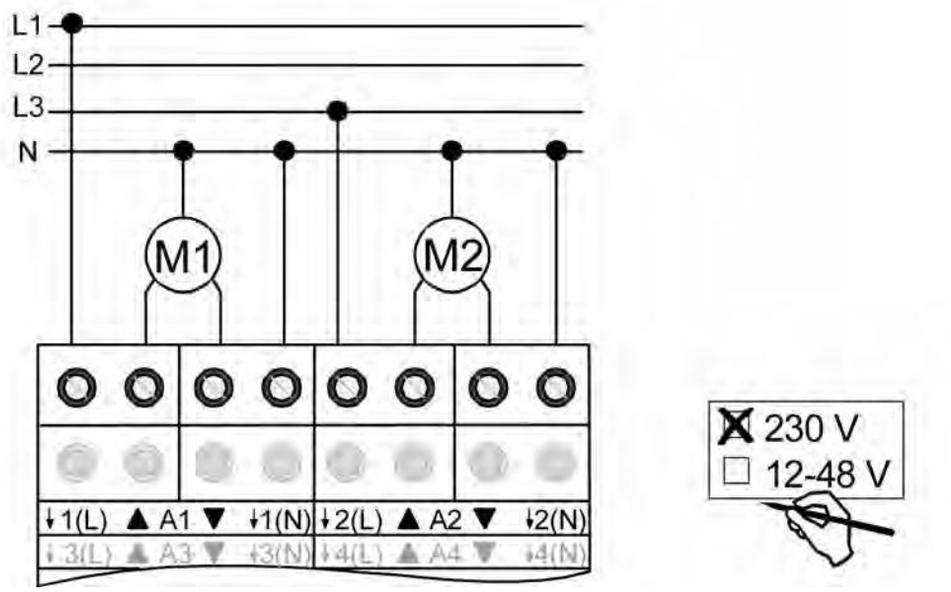

Figure 6: Electrical connection for 230 V drive motors
for automatic limit position detection

- Observe the admissible load ratings (cf. 'Technical data'). The automatic end position detection cannot be used for 12...48 V DC drives or for drives with electronic limit switches and for drives connected to the outputs of the Venetian blind actuator via isolating relays.
- The device can be used with different phase conductors (L1, L2, L3).
- The neutral conductor of the respective motor must be connected to the N terminals of the device (observe existing ELCB wiring). The N terminals are used only for automatic end position detection and must not be used as N potential for other loads in the distribution. The N conductor connections of the individual outputs and of the mains connection terminal are internally not connected.
- If an output is energised without interruption for a prolonged time due to retriggering, the device may heat up excessively. Observe maximum switch-on time (cf. "Technical data").
- The automatic end position detection is performed during commissioning and the detected travelling time permanently stored.
- Venting louvres must be connected in such a way that they open in travel direction "UP - n" and close in travel direction "DOWN – o".

Connecting the device for 12 ... 48 V DC drive motors (without automatic end position detection)

The travelling times of the different blinds are programmed in the ETS independently of one another. After commissioning, the preset times can be changed only by reprogramming of the parameters. In operation of 12...48 V DC drives, the outputs of the Venetian blind actuator are combined into pairs (O1/O2, O3/O4, ...). Each output pair controls a single drive.

The Venetian blind actuator must be set in the ETS to 24 V DC operation.

- Connect the drives as shown in the wiring example (figure 7).
- Tick the box "12...48 V" on the device label.

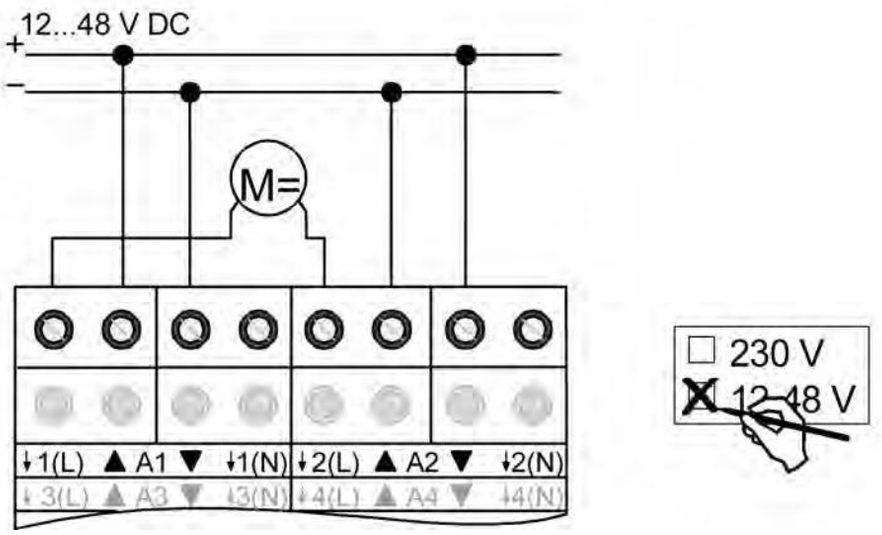

Figure 7: Electrical connection for 12 … 48 V drives

- Observe the admissible load ratings (cf. 'Technical data').
- In 12...48 V DC operation, the outputs of the Venetian blind actuator are combined into channel pairs even for manual control. The status LEDs always indicate the relay states of the paired output.
- Venting louvres must be connected in such a way that they open in travel direction "UP - n" and close in travel direction "DOWN – o".

Installing / removing the protective cap

To protect the bus lines against hazardous voltages, especially in the area of the connecting terminals, a protective cap can be installed.

The cap is installed with the bus terminal in place and the connected bus line led out at the rear.

- To install the cap: slide the cap over the bus connecting terminal until you feel it engage (figure 8).
- To remove the cap: Remove the cap by pressing the sides slightly and by pulling it out to the front (figure 8).

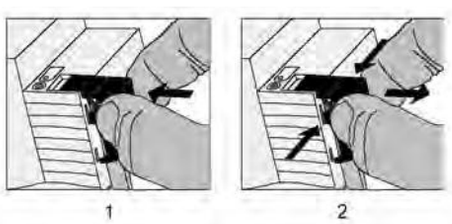

Figure 8: Installing / removing the protective cap for the bus connection

2.4 Commissioning

After installation of the actuator and connection of the bus line, the power supply and of all electrical drives, the device can be put into operation. The following procedure is generally recommended...

DANGER!

Electrical shock when live parts are touched.

Electrical shocks can be fatal.

Before working on the device, disconnect the power supply and cover up live parts in the working environment.

Measuring the travelling times (only without automatic end position detection)

For the purpose of positioning blinds, shutters and awnings or for adjusting the opening angle of venting louvers, the actuator needs accurate information about the maximum travelling time.

Switch on the mains supply.

- If not yet done, move the blind/shutter into the upper end position (open venting louver completely).

  The upper limit-stop position is reached (venting louver opened).
- Start the measuring time and move the blind/shutter by manual control into the lower end position (close the venting louver completely).
- Stop the time measurement when the lower limit (when the completely closed) position is reached.
- Enter the measured value in the ETS (cf. "software description").

▪ It is recommended to perform several time measurements and to take the average of these values.

▪ The travelling time can also be determined after commissioning with the ETS (bus operation).

Measuring the travelling time extension (only without automatic end position detection)

When travelling upwards, blinds or shutters have a tendency of moving more slowly due to their own weight or to external physical influences (e.g. temperature, wind, etc.). The same applies to venting louvers where opening may take longer than closing.
For this reason, the blind actuator takes the parameterized travelling time extension into account when moving upwards or when opening the louvers (long-time operation / positioning). The extension is computed as a percentage of the travelling times in both directions.

The blind/shutter (venting louver) must be in the lower end position (venting louver closed). Switch on the mains supply.

- If not yet done, move the blind/shutter into the lower end position (close venting louver completely)

  Lower end position reached (venting louver closed).
- Start the measuring time and move the blind/shutter by manual control into the upper end position (open the venting louver completely).
- Stop the time measurement when the upper limit (the completely open) position is reached.
- Express the measured value as a percentage of the determined blind/shutter travelling time and enter the value in the ETS (cf. software description).

▪ It is recommended to perform several time measurements and to take the average of these values.

▪ The travelling time extension can also be determined after commissioning with the ETS (bus operation).

Storing the travelling times (only with automatic end position detection)

When the end position detection is active, the device can approach defined positions only if the travelling times for each output have been stored. An end position detection is to be performed whenever the device has been programmed with the ETS (download of the application or partial programming of parameters). The travelling times should be programmed in undisturbed conditions (no control operations, no wind, no snow and no obstacles).

Only for 230 V drives with mechanical limit switches.

The automatic end position detection must have been be activated in the ETS (cf. "software description").

The N conductors for the outputs concerned must be connected to the actuator.

During the period of detection of the limit positions, the mains voltage must be present without failures at the actuator and at the drives.

The power supply of the actuator must have been on uninterrupted for at least 20 seconds.

- If not yet done, move the blind/shutter into the upper end position (open venting louver completely). The upper limit-stop position is reached (venting louver opened).
- Move the blind/shutter (venting louver) by manual control or via the bus into the lower end position (close the venting louver completely).

  Lower end position reached (venting louver closed).
- Move the blind/shutter into the upper end position (open venting louver completely).

  The travelling time is now stored. If necessary, repeat the procedure for other outputs.

- The blind actuator stores the blind/shutter positions permanently (EEPROM).
- Without stored travelling times, the blind actuator generates an "Invalid position" message for each output which can also be transmitted to the bus, if parameterized. The evaluation of this message can be used as an indicator for a successful teaching procedure.
- In operation, the blind actuator regularly adapts itself to changes in the curtain travelling times (e.g. ageing of the drives). In case of deviations from the original value, the travelling time thus determined will be used temporarily for computing the positions and stored only in a volatile memory (RAM).
- In addition to the times programmed during the first commissioning after ETS programming, the user always has the possibility of re-teaching travelling times 'manually' thereafter. To do so, the user must activate the permanent manual control mode (cf. chapter "Operation") and move the blind/shutter without interruption from one end position into the other. Simple travel movements (from top to bottom or vice versa) are sufficient for programming a new travelling time which is then stored in an NV memory.
- In case of slatted blinds, the travelling time of the slats cannot be taught by automatic end position detection. In this case, the actuator always resorts to the value parameterized in the ETS. As the slat moving time is in a fixed proportion to the travelling time of the curtain, a correction of the travelling time of the curtain automatically entails a correction of the slat moving time.
- The maximum travelling time is basically limited to 20 minutes. If the process of learning a new travelling time is not terminated after 20 minutes (no limit position detected), the actuator will end the learning process by itself (stop). The minimum travelling time is limited to 1 second.
- If the actuator was not in a position to learn a correct travel time (e.g. teaching runs longer than 20 minutes, no end position detection after ETS programming or abortion of travel before reaching an end position), the travelling time is not valid. In this case, the output concerned cannot approach fixed positions. If position values are nevertheless transmitted or activated via the bus (e.g. sun protection), the actuator translates all values between 0...49% (0...127) into an upward travel and all position values between 50% ...100% (128...255) into a downward travel. The travelling time corresponds in this case to the maximum travelling time (20 minutes).

Measuring the slat moving time (only for blinds without or with automatic end position detection)

In the case of blinds with slats, the slat moving time is for technical reasons part of the overall travelling time of the blinds/shutters. The slat moving time is the time required for a movement between the slat positions "closed – 100 %" and "open – 0 %". In order to compute the opening angle of the slats, the actuator needs an information about the slat moving time.
In case of slatted blinds, the travelling time of the slats cannot be taught by automatic end position detection. For this reason, the slat moving time must always be measured 'manually'.

The slats must be completely closed (as in case of downward travel of the blind).

Switch on the mains supply.

- Start the measuring time and open the slats completely by manual control (as in case of upward travel of the blind).
- Take the measuring time when the completely open position is reached.
- Enter the measured value in the ETS (cf. "software description").

- It is recommended to perform several time measurements and to take the average of these values.
- The slat-moving time can also be determined after commissioning with the ETS (bus operation).

Commissioning with the ETS

- Switch on bus voltage.

  Check: the red programming LED must light up when the programming button is pressed.
- Download the physical address and the application data with the ETS.

- When the mains supply is on, the outputs of the actuator can be switched manually even if there is no bus voltage or if the actuator is not yet programmed. Due to this feature, the drives connected to the individual outputs can be checked for proper functioning already during site operation.

Performing a reference travel (optional)

The blind actuator can approach predefined blind/shutter or louver positions only if the current positions are known. For this purpose, each output must be given the opportunity to synchronize itself whenever the supply voltage is switched on or after every ETS programming run (physical address, application program, partial download). The synchronization is performed by means of the reference travel.

Switch on the mains supply.

- If not yet done, move the blinds/shutters to the upper end position (open venting louver completely).
- Wait until the output relay has switched off (not only the limit switch of the drive).

  The reference travel is terminated.

- The blind actuator stores the blind/shutter, slat or louver positions temporarily. After each supply voltage failure (failure of the bus voltage and of the mains voltage) or after programming with the ETS, the actuator therefore automatically performs a reference travel for each output before a new position can be approached.
- After bus voltage return, the blind actuator generates an "invalid position" message for each output which can also be transmitted to the bus, if so parameterized. The message is cancelled (inverted message value) as soon as a reference travel can be performed. In case of automatic end position detection, a travelling time must have been learnt beforehand.

2.5 Operation

All outputs of the blind actuator can also be operated manually. The keypad with 4 function keys and 3 status LEDs on the front panel of the device can be used for setting the following modes of operation...

- bus control: operation from touch sensors or other bus devices
- Temporary manual control: manual control locally with keypad, automatic return to bus control,
- Permanent manual control: local manual control with keypad.

- The operating modes can be enabled or disabled by parameter settings in the ETS.
- When manual control is active, the outputs cannot be controlled via the bus.
- Manual control is possible only while the actuator is supplied with power from the mains. The manual control mode ends in case of bus voltage return or mains voltage failure.
- Manual control in the bus mode can be disabled by a telegram. The manual mode is terminated on activation of the disabling function.
- Further details concerning the manual mode, especially with respect to the possible parameter settings and the interaction with other functions of the blind actuator can be found in chapter "Software description" of the present documentation.

Controls and indicators for manual control

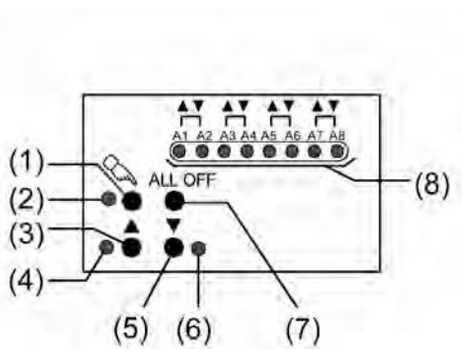

Figure 9: Controls and indicators for manual control on the front panel of the device.

(1) Key c Activation / deactivation of manual control
(2) LED c: indicates permanent manual control.
(3) Key n: Sustained press: upward travel output (long-time operation) / brief press: output stop.
(4) Status LED n: indicates an active travel movement in the manual mode (up / open).
(5) Key o: Sustained press: downward travel output (long-time operation)/ brief press: output stop.
(6) Status LED o: indicates an active travel movement in the manual mode (down / close).
(7) Key ALL OFF stop all drives (only in permanent manual control).
(8) Status LEDs no: indicate the state of the individual outputs. One of the LEDs is lit up during an active travel movement in the corresponding direction initiated by bus or by manual control. One of the LEDs flashes when the corresponding output has been selected in manual control. One of the LEDs flashes fast when the corresponding output has been disabled during manual control.

Priorities

The blind actuator distinguishes between different functions that can be active at an output. In order to prevent conflicting output states, each available function has a certain priority. The function with the higher priority overrides the function with the lower priority.

- 1st priority: manual control (highest priority),
- 2nd priority: forced position,
- 3rd priority: safety function(s),

Priority levels 4 and 5 can be parameterized in the ETS. The options are then

- 4th priority: sun protection function
- 5th priority: direct operation via the bus (short-time/long-time operation, positioning, scenes, central function),

or...

- 4th priority: direct operation via the bus (short-time/long-time operation, positioning, scenes, central function),
- 5th priority: sun protection function

or...

- 4th priority: sun protection function and direct operation via the bus (short-time/long-time operation, positioning, scenes, central function).

Activating the temporary manual control

Manual control is enabled in the ETS.

o Press the C key briefly (< 1 s).

The two status LEDs of A1 are flashing (LED C remains off)

▪ In 12...48 V DC operation the LEDs of the output pair A1/A2 are flashing.

▪ After 5 s without a key-press, the actuator returns automatically to bus operation.

Deactivating temporary manual control

Temporary manual control was activated.

o No key-press for 5 s

- or -

o Select all outputs one after another by a brief press of the key. Thereafter, press the key once again.

- or -

o Switch the mains power supply off or reset the bus (bas voltage return). Temporary manual control is terminated. The Status LEDs A1...max. A8 display the status according to bus operation when mains voltage is switched on.

▪ The state set via manual control is not changed when temporary manual control is switched off. If, however, a function with a priority higher than that of the direct operation (e.g. forced position or safety function) has been activated via the bus before or during manual control, the actuator executes the function with the higher priority for the outputs concerned.

Activating permanent manual control

Manual control is enabled in the ETS. Bus operation or temporary manual control is active.

o Press the C key for at least 5 s.

The status LED C is illuminated. The two status LEDs of A1 are flashing. Permanent manual control is active:

▪ In 12...48 V DC operation the LEDs of the output pair A1/A2 are flashing.

Deactivating permanent manual control

Permanent manual control is active.

o Press the C key for at least 5 s.

- or -

- Select all outputs one after another by a brief press of the key. Thereafter, press the key once again.

- or -

- Switch the mains power supply off or reset the bus (bas voltage return). The status LED goes out. The Status LEDs A1...max. A8 display the status according to bus operation when mains voltage is switched on.

- Depending on the configuration of the actuator in the ETS, the outputs will be set to the state last adjusted in the manual mode or to the state internally tracked (direct operation, forced position, safety or sun protection position) when the permanent manual mode is shut off.

Controlling an output manually

Manual control (permanent or temporary) is activated.

- Select the desired output: Press the c key briefly (if necessary, repeatedly).

  The Status LEDs of the selected output A1...max. A8 flash. If the selected output is active controlling a travel movement, the " n" or " o" status LEDs on the keypad are lit up additionally.

- Operate the output by pressing the n button or o button.
  Short: Stop drive.
  Long: Move drive up/down (long time operation) or open/close venting louvre.

  The selected drive motor executes the corresponding commands immediately.

- In 12...48 V DC operation the LEDs of an output pair are always flashing when the output is selected.

Shutting off all outputs (stopping all drives)

Permanent manual control is active:

- Press the ALL OFF key

  All outputs are shut off immediately (stop). The outputs are not locked. Individual activation is again possible after shutoff.

- The "ALL-OFF" function is not available in temporary manual control.

Disabling bus control of individual outputs manually

Permanent manual control is active:

Disabling of the bus control mode must have been enabled in the ETS.

- Select the output: Press the c key briefly (if necessary, repeatedly).

  The Status LEDs of the selected output A1...max. A8 flash. If the selected output is active controlling a drive movement, the " n" or " o" status LEDs on the keypad are lit up additionally.

- Press the n and the o key simultaneously for at least 5 s.

  The appropriate output is locked (control via the bus not possible). The Status LEDs of the selected output A1...max. A8 flash rapidly.

- To unlock, proceed in the same way.

- In 12...48 V DC operation the LEDs of an output pair are always flashing when the output is selected.

- An output that has been disabled in manual control can thereafter only be operated in permanent manual control.

3 Technical data

General

Mark of approval	KNX / EIB / VDE
Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +70 °C (Storage above + +45 °C reduces the lifetime.)
Installation position	as desired (preferably top output terminals)
Minimum distances	none
Fixing type	Snapping onto top hat rails in closed housing (e.g. small distribution board, etc.)

Terminals for mains supply and outputs

Connection mode	Screw terminal
Single stranded	0.5 ... 4 mm²
Finely stranded without conductor sleeve	0.35 ... 4 mm²
Finely stranded with conductor sleeve	0.14 ... 2.5 mm²
Connection torque	max. 0.8 Nm

KNX/EIB supply

KNX medium	TP 1
Commissioning mode	S-mode
Rated voltage KNX	DC 21 ... 32 V SELV
Power consumption KNX	typical 150 mW
Connection mode KNX	Standard terminal

External supply

Rated voltage	AC 230 / 240 V ~
Mains frequency	50 / 60 Hz
Power consumption	max. 5.6 VA
Power loss	
Art.-No.: 2502 REG HE	max. 4.5W
Art.-No.: 2504 REG HE	max. 4.5W
Art.-No.: 2508 REG HE	max. 6W

Outputs

Contact type	µ contact, monostable
Mains frequency	50 / 60 Hz
Switching voltage	AC 250 V ~
Switching voltage DC	DC 12 ... 48 V
Switching current AC 250 V	AC 6 A
Contact rating DC 12/24 V	6 A
Switching current DC 48 V	3 A
Minimum switching current AC	100 mA
Minimum DC switching current	100 mA
Blind/shutter travelling time	max. 20 min
Duty cycle	max. 50% (cycle time ≤ 40 min)

4 Software description

4.1 Software specification

ETS search paths:	- Shutter / Shutter / Shutter/blinds actuator 2-gang AC 230V / 1-gang DC 12-48V SE - Shutter / Shutter / Shutter/blinds actuator 4-gang AC 230V / 2- gang DC 12-48V SE - Shutter / Shutter / Shutter/blinds actuator 8-gang AC 230V / 4- gang DC 12-48V SE
BAU used:	TPUART + µC
KNX/EIB type class:	3b device with cert. Physical layer + stack
Configuration:	S mode standard
PEI type:	"00"$_{Hex}$ / "0" $_{Dec}$
PEI connector:	No connector

Available applications for "Venetian blind actuator 1/2-channel REG"

No.	Short description	Name	Version	from mask version
1	Multi-functional Venetian blind application with separately configurable travelling times; alternatively automatic end position detection for 230 V drives with mechanical limit switches, expanded feedback functions, assignments to up to 5 different safety functions and a sun protection function adapted to the highest requirements. Also allows inclusion in scenes or forced movements. Centralised control of all outputs is also possible. Moreover, the preferred states of the relays in case of bus voltage failure or bus / mains voltage return and after ETS programming can be preset separately.	Venetian blind 20C401	0.1 for ETS 2 and ETS 3.0a…c	705
2	Multi-functional Venetian blind application with separately configurable travelling times; alternatively automatic end position detection for 230 V drives with mechanical limit switches, expanded feedback functions, assignments to up to 5 different safety functions and a sun protection function adapted to the highest requirements. Also allows inclusion in scenes or forced movements. Centralised control of all outputs is also possible. Moreover, the preferred states of the relays in case of bus voltage failure or bus / mains voltage return and after ETS programming can be preset separately.	Venetian blind 20C411	1.1 for ETS3.0 Version d onwards	705

Available applications for "Venetian blind actuator 2/4-channel REG"

No.	Short description	Name	Version	from mask version
1	Multi-functional Venetian blind application with separately configurable travelling times; alternatively automatic end position detection for 230 V drives with mechanical limit switches, expanded feedback functions, assignments to up to 5 different safety functions and a sun protection function adapted to the highest requirements. Also allows inclusion in scenes or forced movements. Centralised control of all outputs is also possible. Moreover, the preferred states of the relays in case of bus voltage failure or bus / mains voltage return and after ETS programming can be preset separately.	Venetian blind 20A802	0.2 for ETS 2 and ETS 3.0a…c	705
2	Multi-functional Venetian blind application with separately configurable travelling times; alternatively automatic end position detection for 230 V drives with mechanical limit switches, expanded feedback functions, assignments to up to 5 different safety functions and a sun protection function adapted to the highest requirements. Also allows inclusion in scenes or forced movements. Centralised control of all outputs is also possible. Moreover, the preferred states of the relays in case of bus voltage failure or bus / mains voltage return and after ETS programming can be preset separately.	Venetian blind 20A812	1.2 for ETS3.0 Version d onwards	705

Available applications for "Venetian blind actuator 4/8-channel REG"

No.	Short description	Name	Version	from mask version

1	Multi-functional Venetian blind application with separately configurable travelling times; alternatively automatic end position detection for 230 V drives with mechanical limit switches, expanded feedback functions, assignments to up to 5 different safety functions and a sun protection function adapted to the highest requirements. Centralised control of all outputs is also possible. Moreover, the preferred states of the relays in case of bus voltage failure or bus / mains voltage return and after ETS programming can be preset separately. No inclusion in scenes or forced movements.	Venetian blind 20AD01	0.1 for ETS 2 and ETS 3.0a…c	705
2	Multi-functional Venetian blind application with separately configurable travelling times; alternatively automatic end position detection for 230 V drives with mechanical limit switches, expanded feedback functions, assignments to up to 5 different safety functions and a sun protection function adapted to the highest requirements. Integration into scenes or forced positions also available. Centralised control of all outputs is also possible. Moreover, the preferred states of the relays in case of bus voltage failure or bus / mains voltage return and after ETS programming can be preset separately.	Venetian blind 20AD11	1.1 for ETS3.0 Version d onwards	705

4.2 Software "Venetian blind"

4.2.1 Scope of functions

General

- Venetian blind actuator, 1/2-channel REG: 2-channel operation for direction connection of two 230 V AC drive motors. Alternatively, the Venetian blind actuator can be configured to 1-channel operation for direct control of a 12…48 V DC drive.
  Venetian blind actuator 2/4-channel REG: 4-channel operation for direct connection of four 230 V AC drive motors. Alternatively, the Venetian blind actuator can be configured to 2-channel operation for direct control of two 12…48 V DC drives.
  Venetian blind actuator 4/8-channel REG: 8-channel operation for direct connection of eight 230 V AC drive motors. Alternatively, the Venetian blind actuator can be configured to 4-channel operation for direct control of four 12…48 V DC drives.
  Both actuators: mixed operation of 230 V and 12…48 V DC motors is not possible.
- Behaviour in case of bus voltage failure and bus voltage return as well as after ETS programming presettable for each output.
- Central control of all Venetian blind outputs via 1-bit long-time operation telegram possible.
- Active feedback telegrams can be globally delayed after bus voltage return.
- Manual control of outputs independent of the bus (for instance, building site operation) with LED status indicators.

Channel-oriented functions

- Each output offers the full scope of functions without any restrictions. All channel-oriented functions can be parameterized separately for each output. This feature permits independent and multi-functional control of the blind outputs.
- Mode of operation parameterizable: control of blinds with slats, shutters or venting louvers.
- Separately parameterizable blind/shutter travelling times with travelling time extension for moves into the upper end position.
- Optionally with automatic end position detection (automatic determination of the blind/ shutter travelling time) for 230 V drive motors with mechanical limit switches.
- For blinds with slats, a slat-moving time can be independently parameterized
- Travel direction change-over time and the times for short-time and long-time operation (step, move) presettable.
- Blind/shutter or slat position feedback telegram (only with bus control). In addition, an invalid blind/shutter position or an invalid travel movement can be reported back. Active (transmitting after changes) or passive (object readout) feedback functions.
- Assigning of outputs to up to 5 different safety functions
  (3 wind alarms, 1 rain alarm, 1 frost alarm) optionally with cyclical monitoring. The safety functions (objects, cycle times, priority) are programmed device-oriented and in common for all outputs. The assignment of individual outputs to the safety functions and the safety measures can be parameterized for each channel.
- An extensive sun protection function with fixed and variable blind/shutter or slat positions at the beginning and at the end of the function can be activated separately for each output. Dynamic slat offset for slatted blinds included. Also with enlarged sun protection feature for integration into sophisticated shading control programs
  (operated via separate automatic and disabling object). Optionally also with automatic heating/cooling and presence detection function.
- Forced-position function can be implemented for each blind output (forced positions available with 4/8-channel device variant only with ETS3.0d and higher).
- Integration in scenes possible: up to eight internal scenes can be parameterized for each output (when using the 4/8-channel device variant the scene function is only available with ETS3.0d and higher).

4.2.2 Software information

ETS project design and start-up

For configuration and commissioning of this device, we recommended using ETS3.0d. Advantages with regard to downloading (significantly shorter loading times) and parameter programming can be expected only if this ETS patch version or later versions are used. The advantages are gained through the use of the new mask version 7.5 and the parameter presentation of ETS3.
The product database required for the ETS3.0d is offered in the *.VD4 format. The appropriate application program has the version number "1.x".
For the ETS2 and older versions of the ETS3 a separate product database in the *.VD2 format is available. The application program for these ETS versions is version number "0.x".
With regard to the scope of configuration functions described in this documentation, the two application programs differ for the Venetian blind actuator, 4/8-channel. In the version "0.x"there are no scene and forced position functions.
When older ETS versions are updated to the level of version ETS3.0d or to that of later versions, an additional tool in the form of an ETS3 add-in is available. This tool is able to convert older product databases with the application version "0.x" – for example from existing ETS2 projects – into the new application format (Version "1.x"). This way you can make use of the advantages of the ETS3.0d application easily and without changing the configuration. The ETS3 add-in can be obtained separately and free of charge from the manufacturer.

Safe-state mode

If the device does not work properly - for instance as a result of errors in the project design or during commissioning - the execution of the loaded application program can be halted by activating the safe-state mode. The safe-state mode does not permit controlling the outputs via the bus and by hand. The actuator remains passive since the application program is not being executed (state-of-execution: terminated). Only the system software is still functional so that the ETS diagnosis functions and also programming of the device continue to be possible.

Activating the safe-state mode

- Shut off the bus and the mains voltage supply.
- Press and hold down the programming button.
- Switch on the bus or mains voltage. Release the programming button only after the programming LED starts flashing slowly.

  The safe-state mode is activated. With a new brief press of the programming button, the programming mode can be switched on and off as usual also in the safe-state mode. The programming LED will nevertheless continue to flash independently of the programming mode as long as the safe-state mode is active.
- The safe-state mode can be terminated by switching off the supply voltage (bus or mains) or by programming with the ETS.

Unloading the application program

The application program can be unloaded with the ETS. In this case, manual control as part of the application program is not available either.

4.2.3 Object table

Number of communication objects:	1/2-channel: 46 (max. object number 55 - gaps in between) 2/4-channel: 84 (max. object number 107 - gaps in between) 4/8-channel: 160 (max. object number 211 - gaps in between)
Number of addresses (max):	254
Number of assignments (max):	255
Dynamic table management	No
Maximum table length	255

Channel-independent objects

Function: Manual operation

Object	Function	Name	Type	DPT	Flag
0	Disabling	Manual operation	1-bit	1.003	C, W, -, (R)[1]

Description: 1-bit object for disabling the buttons for manual control on the device. The polarity can be configured.

Function: Manual operation

Object	Function	Name	Type	DPT	Flag
1	Status	Manual operation	1-bit	1.002	C, -, T, (R)[1]

Description: 1-bit object for manual control status transmission. The object is "0", when manual control is deactivated (bus control). The object is "1", when manual control is being activated. You can configure whether the temporary or the permanent manual control will be indicated as status information or not.

Function: Venetian blind central function

Object	Function	Name	Type	DPT	Flag
2	Central movement	All Venetian blind outputs	1-bit	1.008	C, W, -, (R)[1]

Description: 1-bit object for central actuation (long-time movement) of assigned Venetian blind outputs. The polarity can be configured.

1: Each communication object can be read out. For reading, the R-flag must be set.

Function: Safety function

Object	Function	Name	Type	DPT	Flag
h 3	Wind alarm 1	Safety	1-bit	1.005	C, W, -, (R) [1]

Description: 1-bit object for central activation or deactivation of the first wind alarm ("0" = wind alarm deactivated / "1" = wind alarm activated).

Function: Safety function

Object	Function	Name	Type	DPT	Flag
h 4	Wind alarm 2	Safety	1-bit	1.005	C, W, -, (R) [1]

Description: 1-bit object for central activation or deactivation of the second wind alarm ("0" = wind alarm deactivated / "1" = wind alarm activated).

Function: Safety function

Object	Function	Name	Type	DPT	Flag
h 5	Wind alarm 3	Safety	1-bit	1.005	C, W, -, (R) [1]

Description: 1-bit object for central activation or deactivation of the third wind alarm ("0" = wind alarm deactivated / "1" = wind alarm activated).

Function: Safety function

Object	Function	Name	Type	DPT	Flag
h 6	Rain alarm	Safety	1-bit	1.005	C, W, -, (R) [1]

Description: 1-bit object for central activation or deactivation of the rain alarm ("0" = rain alarm deactivated / "1" = rain alarm activated).

Function: Safety function

Object	Function	Name	Type	DPT	Flag
h 7	Frost alarm	Safety	1-bit	1.005	C, W, -, (R) [1]

Description: 1-bit object for central activation or deactivation of the frost alarm ("0" = frost alarm deactivated / "1" = frost alarm activated).

1: Each communication object can be read out. For reading, the R-flag must be set.

Channel-oriented objects:

Function:	Long time operation				
Object	Function	Name	Type	DPT	Flag
h 10, 36, 62, 88, 114, 140, 166, 192	Long time operation	Output 1 - 8[1]	1-bit	1.008	C, W, -, (R)[2]
Description	1-bit object for activation of long time operation				

Function:	Short time operation				
Object	Function	Name	Type	DPT	Flag
h 11, 37, 63, 89, 115, 141, 167, 193	Short time operation	Output 1 - 8 [1]	1-bit	1.007	C, W, -, (R)[2]
Description	1-bit object for activation of short time operation or for stopping a drive movement.				

Function:	Forced position [3]				
Object	Function	Name	Type	DPT	Flag
h 12, 38, 64, 90, 116, 142, 168, 194	Forced position	Output 1 - 8 [1]	2-bit	2.008	C, W, -, (R)[2]
Description	2-bit object for forced control of an output. The object state after bus voltage return can be predefined by means of a parameter.				

Function:	Scene function [3]				
Object	Function	Name	Type	DPT	Flag
h 13, 39, 65, 91, 117, 143, 169, 195	Scene extension	Output 1 - 8 [1]	1 byte	18.001	C, W, -, (R)[2]
Description	1-byte object for recalling scenes or for storing new scene values.				

1: The object designations are dependent of the selected channel definition. In 12...48 V DC operation, outputs 1/2, 3/4, ... are combined into channel pairs. Moreover the number of outputs depends on the device version.

2: Each communication object can be read out. For reading, the R-flag must be set.

3: This object is not present with the Venetian blind actuator 4/8-channel in the application version "0.1" (use for ETS2 and ETS3.0a...c).

Function: Sun protection function

Object	Function	Name	Type	DPT	Flag
15, 41, 67, 93, 119, 145, 171, 197	Automatic mode	Output 1 - 8 [1]	1-bit	1.003	C, W, -, (R) [2]

Description: 1-bit object for activation or deactivation of the automatic sun protection in the extended sun protection mode ("1" = automatic mode activated / "0" = automatic mode deactivated). The object is only visible, if the automatic sun protection is to be tracked immediately when the state of the automatic object changes (parameter setting).

Function: Sun protection function

Object	Function	Name	Type	DPT	Flag
16, 42, 68, 94, 120, 146, 172, 198	Automatic mode disable	Output 1 - 8 [1]	1-bit	1.003	C, W, -, (R) [2]

Description: 1-bit object for disabling of the automatic sun protection in the extended sun protection mode. The polarity can be configured. The object is only visible, if the automatic sun protection is to be tracked immediately when the state of the automatic object changes (parameter setting).

Function: Sun protection function

Object	Function	Name	Type	DPT	Flag
16, 42, 68, 94, 120, 146, 172, 198	Automatic mode	Output 1 - 8 [1]	1-bit	1.003	C, W, -, (R) [2]

Description: 1-bit object for activation or deactivation of the automatic sun protection in the extended sun protection mode. The polarity can be configured. The object is only visible, if the automatic sun protection is to be tracked only when the state of the automatic object changes next time (parameter setting).

1: The object designations are dependent of the selected channel definition. In 12...48 V DC operation, outputs 1/2, 3/4, ... are combined into channel pairs. Moreover the number of outputs depends on the device version.

2: Each communication object can be read out. For reading, the R-flag must be set.

Function: Sun protection function

Object	Function	Name	Type	DPT	Flag
17, 43, 69, 95, 121, 147, 173, 199	Direct operation disable	Output 1 - 8 [1]	1-bit	1.003	C, W, -, (R) [2]

Description: 1-bit object for disabling direct operation in the extended sun protection mode (direct operation = Move / Step / Position / Scene / Central). The polarity can be configured.

Function: Sun protection function

Object	Function	Name	Type	DPT	Flag
18, 44, 70, 96, 122, 148, 174, 200	Sunshine / shading facade	Output 1 - 8 [1]	1-bit	1.002	C, W, -, (R) [2]

Description: 1-bit object for activation or deactivation of sun shading in the simple or extended sun protection mode (sun / no sun). The polarity can be configured.

Function: Sun protection function

Object	Function	Name	Type	DPT	Flag
19, 45, 71, 97, 123, 149, 175, 201	Sunsh./shading position [3]	Output 1 - 8 [1]	1 byte	5.001	C, W, -, (R) [2]

Description: 1-byte object for presetting a variable position value (0…255) for the height of the Venetian blind or roller shutter height or the venting louver position when the sun protection is active.

1: The object designations are dependent of the selected channel definition. In 12...48 V DC operation, outputs 1/2, 3/4, ... are combined into channel pairs. Moreover the number of outputs depends on the device version.

2: Each communication object can be read out. For reading, the R-flag must be set.

3: The object designation varies with the type of blind (Venetian blind, roller shutter / awning, venting louver).

Function: Sun protection function

Object	Function	Name	Type	DPT	Flag
20, 46, 72, 98, 124, 150, 176, 202	Slat pos. Sunshine / shading	Output 1 - 8 [1]	1 byte	5.001	C, W, -, (R) [2]

Description 1-byte object for presetting a variable slat position value (0…255) when the sun protection is active.

Function: Sun protection function

Object	Function	Name	Type	DPT	Flag
21, 47, 73, 99, 125, 151, 177, 203	Sunshine slat position offset	Output 1 - 8 [1]	1 byte	6.001	C, W, -, (R) [2]

Description 1-byte object for presetting a slat position angle (- 100 % … +100 % / smaller or larger position angles are treated as + or – 100 %) for 'manual' readjustment of the slat position during active sun protection.

Function: Sun protection function – automatic heating/cooling

Object	Function	Name	Type	DPT	Flag
22, 48, 74, 100, 126, 152, 178, 204	Heating/cooling presence	Output 1 - 8 [1]	1-bit	1.018	C, W, -, (R) [2]

Description 1 -bit object for activation of the presence mode during automatic heating/cooling. The polarity can be configured. This object is generally linked with presence detectors.

1: The object designations are dependent of the selected channel definition. In 12...48 V DC operation, outputs 1/2, 3/4, ... are combined into channel pairs. Moreover the number of outputs depends on the device version.

2: Each communication object can be read out. For reading, the R-flag must be set.

Function: Sun protection function – automatic heating/cooling

Object	Function	Name	Type	DPT	Flag
h 23, 49, 75, 101, 127, 153, 179, 205	Heating/cooling switchover	Output 1 - 8 [1]	1-bit	1.100	C, W, -, (R) [2]

Description: 1-bit object for switching over between heating and cooling operation during automatic heating/cooling. The polarity can be configured. This object is generally linked with room temperature controllers (object "heating/cooling switchover").

Function: Position feedback

Object	Function	Name	Type	DPT	Flag
h 24, 50, 76, 102, 128, 154, 180, 206	Position feedback [3]	Output 1 - 8 [1]	1 byte	5.001	C, -, T, R [2,4]

Description: 1-byte object for position feedback of the Venetian blind or roller shutter height or louver position (0…255).

Function: Position feedback

Object	Function	Name	Type	DPT	Flag
h 25, 51, 77, 103, 129, 155, 181, 207	Slat position feedback	Output 1 - 8 [1]	1 byte	5.001	C, -, T, R [2,4]

Description: 1-byte object for position feedback of the slat position (0…255) if one shutter is controlled.

1: The object designations are dependent of the selected channel definition. In 12...48 V DC operation, outputs 1/2, 3/4, ... are combined into channel pairs. Moreover the number of outputs depends on the device version.

2: Each communication object can be read out. For reading, the R-flag must be set.

3: The object designation varies with the type of blind (Venetian blind, roller shutter / awning, venting louver).

4: Depending on the configuration, feedback objects are either actively transmitting (T flag set) or passively readable (R flag set).

Function: Position feedback

Object	Function	Name	Type	DPT	Flag
h 26, 52, 78, 104, 130, 156, 182, 208	Invalid position feedback	Output 1 - 8 [1]	1-bit	1.002	C, -, T, R [2,3]

Description: 1-bit object for reporting back an invalid position of the Venetian blind or roller shutter height or louver position ("0" = position valid / "1" = position invalid).

Function: Drive movement feedback

Object	Function	Name	Type	DPT	Flag
h 27, 53, 79, 105, 131, 157, 183, 209	Drive movement feedback	Output 1 - 8 [1]	1-bit	1.002	C, -, T, R [2,3]

Description: 1-bit object for feedback of an active drive movement (output energised - up or down).
("0" = no drive movement / "1" = drive movement).

Function: Presetting the position

Object	Function	Name	Type	DPT	Flag
h 28, 54, 80, 106, 132, 158, 184, 210	Position [4]	Output 1 - 8 [1]	1 byte	5.001	C, W, -, (R) [2]

Description: 1-byte object for presetting a position value (0…255) for the height of the Venetian blind or roller shutter or the venting louver position in direct operation.

1: The object designations are dependent of the selected channel definition. In 12...48 V DC operation, outputs 1/2, 3/4, ... are combined into channel pairs. Moreover the number of outputs depends on the device version.

2: Each communication object can be read out. For reading, the R-flag must be set.

3: Depending on the configuration, feedback objects are either actively transmitting (T flag set) or passively readable (R flag set).

4: The object designation varies with the type of blind (Venetian blind, roller shutter / awning, venting louver).

Function: Presetting the position

Object	Function	Name	Type	DPT	Flag
29, 55, 81, 107, 133, 159, 185, 211	Slat position	Output 1 - 8 [1]	1 byte	5.001	C, W, -, (R) [2]

Description 1-byte object for presetting a slat position value (0…255) in direct operation.

1: The object designations are dependent of the selected channel definition. In 12...48 V DC operation, outputs 1/2, 3/4, ... are combined into channel pairs. Moreover the number of outputs depends on the device version.

2: Each communication object can be read out. For reading, the R-flag must be set.

4.2.4 Functional description

4.2.4.1 Description of channel-independent functions

Channel definition

Depending on the device variant, the Venetian blind actuator can either be configured to 2-channel, 4-channel or 8-channel operation for direct connection of 230 V AC drive motors, or, alternatively, to 1-channel, 2-channel or 4-channel operation for direct control of 12…48 V DC drives.
Both actuators: mixed operation of 230 V and 12…48 V DC motors is not possible. The "Channel definition" parameter on the "General" parameter page specifies the number of channels.
Depending on this setting, all the channel-dependent parameters and bojects are created in the ETS and made visible. In 12...48 V DC operation, the outputs 1/3, 3/4 ... are combined into output pairs. The names of the output objects and the parameter page change accordingly. The outputs are combined as described also in the manual control mode.

Delay after bus voltage return

To reduce telegram traffic on the bus line after bus voltage activation (bus reset), after connection of the device to the bus line or after programming with the ETS, it is possible to delay all actively transmitted feedback telegrams of the actuator. For this purpose, a channel-independent delay can be specified (parameter "Delay after bus voltage return" on parameter page "General"). Only after the configured time elapses are feedback telegrams for initialisation transmitted to the bus.
Which of the feedback telegrams is actually delayed and which is not can be specified for each output channel and for each feedback function separately.

- The delay has no effect on the behaviour of the outputs. Only the feedback telegrams are delayed. The outputs can also be activated during the delay after bus voltage return.
- A setting of "0" for the delay after bus voltage return deactivates the delaying function altogether. In this case, all feedback telegrams, if actively transmitted, will be transmitted to the bus without any delay.

Central function

The actuator offers the possibility of linking selected individual or all output channels with a 1-bit central communication object. The behaviour in case of activating an output via the central function is comparable to a central group address linked with all "Long time operation" objects. The outputs assigned to the central function are activated in accordance with the central object value received. If necessary, the polarity of the central telegram can be configured as inverted. The behaviour of the channels is identical with the 'normal' activation via the "Long-time operation" objects. In this case the central telegram has got the same priority so the command last received (long-time or central) will be executed .

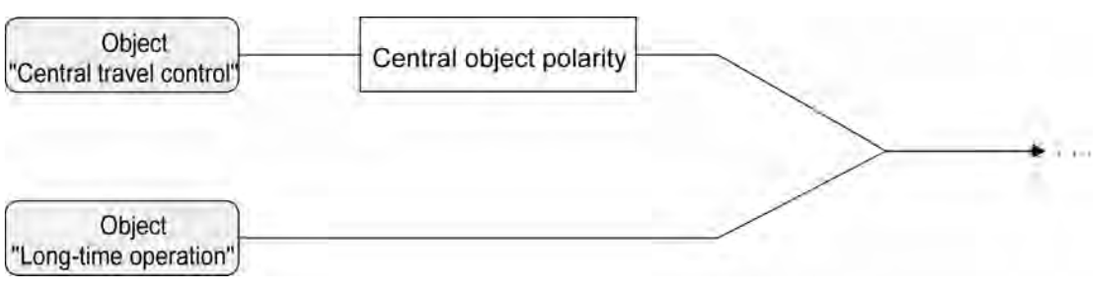

Figure 10: Function diagram "Central movement"

Enabling the central function

o Enable the central function on parameter page "General" by setting the "Central function ?" parameter to "Yes".

The "Central movement" communication object is visible.

Assigning outputs to the central function

Each output can be assigned independently to the central function.

The central function must have been enabled on parameter page "General". The assignment has otherwise no effect on the Venetian blind output.

- Set the "Assignment to central function" parameter on parameter page "Ax–Enabled functions" (x = number of output) to "Yes".

  The appropriate output is assigned to the central function. It can be moved centrally.

- The blind, venting louvre or slat position newly set by the central function is tracked at the end of a travel movement in the feedback objects and also transmitted to the bus, if these are actively transmitting. It should be noted that the Venetian blind actuator can compute positions after application of the supply voltage only if a reference movement into the upper limit positions has been performed beforehand.
- The central function belongs to the set of 'direct operations' of an output. For this reason, the central function has the same priority compared with operation using the short time or long time objects, used to control the positioning objects or to recall scenes.
- After a bus voltage return or after programming with the ETS, the central function is always inactive (object value "0").

Manual control

All outputs of the blind actuator can also be operated manually. The keypad with 4 function keys and 3 status LEDs on the front panel of the device can be used for setting the following modes of operation...

- bus control: operation from touch sensors or other bus devices
- Temporary manual control: manual control locally with keypad, automatic return to bus control,
- Permanent manual control: local manual control with keypad.

The operation of the function keys, the control of the outputs and the status indication are described in detail in chapter "Operation".
The following paragraphs are to give a more detailed description of the parameterization, status feedback, disabling via bus control and the interactions with other functions of the blind actuator when the manual control mode is activated and deactivated.

Manual control is possible only while the blind actuator is supplied with power from the mains. The actuator is delivered with the manual control mode fully enabled. In this unprogrammed state, the individual outputs can be switched on and off also without bus voltage so that fast function checking of the connected drives (e.g. on the construction site) is possible.

After the first commissioning of the actuator with the ETS, the manual control mode can be separately enabled or disabled for different states of operation. Manual control can, for instance, be disabled during bus operation (bus voltage applied). Another option consists in the complete disabling of the manual control only in case of bus voltage failure. Manual control can therefore be completely disabled during bus operation, but also in case of bus failures only.

Enabling the manual control mode

Manual control for the different states of operation is enabled or disabled by means of the parameters "Manual control in case of bus voltage failure" and
"Manual control during bus operation" on the "Manual control" parameter page.

- Set the parameter "Manual control in case of bus voltage failure" to "enabled".

  Manual control is then basically enabled when the bus voltage is off. This setting corresponds to the setting of the actuator as delivered.

- Set the parameter "Manual control in case of bus voltage failure" to "disabled".

  Manual control is completely disabled when the bus voltage is off. In this case, bus operation is not possible either so that the outputs of the actuator can no longer be actuated.

- In the configuration "Manual control in case of bus voltage failure = disabled", bus voltage failure will not terminate manual control if previously activated. The parameter configuration only has an effect if manual control is terminated first by key operation on the device. Manual control can then not be activated while the bus voltage is switched off.

- Set the parameter "Manual control during bus operation" to "enabled".

  Manual control is then basically enabled when the bus voltage is on. The outputs of the actuator can be operated via the bus or manually. This setting corresponds to the setting of the actuator as delivered.
- Set the parameter "Manual control during bus operation" to "disabled".

  Manual control is completely disabled when the bus voltage is on. In this configuration, the actuator outputs can only be operated via the bus.
- Further parameters and communication objects of the manual control are visible only in the configuration "Manual control during bus operation = enabled". For this reason, the disabling function, the status message and bus control disabling can only be configured in the above parameter setting.

Presetting the behaviour at the beginning and at the end of manual control.

Manual control is divided into temporary and permanent manual control. Depending on these modes, the actuator behaves differently, especially at the end of the control mode. It should be noted that the operation via the bus, i.e. control of the outputs by direct operation (move / step / position / scene / central) or by the sun protection and safety functions is always disabled when the manual control is active. This means that the manual control mode has the highest priority.

Behaviour at the beginning of manual control:
The behaviour at the beginning of manual control is the same for both temporary and permanent manual control. When manual control is activated, all travel movements that were started beforehand by bus control will still be completed unless the travel movement in question is stopped by hand.
An active forced-position, safety and sun protection function can be overridden by manual control. These functions are reactivated after deactivation of the manual mode unless they have been cancelled in the meantime.

Behaviour at the end of manual control:
The behaviour at the end of manual control is different depending on whether it is temporary manual control or permanent manual control.
The temporary manual mode is shut off automatically when the last output has been addressed and when the select key is pressed once more. During a shutoff of the temporary manual control mode, the actuator goes back to 'normal' bus operation and does not change the state selected by manual control. If, however, a forced position, safety or sun protection function (independent of priority) has been activated via the bus before or during manual control, the actuator executes these functions of a higher priority again for the outputs concerned.
The permanent manual control mode is shut off, when the select key is pressed for more than 5 s. Depending on the parameterization of the actuator in the ETS, the outputs will be set to the state last adjusted in the manual mode or to the state internally tracked (direct operation, forced position, safety or sun protection position) when the permanent manual mode is shut off. The parameter "Behaviour at the end of permanent manual control during bus operation" defines the corresponding reaction.

- Set the
  parameter "Behaviour at the end of permanent manual control during bus operation" to "no change".

  All telegrams received during an active permanent manual control mode for direct operation (long-time/short-time, positioning, central, scenes) will be rejected. After the end of the permanent manual control mode, the current state of all outputs remains unchanged. If, however, a forced position, safety or sun protection function (independent of priority) has been activated via the bus before or during manual control, the actuator executes these functions of a higher priority again for the outputs concerned.

- Set the parameter
  "Behaviour at the end of permanent manual control during bus operation" to "track outputs".

  During an active permanent manual control all incoming telegrams (short-time telegrams – step/stop excepted) are internally tracked. At the end of the manual control mode, the outputs will be set to the tracked states or to the absolute positions last set before the permanent manual control mode. A long-time operation is not tracked, if the output is already in the corresponding end position.

- The behaviour at the end of the permanent manual control when the bus voltage is off (only manual control) is permanently set to "no change".
- The control operations triggered in the manual control mode will be transmitted via feedback objects to the bus, if enabled and actively transmitting.
- On return of bus voltage or after programming with the ETS an activated manual control mode will always be terminated. In this case, the parameterized or predefined behaviour at the end of manual control will not be executed. The actuator executes the parameterized behaviour on bus voltage return or after ETS programming instead.

Presetting a manual control disable

The manual control mode can be separately disabled via the bus, even if it is already active. As soon as a disabling telegram is received via the disabling object in case the disabling function is enabled, the actuator ends an activated manual control mode immediately and interlocks the function keys on the device panel. The telegram polarity of the disabling object is parameterizable.

The manual control mode during bus operation must be enabled.

- Set the parameter "Disabling function ?" on parameter page "Manual control" to "yes".

  The disabling function of the manual control mode is enabled and the disabling object is visible.
- Select the desired telegram polarity in the "Disabling object polarity" parameter.
- If the polarity is "0 = disabled; 1 = enabled", the disabling function is immediately active on return of bus voltage or after an ETS programming operation (object value "0"). To activate the manual control in this case, an enable telegram "1" must first be sent to the disabling object.
- In case of bus voltage failure, disabling via the disabling object is always inactive (depending on parameterization, the manual control is then either enabled or completely disabled). After return of bus voltage a disabled state that was active before will be reactivated. The disabled state will be deactivated only after an enabling telegram has been received. In case of supply voltage failure (bus and mains voltage failure), a disable via the disabling object will be deactivated. An interruption of the mains supply alone has no effect on the disabled state of the manual control.
- When an active manual control is terminated by a disable, the actuator will also transmit a "Manual control inactive" status telegram to the bus, if the status messaging function is enabled.

Presetting the status message function for the manual control mode

The actuator can transmit a status message to the bus via a separate object, when the manual control mode is activated or deactivated. The status telegram can only be transmitted when the bus voltage is present. The polarity of the status telegram can be parameterized.

The manual control mode during bus operation must be enabled.

- Set the parameter "Transmit status ?" on the "Manual control" parameter page to "yes".

  The status messaging function of the manual mode is enabled and the status object is visible.
- Specify in the parameter "Status object function and polarity" whether the status telegram is generally a "1" telegram whenever the manual control mode is activated or only in those cases where the permanent manual mode is activated.
- The status object is always "0", when the manual control mode is deactivated.

- The status will be actively transmitted to the bus ("0") only if a manual control that was activated during bus voltage failure is terminated by the return of the bus voltage. The status telegram is in this case transmitted without delay. After bus voltage return or after programming with the ETS, the value of the status object is " 0 " and can also be read out.
- When an active manual control is terminated by a disable, the actuator will also transmit a "Manual control inactive" status telegram to the bus.

Setting disabling of the bus control

Individual outputs can be disabled locally, so that the outputs concerned can no longer be activated via the bus. Disabling of the bus operation is initiated by means of local operation in permanent manual control, and indicated by quick flashing of the status LEDs of the outputs concerned. The disabled outputs can then be activated exclusively in permanent manual control.

The manual control mode during bus operation must be enabled.

o Set the parameter "Disable bus control of individual outputs" on the "Manual control" page to "yes".

The function for disabling the bus control is enabled and can be activated locally. As an alternative, setting this parameter can be set to "no" to prevent activation of disabling of the bus control in permanent manual control.

- The disabling initiated locally has the highest priority. Thus other functions of the actuator that can be activated via the bus (e.g. forced position or safety function) are overridden. Depending on the parameterization of the actuator in the ETS, the outputs will be set to the state last adjusted in the manual mode or to the state internally tracked (direct operation, forced position, safety or sun protection position) when the permanent manual mode is shut off.
- Locally activated disabling of the bus control is not reset in case of bus voltage failure or return. Failure of only the mains voltage also does not reset the disabling. A failure of the supply voltage (bus voltage and mains voltage failure) deactivates the disabling of the bus control.

Safety functions:

The blind actuator can handle up to five different safety functions. Each safety function has a communication object of its own so that the functions can be activated or deactivated independently of one another.
Three different wind alarms are available. These alarms can be used, for instance, to protect blinds or awnings on several building facades from wind and gusts. In addition or as an alternative, a rain alarm, for instance, as a protection for awnings, and a frost alarm as a protection against mechanical damage to lowered blinds in low temperatures can be activated and used. The telegram polarity of the safety objects is fixed: "0" = no alarm / "1" = alarm.
The communication objects of the safety function are generally controlled by weather stations, which use sensors to record temperature, wind speed and rain.
The safety functions are programmed and configured in common for all shutter/blind outputs. The different outputs of the actuator can be separately assigned to all or to individual safety functions. Only assigned outputs react to a change of state of the safety objects. The reactions at the beginning of an alarm message ("1" telegram) or at the end of an alarm message ("0" telegram) can be parameterized for each channel.
As the outputs can also be assigned to several safety alarms, the priority of incoming alarm messages can be preset for several channels. Thus, the three wind alarms have the same priority with respect to one another (logic OR). The order of priority of the wind alarms with respect to the frost alarm or to the rain alarm can be parameterized.
The communication objects for the safety alarms can be monitored for the arrival of cyclical telegrams. If no telegrams are received within a presettable time, the actuator activates the safety travel movement for the outputs assigned. The safety function is terminated when a new "0" telegram is received.
For the wind alarms , the rain alarm and the frost alarm, different monitoring times between '1 minute' and '23 hours 59 minutes' can be separately selected in the ETS. A common time is configured for the wind alarms. Each wind alarm has its own timer so that the wind objects are separately checked for telegram updates.

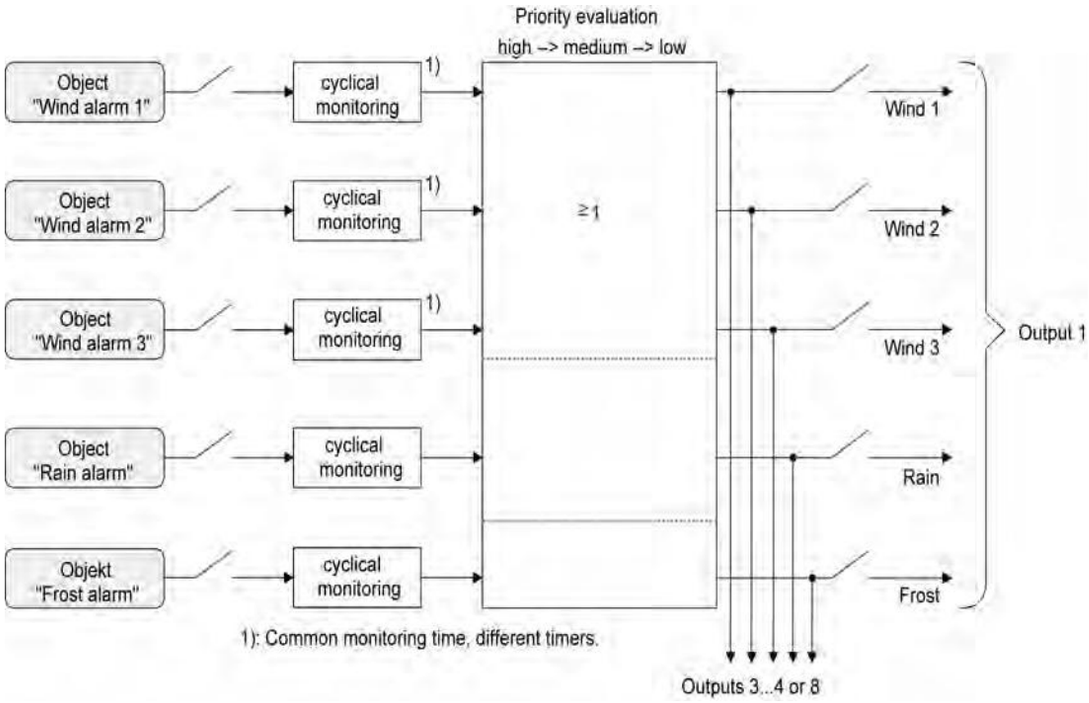

Figure 11: Function diagram of the safety function

Enabling the safety functions

The safety functions must first be globally enabled before they can be parameterized and used. After global enabling, the individual safety alarms can be enabled or disabled independently of one another.

- Set the parameter "Safety functions" on the "Safety" parameter page to "enabled".

  The safety functions are globally enabled and the other parameters and the parameter page "Safety times" become visible.
- Set the parameters "Wind alarm 1", "Wind alarm 2", "Wind alarm 3", "Rain alarm" and "Frost alarm" depending on functional requirements to "enabled". The "disabled" option deactivates the corresponding alarm.

  The necessary safety alarms are now enabled. The safety objects are visible and can be linked with group addresses.

- It should be noted that the channel-oriented assignment of blind outputs to the safety alarms (on parameter pages "Ax – Safety"; x = number of output) is operational only after the corresponding alarm has been enabled. Otherwise, an assignment is without function.
- An update of the safety objects ("ON" to "ON" or "OFF" to "OFF") shows no reaction.
- After failure of the supply voltage (bus and mains voltage failure) or after programming with the ETS, the safety functions are always deactivated. If only the mains voltage or only the bus voltage fails, the object states of the safety functions are not lost and the functions remain activated, if they were activated before. In this case it should be noted, however, that the device executes the parameterized action (parameter "Behaviour after bus or mains voltage return") when the bus or the mains voltage is restored. After such action, the outputs are, however, safety-locked and cannot be operated via the bus anymore unless the safety functions assigned are terminated.

Presetting the safety priorities

If several safety alarms are assigned to an output, it is important to preset the priority of the incoming safety telegrams. An alarm with a higher priority overrides the alarms with the lower priorities. When a safety alarm with the higher priority has ended, the safety alarm with the lower priority is executed on condition that it is active.

The safety functions must have been globally enabled.

- Arrange the "Priority of safety alarms" parameters on the "Safety" parameter page in the required order of priority.

- The three wind alarms have the same priority with respect to one another (logic OR). The last telegram update to the wind alarm objects decides which of the wind alarms will be executed. The wind alarm is completely deactivated for an assigned output only after all three objects are inactive ("0").

Presetting cyclical monitoring

If cyclical telegram monitoring of the safety objects is necessary, the individual monitoring functions must be activated separately. The monitoring functions must be enabled and the monitoring times preset on the "Safety times" parameter page.

The safety functions must have been globally enabled.

- If monitoring of the wind alarms is to be activated, the parameter "Use wind alarm monitoring function ?" must be set to "yes".

  The monitoring function for the wind alarm objects is now activated. As soon as the monitoring function is activated, telegrams must be transmitted cyclically to all enabled wind alarm objects. If only one of the wind alarm telegrams is missing within the monitoring period, the wind alarm reaction will be executed for the output concerned.

- Specify the required monitoring time for the wind alarm objects in the "Wind alarm monitoring times" parameters.

- If the monitoring function is to be activated for a rain alarm, the parameter "Use rain alarm monitoring function ?" must be set to "yes".

  The monitoring function for the rain alarm object is now activated. As soon as the monitoring function is activated, telegrams must be transmitted cyclically to the rain alarm object.

- Specify the required monitoring time for the rain alarm object in the "Rain alarm monitoring times" parameters.

- If the monitoring function is to be activated for a frost alarm, the parameter "Use frost alarm monitoring function ?" must be set to "yes".

  The monitoring function for the frost alarm object is now activated. As soon as the monitoring function is activated, telegrams must be transmitted cyclically to the frost alarm object.

- Specify the required monitoring time for the frost alarm object in the "Frost alarm monitoring times" parameters.

- The monitoring function for the wind alarms may only be activated, if at least one wind alarm has been activated on the "Safety" page.

- The cycle time of the transmitters should be shorter than the monitoring time parameterized in the blind actuator in order to ensure that at least one telegram can be received during the monitoring time.

4.2.4.2 Channel-oriented functional description

Operating mode

Each output of the Venetian blind actuator can be independently configured for the drive type connected by defining the mode of operation. The device permits controlling slatted Venetian blinds, roller shutters, awnings and also venting louvres. Depending on the preset operating mode, the ETS adapts the parameters and communication objects for all functions of an output. For example, in the "Venetian blind" operation mode, there are also parameters and objects for slat control. There is no slat control in the "Roller shutter / awning" operating mode, but a fabric stretching function can be configured for awning use. In the "Venting louvre" operation mode, a distinction is made between the "Closing" and "Opening" drive movements, instead of an up or down movement for Venetian blinds or roller shutters.
In this documentation, Venetian blinds, roller shutters or awnings are also designated with the term "blind", if the text does not explicitly refer to a particular function (e.g. slat control). In all modes it is possible to specify positions.

Presetting the operating mode

The parameter "Mode of operation" exists separately for each shutter output on the parameter page "Ax General" (x = number of output).

- Select the required operating mode in the "Operating mode" parameter.
- The "Operating mode" parameter has an influence on many channel-oriented parameters and communication objects. When the operating mode is changed in the ETS, the parameters are adapted dynamically so that settings already made or links between group addresses can be reset. For this reason, the required operating mode should be configured at the beginning of the channel-oriented device configuration.
- Venting louvres must be connected to the outputs in such a way that they are opened in the movement direction "up - n" and closed in the movement direction "down - o".
- An awning travels upwards when it is rolled up.

Behaviour in case of bus voltage failure, after bus or mains voltage return or after programming with the ETS

The preferred relay contact positions in case of bus voltage failure, bus or mains voltage return or after ETS programming can be preset separately for each output. Since the actuator is equipped with mains-dependent monostable relays, the relay switching state at bus voltage failure can be defined as well.

Presetting the behaviour after ETS programming

The parameter "Behaviour after ETS programming" can be preset separately for each output channel on the parameter page "Ax General" (x = number of output). This parameter can be used to define the output relay behaviour independent of the behaviour after bus or mains voltage return.
Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings ("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver).

- Set the parameter to "stop".

  After programming with the ETS, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
- Set the parameter to "raising" or "opening the louver".

  After programming with the ETS, the actuator raises the curtain or opens the venting louver.
- Set the parameter to "lowering" or "closing the louver".

  After programming with the ETS, the actuator lowers the curtain or closes the venting louver.
- At the beginning of each ETS programming cycle, the blind actuator always executes a "stop" command for all outputs. The manual mode, if active, will be terminated.

- With automatic end position detection: An ETS download of the application program or of the parameters overwrites the travelling times learnt. For this reason, it is necessary after such ETS downloads to repeat the end position detection procedure as described in chapter "Commissioning".
- The "Behaviour after ETS programming" as parameterized will be executed after every ETS application or parameter download. A simple download of the physical address alone or partial programming of only the group addresses has the effect that this parameter is disregarded and that the parameterized "Behaviour after bus or mains voltage return" will be executed instead. For outputs with end position detection also the travelling times learnt will be retained in this case.
- Programming with the ETS is possible when the bus voltage line is connected to the blind actuator and the bus voltage supply is on. An ETS download does not require the mains voltage supply to be on. If programming with the ETS was performed with bus voltage only, the parameterized "Behaviour after ETS programming" will only be executed when also the mains voltage supply of the actuator has been switched on. The "Behaviour after bus or mains voltage return" will not be activated in this case.
  This reaction must be taken into account especially with actuators that are installed in pre-programmed condition into an existing electrical installation.
- After programming with the ETS, the safety functions, the forced positions and the sun protection function are always deactivated.

Behaviour in case of bus voltage failure presetting

The parameter "Behaviour in case of bus voltage failure" can be preset separately for each output channel under "Ax General" (x = number of output). The parameter defines the behaviour of a blind output if only the bus voltage fails. The parameterized behaviour will not be executed if manual control is active at the time of bus failure (status LEDs flashing for temporary or permanent manual control).
Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings ("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver).

- Set the parameter to "stop".

  In case of bus voltage failure, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
- Set the parameter to "raising" or "opening the louver".

  After bus voltage failure, the actuator raises the curtain or opens the venting louver.
- Set the parameter to "lowering" or "closing the louver".

  After bus voltage failure, the actuator lowers the curtain or closes the venting louver.
- Set the parameter to "position approach".

  In case of bus voltage failure, the connected drive can approach a position specified by further parameters (0…100 %). If blinds are controlled with the device, the slats can be positioned independently. The blind actuator performs a reference travel before the position approach, if the current position at the time of bus failure is unknown (e.g. due to power supply failure or to previous ETS programming).
- Set the parameter to "no reaction".

  In the event of bus voltage failure, the relay of the output shows no reaction. Motions still in progress at the time of failure will still be completed as long as the mains voltage supply is still on.

- Safety, forced position or sun protection functions (independent of the selected priority) remain active even after a bus voltage failure as long as the mains voltage supply is still on. These functions will therefore be executed again at the end of a temporary or permanent manual control (if enabled in case of bus failure) even if there is no bus voltage.
- When the still ongoing motion or the motion parameterized in case of bus voltage failure has come to an end, the outputs can no longer be activated except by manual control (if the mains voltage is on and if manual control is enabled) or by bus/mains voltage return.

- A bus voltage failure will in any case result in a stop of all time functions. Thus, all scene recalls in the delay phase will be aborted and all delay times for sun protection and presence will be ended by ignoring the object value last received and still in the delay phase. A telegram update received shortly before bus voltage failure is then lost, if the corresponding delay has not yet elapsed.
- In the event of a mains voltage failure, all relays of the actuator will always drop out ("stop") independent of the bus voltage condition. In this state, the outputs are no longer selectable. Time functions (scene, sun protection and presence delays) are not interrupted, if only the mains voltage fails.
- In case of bus or mains voltage failure, the current position data of the outputs are permanently stored in the device so that the corresponding positions can be precisely tracked after bus or mains voltage return, if so parameterized. The data are stored before the reaction parameterized for the case of bus voltage failure and only if one part of the supply (mains or bus) is still present, or if the supply fails completely after the mains voltage has been available before without interruption for at least 20 seconds after the last reset (storage capacitors sufficiently charged for storage purposes). The data will not be stored, if the position data are unknown. Storage of data after failure of one part of the supply voltage happens only once...

  Example 1:
  Bus voltage failure -> Data storage -> Then mains voltage failure -> No further data storage,

  Example 2:
  Mains voltage failure -> Data storage -> Then bus voltage failure -> No further data storage.

  The following rules apply for the position data to be stored:
  The current curtain, slat and louver positions are stored. With blinds, the height to be stored is always referred to a slat position of 100 %(cf. "Calculating the slat position"). Positions temporarily approached will be stored also for those outputs that are involved in a travel movement at the time of data storage. On account of the fact that position data are stored as integer percentage values (0...100), a minor deviation from the positions reported back later during bus or mains voltage return (number range 0..255) cannot be avoided.

  As the position values are stored only once during bus voltage failure, such positions as are varied by manual control after bus voltage failure cannot be tracked. Similarly, forced position telegrams received via the bus after a mains voltage failure or slat offset positions for the sun protection function cannot be stored and tracked either.

  Stored position data are not lost during programming with the ETS.
- In case of bus or mains voltage failure, the current states of the forced position control or – if parameterized – also the slat offsets of the sun protection positions are stored as well.

Presetting the behaviour after bus or mains voltage return

The parameter "Behaviour after bus or mains voltage return" can be preset separately for each output channel on the parameter page "Ax General" (x = number of output).
Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings ("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver).

- Set the parameter to "stop".

  In case of bus or mains voltage return, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
- Set the parameter to "raising" or "opening the louver".

  After bus or mains voltage return, the actuator raises the curtain or opens the venting louver.
- Set the parameter to "lowering" or "closing the louver".

  After bus or mains voltage return, the actuator lowers the curtain or closes the venting louver.
- Set the parameter to "position during bus / mains failure".

After bus or mains voltage return, the position value (including the slat position in the case of blinds) last selected and stored internally before bus or mains voltage failure will be tracked. The blind actuator performs a reference travel before the position approach, if the current position at the time of bus or mains voltage return is unknown (e.g. due to complete power supply failure or to previous ETS programming).

- Set the parameter to "position approach".

  In case of bus or mains voltage return, the connected drive can approach a position specified by further parameters (0…100 %). If blinds are controlled with the device, the slats can be positioned independently. The blind actuator performs a reference travel before the position approach, if the current position at the time of bus or mains voltage return is unknown (e.g. due to complete power supply failure or to previous ETS programming).

- Set the parameter to "no reaction".

  In the event of bus or mains voltage return, the relay of the output shows no reaction. Ongoing travel movements at the time of voltage return are completed.

- "Position during bus / mains failure" setting: If no position values could be stored in case of bus or mains voltage failure because the position data were unknown (no reference travel executed), the actuator shows no reaction with this parameterization either.
- "No reaction" setting: The commands received via the bus during a mains voltage failure (bus voltage present) are tracked when the mains voltage returns. Interrupted short- or long-time travel movements – if not completed – are restarted at full length and position approaches are continued from the break point.
- All time functions (scene, sun and presence delay) are only stopped in case of bus voltage failure so that a mains voltage failure does not result in a loss of states or time functions as long as the bus voltage is present.
- The parameterized behaviour is always executed independent of the current states of the safety or sun protection function. Safety and sun protection function can nonetheless be active even after bus or mains voltage return, if these functions have been activated before a bus voltage failure or before or during a mains voltage failure. Any direct operation can thus be overridden.
  Only in case of a complete supply failure (bus voltage and mains voltage) are the sun protection or the safety functions deactivated.
- The communication object of the forced position function can be initialized separately after bus voltage return. This has an effect on the reaction of the output when the forced position is activated. A mains failure alone has no effect on the forced position. In case of a return of only the mains voltage, a previously activated forced position remains active.
  The parameterized "Behaviour on return of bus or mains voltage" will only be adopted if no forced position is activated after bus voltage return.
- An active manual control is terminated on return of bus voltage. In case of mains failure, no manual control is possible.
- The device executes the parameterized "Behaviour after bus or mains voltage return" only if more than ca. 20 s have elapsed between the last ETS download of the application or of the parameters and the time when bus and mains voltage are restored. Otherwise (T_{ETS} < 20 s), the "Behaviour after ETS programming" will be executed also in case of a bus/mains voltage return.
  If only the bus or the mains fails after an ETS download and is then restored, the actuator executes the "Behaviour after bus or mains voltage return".

Determining and configuring short-time and long-time operation

The short-time operation (Step) permits adjusting the slat tilting angle of a blind or the 'slit opening width' of a shutter. In most cases, short-time operation is activated by pressing a blind pushbutton sensor permitting manual intervention in the blind/shutter control cycle. When the actuator receives a short-time command while the blind, shutter, awning or louver is in motion, the travel movement is stopped immediately by the blind actuator.
Long-time operation(Move) is determined by the travelling time of the connected blind, shutter, awning or louver and must therefore not be preset separately. The travelling time can either be measured 'manually' and the parameters entered in the ETS or, as an alternative, automatically determined by using the automatic end position detection procedure. The control

of an output by means of a long-time or a short-time telegram is also designated as 'direct operation'.
To ensure that the curtain or the louver has definitely reached its end position at the end of long-time operation, the blind actuator always prolongs the long-time travel movement by 20% of the parameterized or learnt travelling time.
The parameterized travelling time extension will moreover be taken into account by the actuator for all upward travels or all travel movements into the open position as the drive motors are then generally not so fast due to the weight of the curtains or to external physical influences (e.g. temperature, wind, etc.). Thus, it is ensured that the upper end position is always reached even in case of uninterrupted long-time travel movements.

- A long-time or a short-time operation can be retriggered by a new incoming long-time or short-time telegram.
- A travel movement activated in the manual control mode or by a safety function is always a long-time operation. The "raising" or "lowering" commands parameterized in the ETS will equally activate the long-time operation.

Presetting the short time operation

Short-time operation is configured separately for each output and independent of the travelling time of the curtain or of the louvre. It is possible to specify in the ETS whether the output executes only a "stop" for a travel movement on reception of a short time telegram or whether the output is activated for a specific duration.

- Set the parameter "Short time operation" on parameter page "Ax - Time settings" (x = number of output) to "yes".

  The Venetian blind actuator activates the output concerned for the time specified under "Duration of short time operation" when a short time telegram is received and when the output is not in the process of executing a travel movement. If the output is executing a travel movement at the time of telegram reception, the output will only just stop.

- Set the parameter "Short time operation" on parameter page "Ax - Time settings" (x = number of output) to "no (only stop)".

  The Venetian blind actuator will only stop the output on reception of a short time telegram, if the output is in the process of executing a travel movement. There will be no reaction, if the output is not executing a movement at the time of telegram reception.

- The configured "Duration of short time operation" should correspond, for a Venetian blind, to approx. ¼ of the complete slat moving time and for a roller shutter to the full time needed for opening the roller shutter segments.
- The short time operation is always executed without a movement time extension.

Determining and configuring travelling times

For computing positions and also for executing long-time operation, the blind actuator needs the exact travelling time of the connected blind, shutter, awning or louver. Without using the automatic end position detection, the travelling time for a blind output must be measured 'manually' and entered as a parameter into the ETS. It is important to determine the travelling time accurately to permit positions to be approached with good precision. Therefore, it is recommended to make several time measurements and to take the average of these values before entering them into the corresponding parameter. The travelling time corresponds to the duration of a travel movement from the completely open position
(upper end position / awning rolled up) to the completely closed position
(lower end position / awning completely unrolled) and not vice versa! The travelling times are to be determined as a function of the different types of movements.

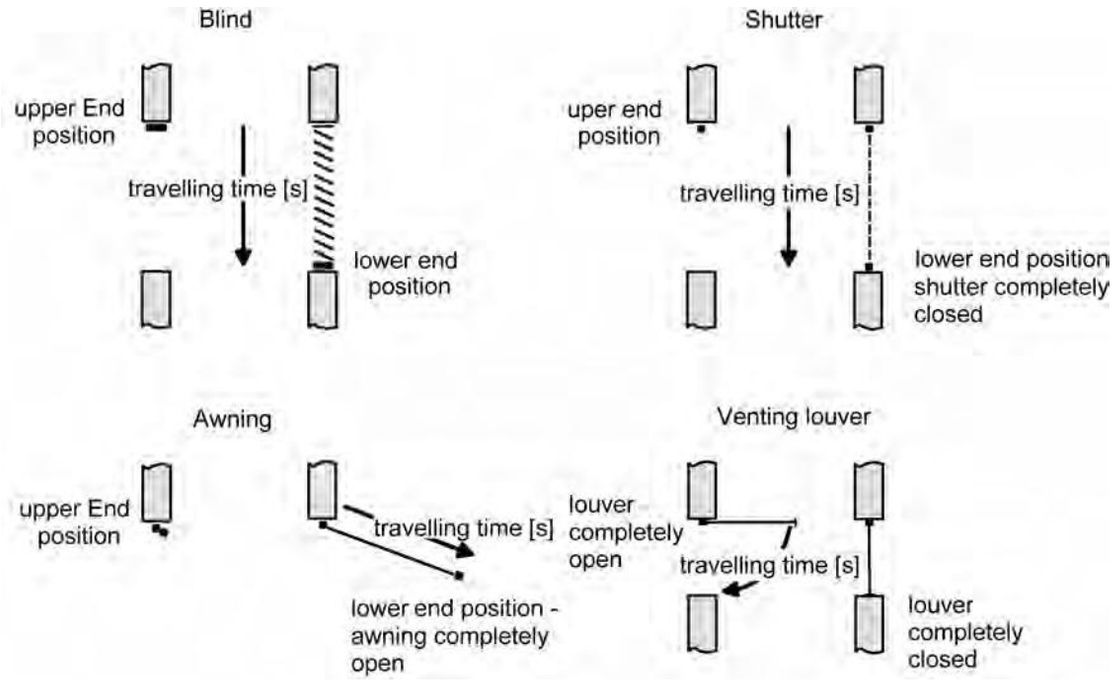

Figure 12: Travelling time as a function of the type of movement

Presetting the travelling time of blinds, shutters, awnings and louvers without automatic end position detection

The measurement of the travelling time is described in detail in chapter "Commissioning".

The automatic end detection position must be deactivated.

- o Enter the exact travelling times determined in the course of the commissioning procedure into the parameters "Blind travelling time" or "Shutter/awning travelling time" or "Venting louver travelling time" on parameter page "A1 – Time settings" (x = number of output). The maximum travelling time is '19 minutes 59 seconds. The working principle does not allow longer travelling times.
- ▪ The parameterized travelling time extension will moreover be taken into account by the actuator for all upward travels or all travel movements into the open position as the drive motors are then generally not so fast due to the weight of the curtains or to external physical influences (e.g. temperature, wind, etc.).

Presetting the travelling time of blinds, shutters, awnings and louvers with automatic end position detection

If 230 V AC motors with mechanical limit switches are connected to the outputs, the travelling time of the blind, shutter, awning or louver can also be automatically determined. If the automatic end position detection function is used, a learning travel movement must be performed during commissioning. The blind output concerned is ready for full use only after the travelling time has been correctly determined (otherwise no position approaches or position feedback telegrams possible).
The measurement of the travelling time with automatic end position detection is described in detail in chapter "Commissioning".

- o Set the parameter "Automatic end position detection ?" on parameter page "Ax - Time settings" (x = number of output)" to "yes".

  The end position detection can be performed after ETS programming.
- ▪ The blind actuator stores the travelling times in an NV memory (EEPROM) so that the times are valid even after a power supply failure. After each programming run with the ETS, the end position detection procedure must be repeated.

- Without stored travelling times, the blind actuator generates an "Invalid position" message for each output which can also be transmitted to the bus, if parameterized. The evaluation of this message can be used as an indicator for a successful teaching procedure.
- In operation, the blind actuator regularly adapts itself to changes in the curtain travelling times (e.g. ageing of the drives). In case of deviations from the original value, the travelling time thus determined will be used temporarily for computing the positions and stored only in a volatile memory (RAM).
- In addition to the times programmed during the first commissioning after ETS programming, the user always has the possibility of re-teaching travelling times 'manually' thereafter. To do so, the user must activate the permanent manual control mode (cf. chapter "Operation") and move the blind/shutter without interruption from one end position into the other. Simple travel movements (from top to bottom or vice versa) are sufficient for programming a new travelling time which is then stored in an NV memory.
- In case of slatted blinds, the travelling time of the slats cannot be taught by automatic end position detection. In this case, the actuator always resorts to the value parameterized in the ETS. As the slat moving time is in a fixed proportion to the travelling time of the curtain, a correction of the travelling time of the curtain automatically entails a correction of the slat moving time.
- The maximum travelling time is basically limited to 20 minutes. If the process of learning a new travelling time is not terminated after 20 minutes (no limit position detected), the actuator will end the learning process by itself (stop). The minimum travelling time is limited to 1 second.
- If the actuator was not in a position to learn a correct travel time (e.g. teaching runs longer than 20 minutes, no end position detection after ETS programming or abortion of travel before reaching an end position), the travelling time is not valid. In this case, the output concerned cannot approach fixed positions. If position values are nevertheless transmitted or activated via the bus (e.g. sun protection), the actuator translates all values between 0...49% (0...127) into an upward travel and all position values between 50% ...100% (128...255) into a downward travel. The travelling time corresponds in this case to the maximum travelling time (20 minutes).
- At first, the actuator determines a travelling time extension during the automatic travelling time measuring procedure. The travelling time extension can therefore not be parameterized separately. The travelling time extension will be taken into account by the actuator for all upward travels or all travel movements into the open position as the drive motors are then generally not so fast due to the weight of the curtains or to external physical influences (e.g. temperature, wind, etc.).

Determining and configuring the slat moving time (only with slatted blinds)

If blinds are used, the slats can be positioned independently. To enable the blind actuator to compute slat positions and to report them back to the bus, it is necessary that the actuator gets precise information about the time required for a slat rotation – even with automatic end position detection. The slat moving time must in each case be determined 'manually' and entered into the parameters.
The blind actuator is designed for controlling single-motor blind drives without working position. In this drive mode, the slats are directly adjusted by way of mechanical linkage when the height of the blind is changed. The actuator assumes that the slats are completely closed when the blind moves downwards. The actuator assumes that the slats are completely closed when the blind moves downwards (figure 13). These blinds are the most common type on the market.

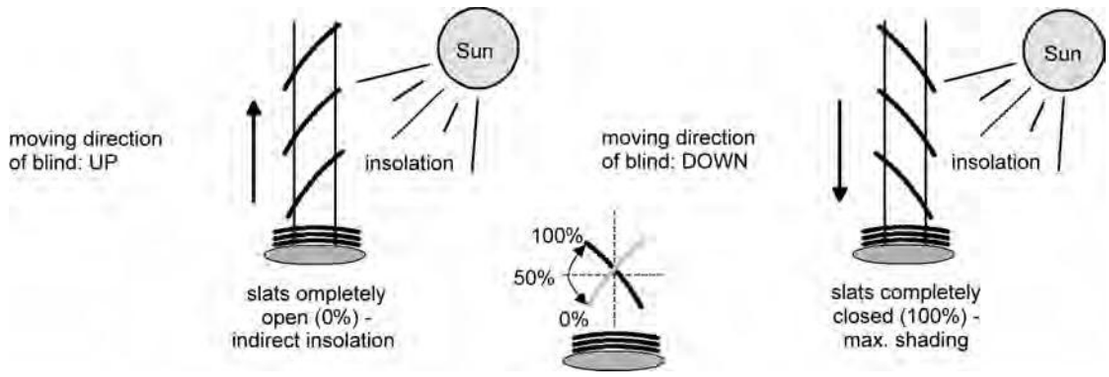

Figure 13: type 1 - slatted blinds with oblique slat position in both travel directions

There are also single-motor blind systems without working position the slats of which are horizontal during an upward travel and oblique during a downward travel. Such blind types can also be connected to the actuator in which case a completely open slat position corresponds to the slats in horizontal position (figure 14).

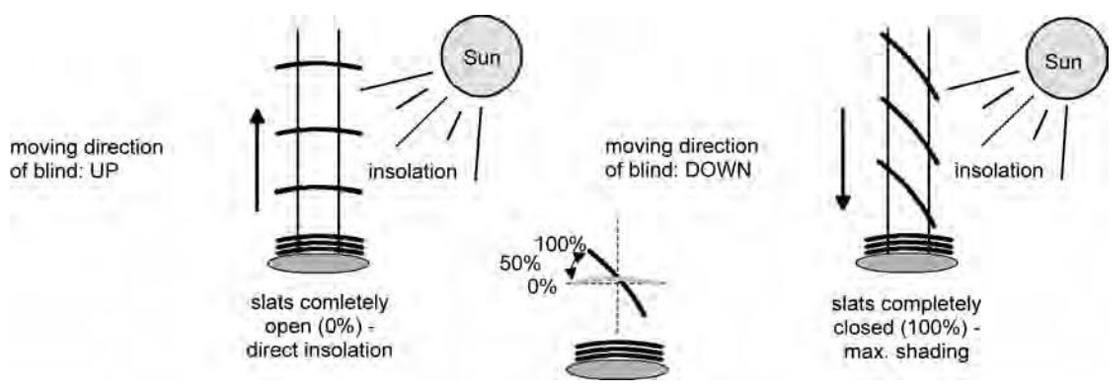

Figure 14: Type 2 - slatted blinds with oblique and horizontal slat position

Presetting the slat moving time

The measurement of the slat moving time is described in detail in chapter "Commissioning".

- o Set the parameter "Slat moving time" on parameter page "Ax – Times" (x = number of output) exactly to the value determined in the course of the commissioning procedure.
- ▪ The slat moving time must be shorter than the preset or learnt curtain travelling time.
- ▪ The parameterized or measured travelling time extension will also be taken into account when slats are moved into the completely open position (upward travel).
- ▪ With automatic end position detection: During the automatic travelling time adaptation (e.g. in the case of drive ageing), the parameterized slat moving time – which is in a fixed proportion to the modified curtain travelling time – will internally be adapted as well. The adapted slat moving time is stored only temporarily and used in operation for the exact calculation of the slat tilting angle.

Determining and configuring the travelling time extension and the change-over time

When travelling upwards, blinds, shutters or awnings have a tendency of moving more slowly due to their own weight or to external physical influences (e.g. temperature, wind, etc.). The same applies to venting louvers where opening may take longer than closing.
For this reason, the blind actuator takes the parameterized travelling time extension into account when moving upwards or when opening the louvers. The extension is computed as a percentage representing the difference in the travelling times in the two directions.
The travelling time extension must be determined during commissioning separately for each

output and entered into the ETS parameters. If the automatic end position detection is used, the blind actuator auto-determines the required travelling time extension when learning the travelling times. In this case, a separate parameterization of the time extension is not needed. The measurement of the travelling time extension is described in detail in chapter "Commissioning".
Example showing the calculation of the travelling time extension:

- "Travelling time" previously determined and parameterized: T_{OU}= 20 seconds,"
- Time determined for travel from lower to upper end position: T_{UO}= 22 seconds,
- Calculated supplementary travelling time: T_{UO} - T_{OU} = 2 seconds -> 2 seconds out of 20 seconds are 10 %,
- Travelling time extension to be parameterized: 10 %.

To protect the drive from irreparable damage, a fixed pause during travel direction change-over can be parameterized for each output – even with automatic end position detection. During the pause, no travel direction is active ("stop"). The necessary parameter value can normally be found in the technical documents of the drive motor used. The change-over time is accounted for in every state of operation of the actuator.

Presetting the travelling time extension

The automatic end detection position must be deactivated.

- Enter the determined travelling time extension (by rounding up the determined extension value) into the parameter "Travelling time extension for upward travel" on parameter page "Ax – General" (x = number of output).

Presetting the change-over time for travel direction changes

- Set the parameter "Change-over time for travel direction changes" on parameter page "Ax Time Settings" (x = number of output) to the required change-over interval.
- When the actuator is delivered ex factory, the change-over time is generally preset to 1 s.

Computing the curtain height or the louver position

The blind actuator has a comfortable and accurate positioning function. The actuator calculates the current position of the connected blind, shutter, awning or louver whenever these elements are adjusted either by manual or bus control. The calculated position value is a measure of the height of the curtain or of the opening width of the venting louver (figure 15).

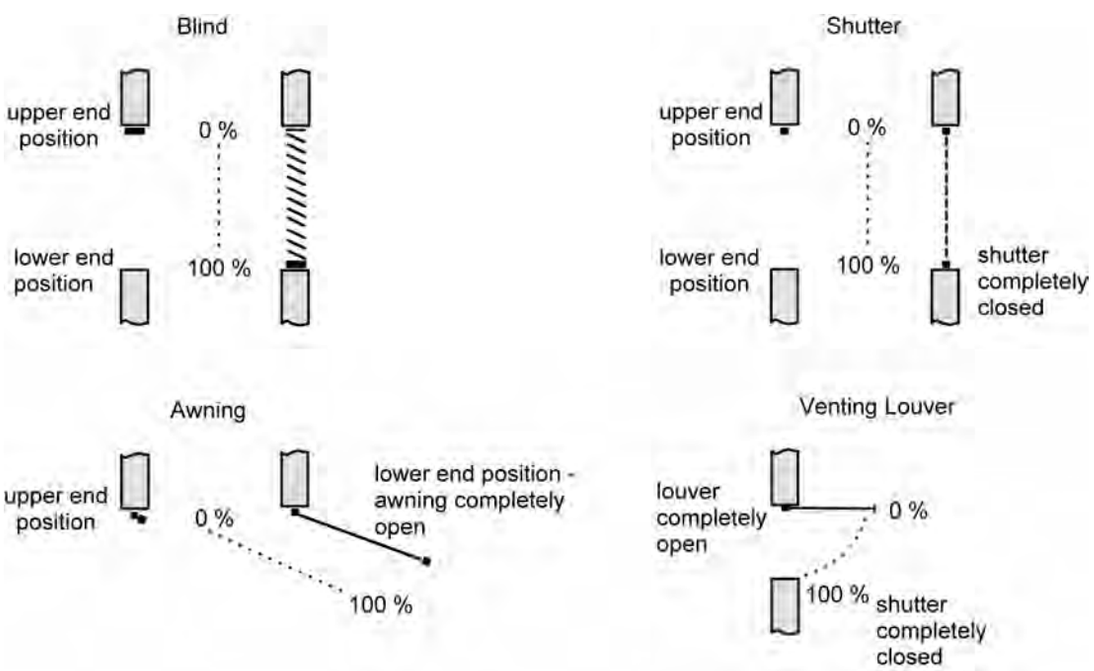

Figure 15: Positions defined as a function of the type of movement

The blind actuator derives the positions from the parameterized travelling time or from the travelling time as determined by the end position detection since conventional drives do not provide feedback about their positions. Thus, the travelling time separately parameterized for each blind output is the reference for all position approaches and of basic importance for the accuracy of the position calculations. For this reason, the travelling times should be determined with great accuracy in order to achieve the best possible positioning results.

For positioning purposes, the blind actuator calculates the travelling time required as a function of the current position.
Example 1...
The shutter connected to a certain output has an overall travelling time of 20 s. The shutter is in its upper end position (0 %). It is to be positioned at 25 %. The actuator calculates the travelling time required for approaching the desired position: 20 s × $0.25_{(25\ \%)}$ = 5 s. The output will then lower the shutter for 5 s and thus position the curtain at height of 25 %.

Example 2...
The shutter connected to a certain output has an overall travelling time of 20 s. The shutter is in the 25 % position. It is to be positioned at 75 %. The difference between the positions is 50 %. The actuator calculates the travelling time required for bridging the difference between the positions: 20 s × $0.5_{(50\ \%)}$ = 10 s . The output will then lower the shutter for 10 s and thus position the curtain at height of 75 %.

For all upward travels, the travelling time extension parameterized or determined by end position detection will automatically be added to the travelling time calculated.
Example 3...
The shutter connected to a certain output has an overall travelling time of 20 s. The shutter is in the 75 % position. It is to be positioned at 25 %. The difference between the positions is 50 %. The actuator calculates the travelling time without extension required for bridging the difference between the positions:
20 s × $0.5_{(50\ \%)}$ = 10 s. Taking the travelling time extension into account (e.g. 10 %), the actual raising time is: 10 s × ((100 % + 10 $\%_{(extension)}$) : 100 %) = 10 s × 1.1 = 11 s. The output will then raise the shutter for 11 s and thus position the shutter curtain at a height of 25 %.

Then the lower or upper end positions (0 % or 100 %) are approached, the travelling time is always 20 % longer than the overall travelling time.
Example 4...
The shutter connected to a certain output has an overall travelling time of 20 s. The shutter is in the 50 % position. It is to be positioned at 100 %. The difference between the positions is 50 %. The actuator calculates the travelling time required for bridging the difference between the positions: 20 s × $0.5_{(50\ \%)}$ = 10 s. Since the travel movement is to an end position, the actuator adds on a fixed amount of 20 % of the overall travelling time:
10 s + (20 % : 100 %) · 20 s = 14 s. The output will then lower the shutter for 14 s and thus position the curtain reliably at height of 100 %.

Example 5...
The shutter connected to a certain output has an overall travelling time of 20 s. The shutter is in the 50 % position. It is to be positioned at 0 %. The difference between the positions is 50 %. The actuator calculates the travelling time without extension required for bridging the difference between the positions: 20 s · $0.5_{(50\ \%)}$ = 10 s. Since the travel movement is to an end position, the actuator adds on a fixed amount of 20 % of the overall travelling time:
10 s + (20 % : 100 %) · 20 s = 14 s.
Taking the travelling time extension into account (e.g. 10 %), the actual raising time is:
14 s × ((100 % + 10 $\%_{(extension)}$) · 100 %) = 14 s × 1.1 = 11 s. The output will then raise the shutter for 15.4 s and thus position the shutter curtain at a height of 0 %.

- The blind actuator executes position approaches only if a new position deviating from the current position is preset.

- The blind actuator stores the blind/shutter/awning or louver positions temporarily. The blind actuator can approach newly preset blind/shutter/awning or louver positions only if the current positions are known. For this purpose, each output must be given the opportunity to synchronize itself whenever the supply voltage is switched on or after every ETS programming run (physical address, application program, partial download). The synchronization is performed with the help of a reference travel (cf. "Reference travel").
- Position approaches in progress will be aborted in case of bus or mains voltage failure. In case of bus voltage failure, the parameterized behaviour will be executed. In case of mains failure, the drives will be stopped. Position approaches are also interrupted when the manual control mode is activated.

Calculating the slat position (only with blinds)

In the "blinds" mode of operation, the blind actuator always calculates the slat position so that the opening angle and thus the amount of light admitted into the room by the blind can be adjusted. A new position approach by a blind will always be followed by a positioning movement of the slats. Thus, the slat positions last selected will be tracked or readjusted to a new value if a position change has taken place.
In case of single-motor blind drive systems with working position, the slats will be readjusted directly by a change of the blind curtain height. For this reason, an adjustment of the slat position will always have an influence on the position of the blind itself (figure 16).

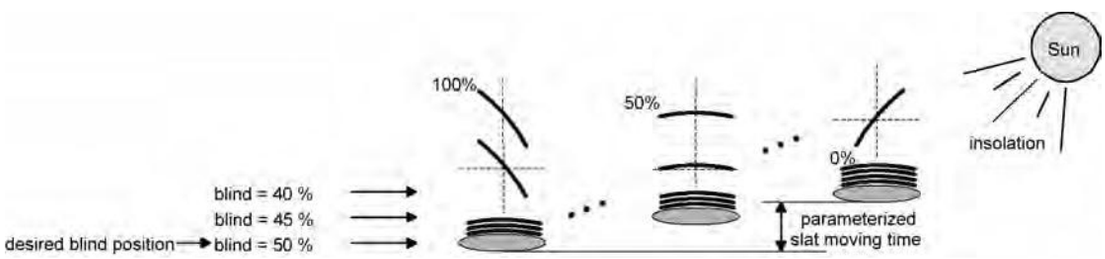

Figure 16: Example of slat positioning affecting the position of the blind
(typical of slat type 1; analogous reaction for type 2.)

Since a preset slat position is to remain constant until the next change, the actuator will not change the height of the blind, if the calculated travelling time required for a change of position lies within the parameterized slat moving time.
Similarly, the actuator accounts for the ratio of the moving times of slat and blind and – in case of slat position changes – always recalculates the resulting blind position. If the position feedback objects are used (cf. "Position feedback"), the actuator transmits the blind positions changed by the adaptation also to the bus.

Example (figure 16)…
The blind position is preset to 50 %. A change of the slat angle (100 %...0 %) initiates the calculation of a new blind position which is also tracked in the position feedback objects. If the actuator is to approach a new blind position of, let's say 47 % in this case, the actuator will not perform a travel movement as the calculated travelling time lies within the parameterized slat moving time and therefore coincides with the slat movement. A change of the blind position to 55 % in this case triggers a blind movement as the change does not lie within the slat movement (0 to 100 %).

For each positioning movement, the desired blind position is referred to a slat position of 100 %. In the event of a slat re-positioning movement (0 to 100 %), the actuator will therefore report a blind position below the desired position.

Exception: The desired blind position of 0 % (upper end position) is assigned to the slat position of 0 %. The re-adjustment of the slat position will result also in this case in a change of the blind height (brief downward travel). Only in this case will the actuator report back a blind position above the desired blind position (figure 17). With slat type 1, the slats are generally horizontal when the blind is in its upper end position. For this reason, the calculated slat position with a

slat type 1 corresponds to the actual opening angle only after the first slat is completely extended (100%).

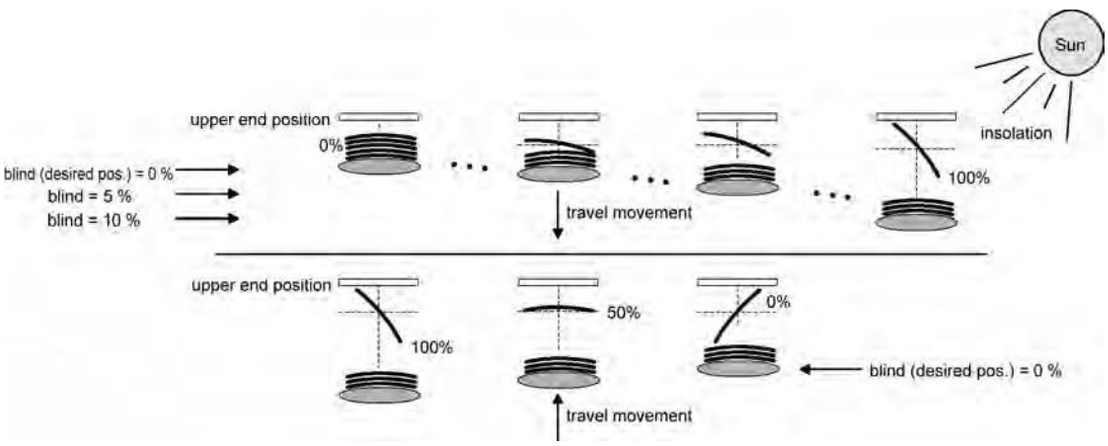

Figure 17: Example of slat positioning with the blind in upper end position (typical of slat type 1.)

Example (figure 17)...
The blind position is preset to 50 %. After an extended travel movement, the blind is safely in the upper end position. A change of the slat angle (100 %...0 %) initiates the calculation of a new blind position which is also tracked in the position feedback objects. If the actuator is to approach a new blind position of, let's say 5 % in this case, the actuator will not perform a travel movement as the calculated travelling time lies within the parameterized slat moving time and therefore coincides with the slat movement. A change of the blind position to 55 % in this case triggers a blind movement as the change does not lie within the slat movement (0 to 100 %).

- The blind actuator executes slat position adjustments only if a new position deviating from the current slat position is preset.
- The blind actuator stores the slat positions temporarily. The actuator can approach newly preset slat positions only if the current position is known. For this purpose, each output must be given the opportunity to synchronize itself whenever the supply voltage is switched on or after every ETS programming run (physical address, application program, partial download). The synchronization is performed with the help of a reference travel for the slat or the blind (cf. "Reference travel").
- A change of the blind height will always result in a change of the slat position. After reactivation of the supply voltage of after ETS programming, the actuator will in this case generally move the slats into the 100 % position, if no position has been preset for the slats.
- The smaller the ratio between slat moving time and blind travelling time, the more precise the position approaches and the less marked the influence of the slat angle adjustment on the height of the blind.

Reference travel

After ETS programming (physical address, application program, partial download) or after actuator supply voltage failure (bus and mains voltage) all current position data are unknown. Before the actuator can approach new positions after bus and mains voltage return or after programming, the positioning system must at first be calibrated. The positioning system can be calibrated by carrying out a reference travel.
A reference travel is the time required for a travel movement into the upper end position increased by 20 % and additionally by the parameterized travel time extension (figure 18).A reference travel is not retriggerable.

Reference travels can be executed by the following commands...

- an uninterrupted long-time travel (including also a terminated safety travel) into the upper end position activated via the corresponding communication object,
- an approach of the 0 % position,
- a manually controlled movement into the upper end position.

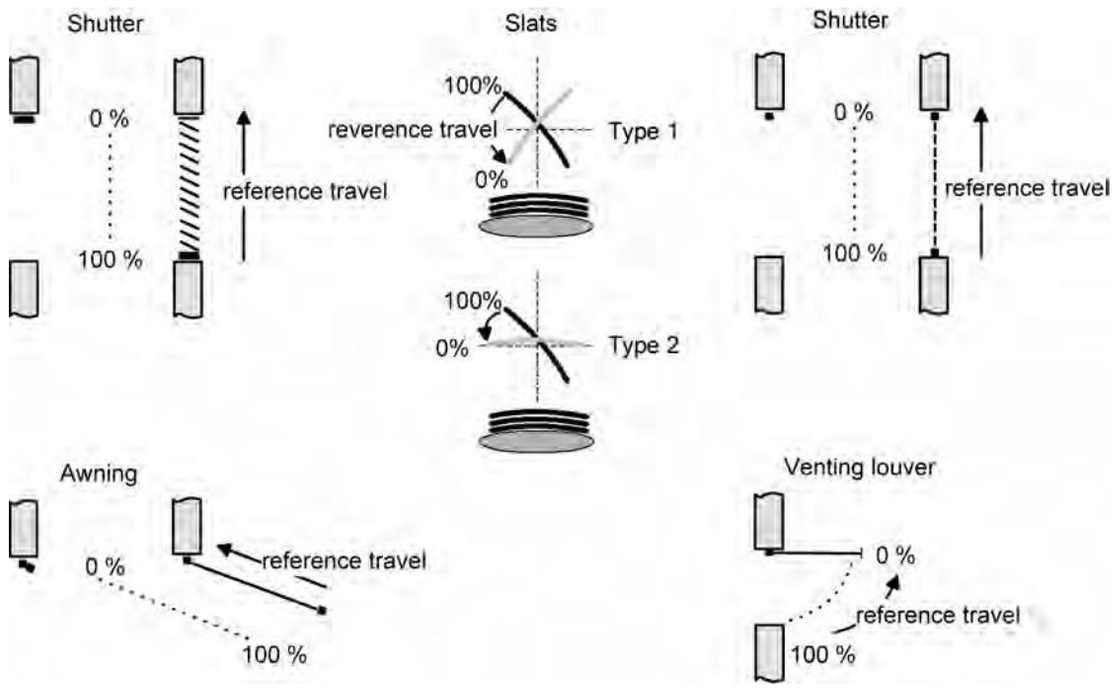

Figure 18: Reference travel

In the event of slat positioning via the corresponding communication objects after bus and mains voltage return or after programming, a slat reference movement becomes necessary if the blind has not been moved beforehand in the up or down directions for at least the parameterized slat moving time. During a slat reference movement, the actuator always moves the slats for the parameterized slat moving time into the completely open position (0 %) and then to the desired position. The slat position is also considered as calibrated when the blind has been moved by a long-time command in the up or down direction during at least the parameterized slat moving time.

- A terminated reference travel of the blind will also calibrate the slat position.
- If the reference travel is interrupted for instance by a short-time operation, the position is still unknown as before.
- A long-time travel into the lower end position activated via the corresponding communication object also calibrates the reference position.
- When the automatic end position detection is used, the reference position is automatically calibrated in the course of the initial commissioning procedure (teaching of travelling times).
- With the sun protection function it is moreover possible to force the actuator to perform a reference travel before each sun protection travel even if the positions are known. Thus, it is ensured that in case of sun protection the parameterized sun protection position is always precisely approached even after repeated position approaches.
- Using the connected drives frequently for position approaches (for instance several times a day) can result after some time in positioning inaccuracies. These deviations from the nominal position are mostly due to external physical influences. To achieve accurate positioning in operation it is recommended to perform the reference travel at least once every day. This can be achieved for instance by a central raising command transmitted to the long-time object.

Presetting the position

The following ways of presetting positions can be distinguished…
- Direct positioning via the positioning objects (direct operation),
- Positioning by activating the sun protection function,
- Position through the behaviour after bus voltage failure or bus or mains voltage return,
- Positioning by a scene recall.

Positioning via the positioning objects:
Each Venetian blind, roller shutter, awning or venting louvre can be positioned directly using the "Position ..." object, which is separate for each output. An independent positioning object exists for each of the slats. The position approached is always the position last received. The actuator does not show a reaction when the set or to be approached position value is received several times in succession.
This type of control is termed 'direct operation' just like operation via short time, long time or central objects or a scene recall. Positioning via the objects therefore has the same priority.
A position movement caused by the communication objects can be interrupted at any time by a long time command, short time command, central command or a scene recall. The direct operation can be overridden by a function with a higher priority, e.g. manual control, forced position, safety or also sun protection (configurable).
The position telegrams must correspond to the 1 byte data format according to KNX datapoint type 5.001 (Scaling). The Venetian blind actuator converts the value received (0...255) linearly into a position (0...100 %) (see the following table).

Received value (0...255)	**Position derived from value (0…100 %)**
0	0 % (upper end position / slat or venting louvre opened)
↓	↓ (all intermediate values rounded off to 1 % increments)
255	100 % lower end position / slat or louvre closed)

Data format of positioning objects with conversion into percentage position values

It is possible that new positioning telegrams are being received while a position approach is in progress. In this case, the actuator immediately reverses the direction of travel, if the new position to be approached lies in the opposite direction.
If a slat positioning command is received during a running Venetian blind position approach, the device finishes first the Venetian blind position approach before positioning the slat. If a blind positioning command is received during a slat positioning movement, the actuator interrupts the slat positioning movement and approaches the new blind position. Only then does the actuator switch to the most recently received slat position.
In case of Venetian blind positioning, slat positioning will always be executed later. After switching on the power supply of the actuator or after programming with the ETS, it may be the case that the slat position is unknown, if no long-time command for the upward or downward travel with a duration of at least the configured slat moving time has been received or no slat positioning has taken place (no slat reference movement). In this case, the slat is moved during a Venetian blind position approach into the completely closed position (100 %). The slat position is then considered as calibrated.

- Optionally, the sun protection function offers the possibility of receiving the instruction of the blind height, venting louvre or slat position to be adopted during sunshine via separate communication objects and to preset these values variably. This form of variable position preset in the sun protection function is identical to presetting the positions via communication objects in direct operation. The priority of the incoming telegrams in direct operation with the sun protection activated can be additionally configured in the ETS.

Position through the sun protection function, the behaviour after bus voltage failure or bus or mains voltage return,
With the named functions of the Venetian blind actuator, the positions to be approached are configured directly in the ETS, depending on the operating mode set. The position values can be specified between 0 % and 100 % in 1 % increments.
With Venetian blinds, the height of the Venetian blind is positioned first in these cases. The configured slat position is adjusted only thereafter.

- Important notes for all positioning movements: Using the connected drives frequently for position approaches (for instance several times a day) can result after some time in positioning inaccuracies. These deviations from the setpoint position are mostly due to external physical influences. To achieve accurate positioning in operation it is recommended to perform the reference movement at least once every day. This can be achieved for instance by a central raising command transmitted to the long time object.

Position feedback messages

In addition to presetting positions via positioning objects, the blind actuator can track the current positions values via separate feedback objects and also transmit them to the bus, if the bus voltage is on. Thus, the preset nominal position can be distinguished from the true actual position of the drives activated.

The following feedback telegrams can be preset for each output depending on the parameterized mode of operation...
- Feedback (1 byte) of the blind, shutter, awning or venting louver position,
- Feedback (1 byte) of the slat position (only with blinds).

The individual position feedback messages can be enabled in the ETS independent of one another and have communication objects of their own.

For each travel movement the actuator calculates the current position and tracks it in the position feedback objects. The positions are tracked and the feedback objects updated even when an output has been activated via short-time or long-time telegrams or by manual control on condition that the bus voltage is on.

The feedback objects are updated after the following events...
- at the end of a travel movement – including a slat positioning movement in a blind – when the drive stops and when the new position is reached,
- in case of a travel movement into an end position already at the time the end position is reached theoretically, i.e. before the 20 % extension and the travel time extension have elapsed (exception: with automatic end position detection, the positions are updated only after the travel time has completely elapsed).

The feedback objects are not updated, if the position last reported back has not changed after a movement (for instance, when the blind is repositioned, the unchanged slat position will not be reported back a second time).

The blind actuator cannot calculate a feedback position, if the current position data after switch-on of the supply (bus voltage and mains voltage) or after ETS programming are still unknown. In these cases, the actuator must first perform a reference travel (cf. "Reference travel") so that the position can be calibrated. In case of unknown positions, the actuator automatically performs reference travels, if new positions are preset and if these positions are to be approached. As long as a position is unknown, the value of the feedback objects is "0".

Presetting position feedback for blind, shutter, awning or venting louver positions

The feedback functions can be enabled and programmed independently for each output. When feedback is enabled, the ETS adapts the parameter texts depending on the preset operating mode ("Blind position feedback", "Shutter/awning position feedback" or "Venting louver position feedback"). The status feedback can be used as an active signalling object or as a passive status object. As an active signalling object, the position feedback

information is transmitted to the bus whenever a position value changes. As a passive status object, there is no telegram transmission after a change. In this case, the object value must be read out. The ETS automatically sets the object communication flags required for proper functioning.
In case of an actively transmitting signalling object, the current position can be transmitted to the bus after bus voltage return, if the position value differs from the one last transmitted. When the position data are known, the feedback telegram can in this case be transmitted with a time delay to reduce the bus load, with the delay being preset globally for all outputs in common (cf. "Delay after bus voltage return").

The feedback functions of an output must be enabled on parameter page "Ax – Enabled functions" (x = number of output). Only then are the parameters for the feedback functions visible.

- Set the parameter "Blind position feedback", "Shutter/awning position feedback" or "Venting louver position feedback" on parameter page "Ax – Feedbacks" to "feedback object is active signalling object".

  The feedback object is enabled. The position value is transmitted as soon as it changes. No value will be actively transmitted, if the position is unknown.

- Set the parameter "Blind position feedback", "Shutter/awning position feedback" or "Rückmeldung Lüftungsklappenposition" on parameter page "Ax – Feedbacks" to "feedback object is passive status object".

  The feedback object is enabled. The position value will be transmitted in response only if the feedback object is read out from by the bus. If the position is unknown, a value of "0" will be reported back after readout.

The feedback function must be preset as actively transmitting function.

- If a time delay after bus voltage return should be necessary, the parameter "Time delay for feedback after bus voltage return" on parameter page "Ax – Feedbacks" must be set to "yes".

  The position is then reported back with a time delay after bus voltage return. After the end of the time delay, the position last adjusted statically will be transmitted to the bus. No feedback telegram will be transmitted during a running delay, even if a position value changes during this delay.

Presetting the position feedback for slat positions (only with blinds)

The feedback functions for the slat positions can be enabled and programmed independently for each output. The status feedback - like position feedback of the blind height - can be used as an active signalling object or as a passive status object.
In case of an actively transmitting signalling object, the current slat position can be transmitted to the bus after bus voltage return, if the position value differs from the one last transmitted. When the position data are known, the feedback telegram can in this case be transmitted with a time delay to reduce the bus load, with the delay being preset globally for all outputs in common (cf. "Delay after bus voltage return").

The feedback functions of an output must be enabled on parameter page "Ax – Enabled functions" (x = number of output). Only then are the parameters for the slat position feedback functions visible.

- Set the parameter "Slat position feedback" on parameter page "Ax – Feedbacks" to "feedback object is active signalling object".

  The feedback object is enabled. The position value is transmitted as soon as it changes. No value will be actively transmitted, if the position is unknown.

- Set the parameter "Slat position feedback" on parameter page "Ax – Feedbacks" to "feedback object is passive status object".

  The feedback object is enabled. The position value will be transmitted in response only if the feedback object is read out from by the bus. If the position is unknown, a value of "0" will be reported back after readout.

The feedback function must be preset as actively transmitting function.

- If a time delay after bus voltage return should be necessary, the parameter "Time delay for feedback after bus voltage return" on parameter page "Ax – Feedbacks" must be set to "yes".

  The position is then reported back with a time delay after bus voltage return. After the end of the time delay, the position last adjusted statically will be transmitted to the bus. Although the feedback object concerned is updated during a running delay, no feedback telegram will, however, be actively transmitted during such delay, even if a position value changes during the delay.

- Behaviour of position feedback in case of voltage failure and voltage return:
  When the bus voltage returns, with the mains voltage supply to the actuator being on, the current position data are always written into the feedback objects. The positions are transmitted to the bus also in those cases where the feedback objects are actively transmitting objects and where the position data differ from the data last reported back, for instance, as a result of manual control. If the position data are unknown, the feedback objects are initialized with "0" and are not transmitted to the bus.
  Without mains voltage supply, the connected drives are not activated so that there is always no position feedback, even after return of the bus voltage. In case of mains voltage return, the parameterized behaviour will be executed. The feedback objects are then updated provided the bus voltage is on.
- In case of blinds operation, any position change of the blind within the limits of the slat adjustment (0 to 100 %) does not launch a travel movement and therefore no change of the feedback position data either.

'Unknown position' feedback and travel movement

In addition to position data feedback, the blind actuator can also report back enlarged 1-bit status information messages and transmit them actively to the bus, if the bus voltage is on.

The following status feedback messages can be separately preset for each output…

- invalid position feedback message,
- drive movement feedback message.

Invalid position feedback message:
After switch-on of the supply voltage (bus and mains voltage failure) or after programming with the ETS, all position data of an output are unknown. In this case – when the bus voltage is on – the blind actuator can update the feedback object "Invalid position"(object value "1") which will then signal that the object values of the 1-byte position feedback objects are invalid.
An invalid position feedback will be only be reversed (object value "0") after the position data for the blind, shutter, awning or venting louver have been calibrated by means of a reference travel. The calibration of the slat position in a blind alone will not result in the reversal of an 'invalid position' status message.
As an option, the object value of the status feedback message can be actively transmitted to the bus in case of a value change.
When the automatic end position detection is used, the actuator will generally report back an 'invalid position' until teaching of the travel time has been successful. The evaluation of a status feedback message can thus be used to distinguish a successful learning process.

Drive movement feedback message:
The blind actuator can report back via a separate 1-bit communication object per output whether the connected drive is moving, i.e. whether the output is supplying current for any of the travel directions. The feedback object has a value of "1" when current is flowing from the output to the drive. Likewise, a "0" is written into the object if the output concerned remains in a stop position. In this case, the operation by which the output was activated (short-time or long-time operation, positioning, manual control, etc.) is of no importance.
As an option, the object value of the status feedback message can be actively transmitted to the bus in case of a value change.
A mains voltage failure in the blind actuator always results in a "0" being written into the "Travel movement" feedback object. Moreover, the feedback status is derived exclusively from the relay state of the actuator. This means that if a drive is blocked or already in its end position, the value reported back does not correspond to the actual state of the travel movement.

Presetting an 'invalid position' feedback

The feedback for an invalid position can be enabled and programmed independently for each output. When feedback is enabled, the ETS adapts the parameter texts depending on the preset operating mode ("Invalid blind position feedback",
"Invalid shutter/awning position feedback" or "Invalid venting louver position feedback").
The status feedback can be used as an active signalling object or as a passive status object. As an active signalling object, the status feedback information is transmitted to the bus whenever a position value changes. As a passive status object, there is no telegram transmission after a change. In this case, the object value must be read out. The ETS automatically sets the object communication flags required for proper functioning.
If the object is an actively transmitting signalling object, the feedback telegram can be transmitted after bus voltage return with a time delay to reduce the bus load, with the delay being preset globally for all outputs in common (cf. "Delay after bus voltage return").

The feedback functions of an output must be enabled on parameter page
"Ax – Enabled functions" (x = number of output). Only then are the parameters for the feedback functions visible.

- Set the parameter "Invalid blind position feedback",
  "Invalid shutter/awning position feedback" or "invalid venting louver position feedback" on parameter page "Ax – Feedbacks" to "feedback object is active signalling object".

  The feedback object is enabled. A telegram is transmitted as soon as there is a change (e.g. after ETS programming, after switch-on of the supply voltage or after a reference travel).
- Set the parameter "Invalid blind position feedback",
  "Invalid shutter/awning position feedback" or "invalid venting louver position feedback" on parameter page "Ax – Feedbacks" to "feedback object is passive status object".

  The feedback object is enabled. A telegram will be transmitted in response only if the feedback object is read out by the bus.

The feedback function must be preset as actively transmitting function.

- If a time delay after bus voltage return should be necessary, the parameter
  "Time delay for feedback after bus voltage return" on parameter page "Ax – Feedbacks" must be set to "yes".

  An invalid position reported back with a time delay after bus voltage return. After the end of the time delay, the object value state last adjusted will be transmitted to the bus. No feedback telegram will be transmitted during a running delay. This is also the case if a position value becomes known, for instance, after a reference travel.

- Automatic transmission after bus voltage return will take place only if an internal change of the object state has occurred (caused, for instance, by a reference travel during manual control).

Presetting the travel movement feedback

The feedback messages can be enabled and programmed separately for each output. The status feedback can be used as an active signalling object or as a passive status object. As an active signalling object, the status feedback information is transmitted to the bus whenever a position value changes. As a passive status object, there is no telegram transmission after a change. In this case, the object value must be read out. The ETS automatically sets the object communication flags required for proper functioning.
If the object is an actively transmitting signalling object, the feedback telegram can be transmitted after bus voltage return with a time delay to reduce the bus load, with the delay being preset globally for all outputs in common (cf. "Delay after bus voltage return").

The feedback functions of an output must be enabled on parameter page
"Ax – Enabled functions" (x = number of output). Only then are the parameters for the feedback functions visible.

- Set the parameter "Travel movement feedback" on parameter page "Ax – Feedbacks" to "feedback object is active signalling object".

The feedback object is enabled. A telegram is transmitted when the connected drive starts moving or stops.

- Set the parameter "Travel movement feedback" on parameter page "Ax – Feedbacks" to "feedback object is passive status object".

  The feedback object is enabled. A telegram representing the current travel movement will be transmitted in response only if the feedback object is read out by the bus.

The feedback function must be preset as actively transmitting function.

- If a time delay after bus voltage return should be necessary, the parameter "Time delay for feedback after bus voltage return" on parameter page "Ax – Feedbacks" must be set to "yes".

  A travel movement feedback telegram is transmitted with a time delay after bus voltage return, for instance, when the drive is set in motion as a result of the preset behaviour after bus voltage return. After the end of the time delay, the object value state last adjusted will be transmitted to the bus. No feedback telegram will be transmitted during a running delay. This is also the case if the drive stops or starts moving during this delay.

- Automatic transmission after bus voltage return will take place only if the drive starts moving on return of bus voltage or if there has been a change of the travel movement caused by the bus failure.

Safety function

The blind actuator can handle up to five different safety functions:
3 x wind alarm, 1 x rain alarm, 1 x frost alarm. Each safety function has a communication object of its own so that the functions can be activated or deactivated independently of one another. The safety functions are programmed and configured for all shutter/blind outputs together (cf. chapter "Description of channel-independent functions – Safety functions").
The different outputs of the actuator can be separately assigned to all or to individual safety functions. Only assigned outputs react to a change of state of the safety objects. The reactions at the beginning of an alarm ("1" telegram) can be parameterized for each alarm message separately whereas the reaction at the end of an alarm ("0" telegram) can be parameterized for all alarm messages in common (figure 19).

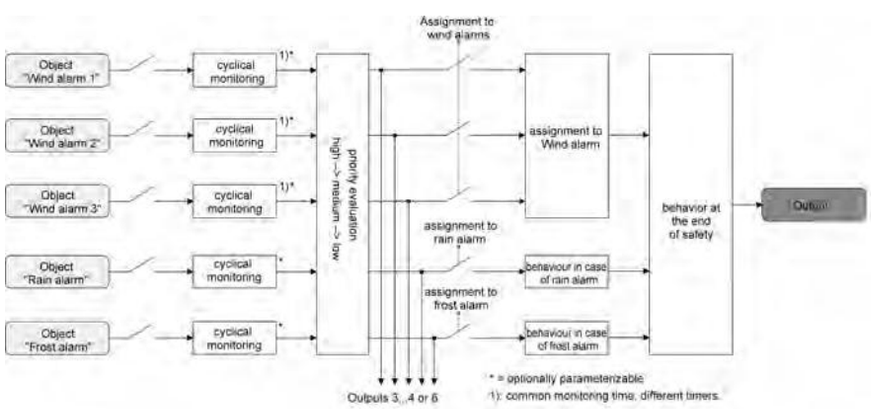

Figure 19: Function diagram of channel-oriented safety functions

An output can be assigned independently to the wind alarms, the rain alarm and the frost alarm. If an output is associated with several alarms, the preset priority decides which of the alarms will prevail and be executed. An alarm with a higher priority overrides the alarms with the lower priorities. When a safety alarm with the higher priority has ended, the safety alarm with the lower priority is executed on condition that it is active.

The order of priority of the wind alarms with respect to the frost alarm or to the rain alarm can be parameterized independent of the channel on the "Safety" parameter page. The three wind alarms have the same priority with respect to one another (logic OR). The last telegram update to the wind alarm objects decides which of the wind alarms will be executed. The wind alarm is completely deactivated only after all three objects are inactive ("0").
An output in the active safety alarm state is locked, i.e. the control of the output concerned via the bus by direct operation (short-time, long-time telegram, scenes, positioning, central) or by a sun protection function is prevented. Only a forced position and a manual control locally on the device itself have a higher priority so that these functions may override a safety interlock. At the end of a forced position or of a manual control, the safety reaction is re-executed if an assigned safety alarm is still active.

Assigning safety alarms

The individual safety alarms can be assigned separately to each output. The channels are assigned on parameter page "Ax – Safety" (x = number of output).

The safety functions must be globally enabled on the "Safety" parameter page before the output assignments are configured.

The safety function for an output must be enabled on parameter page "Ax – Enabled functions (x = number of output). Only then are the channel-related parameters for the safety function visible.

- If an assignment to the wind alarms is necessary, set the parameter "Assignment to wind alarms" to the wind alarm or the wind alarms required.

  The output is assigned to the specified wind alarms.
- If an assignment to the rain alarm is necessary, set the parameter "Assignment to rain alarm" to "yes".

  The output is assigned to the rain alarm.
- If an assignment to the frost alarm is necessary, set the parameter "Assignment to frost alarm" to "yes".

  The output is assigned to the frost alarm.

- If an output is assigned to an alarm which is not globally enabled, the assignment is without effect.
- Important information about the activation or deactivation of a safety alarm, about the presetting of the priority and about cyclical monitoring can be found in chapter "Channel-independent functional description – Safety functions".

Presetting the behaviour at the beginning of a safety alarm

The behaviour of an output at the beginning of a safety alarm can be parameterized separately for each alarm (wind alarms in common, rain and frost alarms separately). The alarm behaviour is preset on parameter page "Ax – Safety" (x = number of output). At the beginning of a safety alarm, the actuator locks the outputs concerned, i.e. control via the bus by direct operation or by a sun protection function is prevented.
Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings ("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver").

The safety functions must be globally enabled on the "Safety" parameter page.

The safety function for an output must be enabled on parameter page "Ax – Enabled functions (x = number of output). Only then are the channel-related parameters for the safety function visible.

The behaviour in case of a safety alarm can only be adjusted, if the output concerned has been assigned to the corresponding alarm. Since there is no difference between the alarm-dependent parameterizations, the selection of the parameters is described below only once.

- Set the parameter "Behaviour in case of ..." to "no reaction".

  At the beginning of the alarm, the output is locked and the relay of the output shows no reaction. Any travel movements still in progress at this instant will still be completely finished.
- Set the parameter "Behaviour in case of ..." to "raising" or "opening the louver".

The actuator raises the curtain or opens the venting louver at the beginning of the alarm and locks the output thereafter.

- Set the parameter "Behaviour in case of ..." to "lowering" or "closing the louver".

  The actuator lowers the curtain or closes the venting louver at the beginning of the alarm and locks the output thereafter.

- Set the parameter "Behaviour in case of ..." to "stop".

  At the beginning of the alarm, the actuator switches the relays of the output to "stop" and locks the output. A travel movement, if any, will be interrupted.

- The safety travel time required by an output to move the drive into the end positions is determined by the "Travel time" parameter on parameter page "Ax - Time settings" or by the travel time learnt in case of automatic end position detection. Like the long-time operation, a safety travel is derived from the travel time. Downward travel: travel time + 20 %; Upward travel: travel time + 20 % + parameterized or taught-in travel time extension. Safety travels are not retriggerable.
- Slats of blinds are not repositioned at the end of safety travels into end positions.

Presetting the behaviour at the end of all safety alarms

The blind actuator ends the safety interlock of an output only after all safety alarms assigned to the output have become inactive. Thereafter, the output concerned shows the parameterized "Behaviour at the end of safety". The behaviour is parameterized in common for all alarms on parameter page "Ax – Forced position" (x = number of output).
Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings ("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver").

The safety functions must be globally enabled on the "Safety" parameter page.

The safety function for an output must be enabled on parameter page "Ax – Enabled functions (x = number of output). Only then are the channel-related parameters for the safety function visible.

- Set the parameter "Behaviour at the end of safety" to "no reaction".

  At the end of all safety alarms, the output is released and the relay of the output shows no reaction. Any travel movements still in progress at this instant will still be finished.

- Set the parameter "Behaviour at the end of safety" to "raising" or "opening the louver".

  The actuator releases the output at the end of all safety alarms and raises the curtain or opens the venting louver.

- Set the parameter "Behaviour at the end of safety" to "lowering" or "closing the louver".

  The actuator releases the output at the end of all safety alarms and lowers or closes the venting louver.

- Set the parameter "Behaviour at the end of safety" to "stop".

  At the end of all safety alarms, the output is released and the actuator switches the relays of the output to "stop". A travel movement, if any, will be interrupted.

- Set the parameter "Behaviour at the end of safety" to "tracking the position".

  At the end of all safety alarms, the output will be set to the state last adjusted statically before the safety function or to the state tracked and internally stored during the safety function. The position objects, the long-time object and the scene function are tracked.

- Parameter setting "Position tracking": The blind actuator can track absolute positions after safety release (position telegram, scene value) only if the position data are known and if the positions have been predefined. In all other cases, no reaction takes place on release of safety.
  Position data can be tracked, if the output was in a defined position before the safety function or if a new position telegram was received via the position objects during the safety interlock. In the latter case, a reference travel will be executed when the safety function is enabled, if the position before or during the safety interlock was unknown. Known slat positions will also be tracked as described. This is also the case, when the height of the blind is unknown.
  Long-time travel movements (travels without position preset) will, however, always be tracked.
- The preset "Behaviour at the end of safety" will only be executed, if the output passes over to direct operation at the end of all safety alarms. If a sun protection function is activated (independent of the preset priority with respect to direct operation), it will be also executed.

Sun protection function - General information

Each output of the blind actuator can be separately configured for the execution of a sun protection function. Sun protection is generally realized with blinds, shutters or awnings and offers an intelligent method of shading rooms, terraces or balconies during sunshine depending on the altitude of the sun in the sky and on the intensity of the sunlight(figure 20)

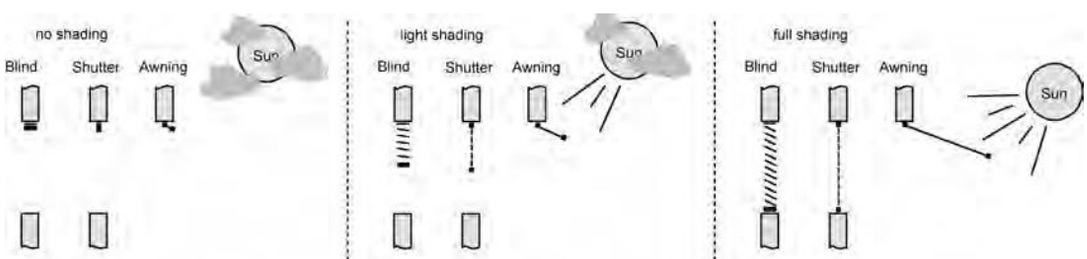

Figure 20: Sun protection principles (example)

The sun protection functions of the blind actuator can be adapted many different applications. In simple applications as, for instance, in case of direction-dependent measurement of the sun's intensity by means of a brightness sensor, the curtains controlled can be closed partly or completely to prevent being disturbed by direct sunlight. In these applications, the sun protection function merely evaluates the 1-bit sun signal from the brightness or a similar sensor (e.g. weather station with limit value monitoring) and makes a drive open or close the controlled curtains by moving them into fixed parameterized positions or into variable positions preset via the bus.

In extended applications – for instance where the degree of shading is controlled by weather stations evaluating additionally the sun angle as a function of astro coordinates and presetting the blind and also the slat positions dynamically – the sun protection function can be supplemented by an automatic control system. In such applications, the sun protection function evaluates additional bus communication objects allowing to enable or to disable the automatic control while the blind actuator is in operation. This results in a large number of combination variants with intelligent blind/shutter control systems.

Already simple sun protection applications are sufficient to permit a fixed or variable re-adjustment of the positions of blind slats for adapting the curtain to individual shading requirements. For such purpose, it is possible to preset a static slat offset in the ETS parameters, for instance, for adapting the reflection of sunlight depending on the building situation, or additionally, a dynamical slat offset via a bus communication object, for instance, for manual re-adjustment of the slat opening by persons in the room or otherwise by a central building services control system.

In all cases, the priority between an incoming sunshine or automatic telegram and the direct operation of an output (short-time, long-time telegram, scenes, positioning, central) is also

presettable in the ETS. This way, a sun protection position can, for instance, be influenced by a 'manual' operation of a touch sensor in the room and the sun protection function be interrupted. Alternatively, the protection function cannot be interrupted by a direct operation. i.e. the output is interlocked.
A sun protection function can be overridden by a safety function, a forced position or also by a manual control locally on the device itself as these functions of the blind actuator invariably have a higher priority. At the end of one of the mentioned functions with a higher priority, the same reaction as the one at the beginning of sun protection will be re-executed, if the sun protection function is still active at this time.

The blind actuator can be operated with two sun protection functions. The simple sun protection or alternatively the enlarged sun protection that can be enabled.

Sun protection function - Simple sun protection

In the simple sun protection, shading against sunlight is activated and deactivated via the 1-bit communication object "Sunshine / shading facade". The polarity of this object can be selected in the ETS. The sun protection is activated as soon as "sunshine" is signalled to the object depending on the preset polarity. After ETS programming or after switch-on of the supply voltage, the object must at first have data written into it by the bus also in case of inverted polarity before the sun protection can be activated.

A newly received object value (sun / beginning of shading or sun / end of shading) can optionally be evaluated with a time delay. This feature permits suppressing brief brightness variations caused, for instance, by passing clouds or by a thunderstorm. An update (from activated to activated) of the "Sunshine / shading facade" object causes the sun protection to be reactivated, if it had been influenced and possibly been re-enabled beforehand by a direct operation in acc. with the preset priority.

The reaction of a specific output at the beginning of shading can be preset in the ETS. This setting permits approaching fixed parameterized positions or positions preset via the bus and thus variable. Variable positions for sun protection purposes can be preset, for instance, by means of touch sensors or visualizations. In addition, it is possible in case of a defined sun protection positioning movement to have a reference travel executed by forced control. This ensures that identical curtain positions are approached synchronously by different outputs in case of a sun protection positioning movement.
The reaction at the end of a shading task can be preset as well. In this situation, the curtain can pass into an end position, be stopped or shown no special reaction. Tracking of positions is possible as well.

By means of a priority setting in the ETS parameters it can be specified whether the sun protection function can be influenced by operation or whether the corresponding output is locked by a telegram "Sunshine / shading facade" in the sun protection position. Basically, the "Manual control", "Forced position" and "Safety" functions have a higher priority so that these functions can override, but not terminate a sun protection. Thus, the sun protection function is re-executed at the end of a function with a higher priority, if the object
"Sunshine / shading facade" continues to signal the presence of sunshine.

- The following rules must be observed for the enlarged sun protection: After an ETS programming operation, the sun protection function including automatic operation is always deactivated. An activated sun protection (independent of the selected priority with respect to direct operation) remains active even after a bus voltage failure as long as the mains voltage supply is still on. The sun protection reaction last executed will therefore be executed again at the end of a temporary or permanent manual control (if enabled in case of bus failure), even if there is no bus voltage.

The schematic diagram of the simple sun protection (figure 21) and an example of how sensor components can be integrated into a simple sun protection configuration.

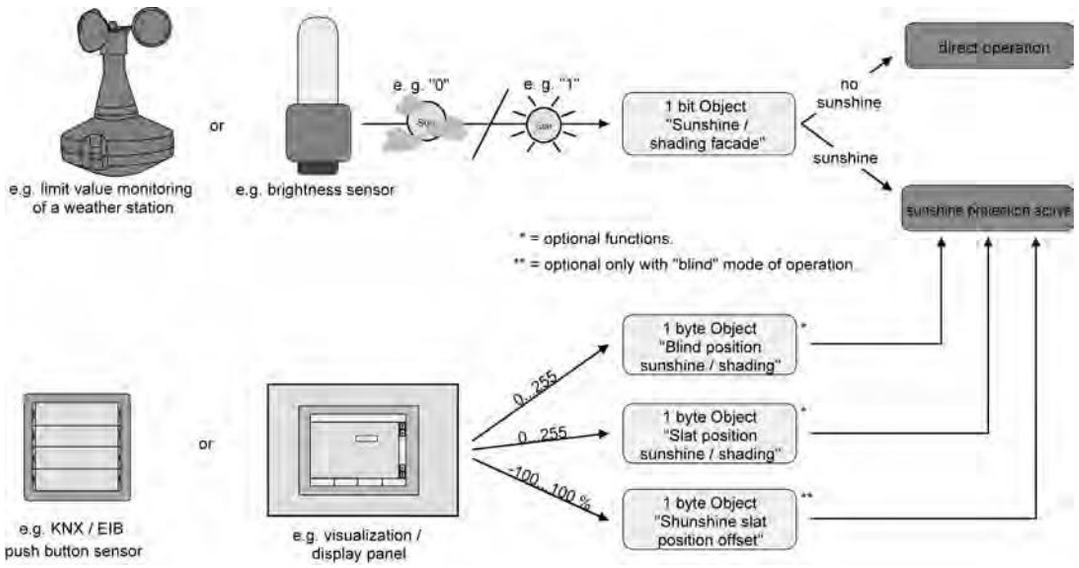

Figure 21: Schematic diagram illustrating the simple sun protection configuration

The function diagram (figure 22) shows all possible functions of the simple sun protection. For reasons of clarity, the functions with a higher priority (manual control, forced position, safety function) are not shown in the diagram.

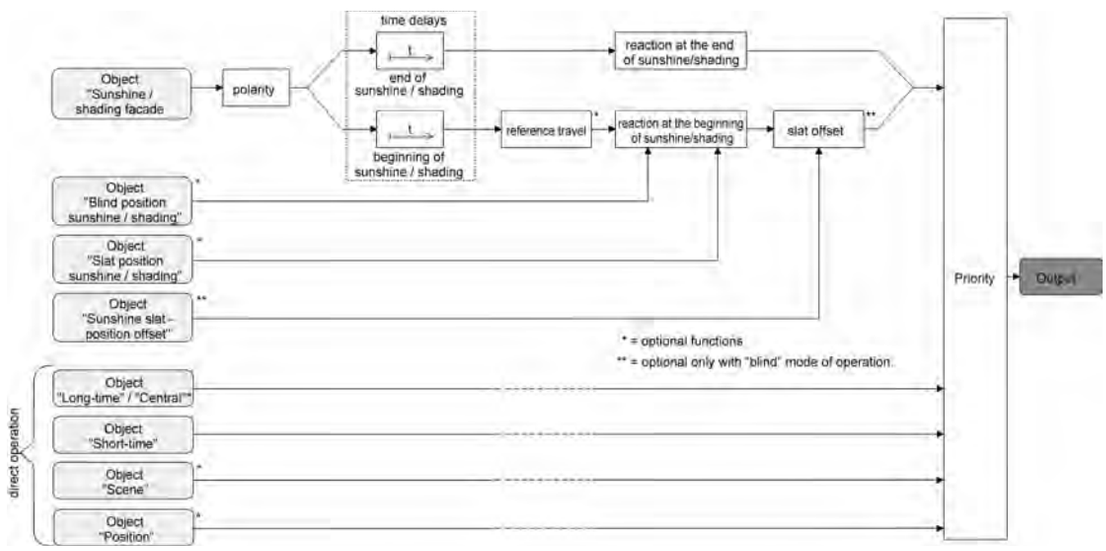

Figure 22: Function diagram illustrating the simple sun protection

Sun protection function - Extended sun protection

The extended sun protection has the basic functional properties of the simple sun protection function. In addition, an automatic control system can be implemented. Venetian blind control systems for blind and slat position tracking with respect to the position of the sun as, for instance, a weather station with combination sensor can therefore be integrated into the Venetian blind actuator system via the bus as an added automatic function.

In the extended sun protection, shading against sunlight is activated and deactivated via the 1-bit communication object "Sunshine / shading facade". A reaction of the output to the sun telegram can be expected only after the automatic control has been activated. In all other cases, the sun protection function is completely deactivated.

As far as the activation of the automatic control via the corresponding object is concerned, the following two cases must be distinguished...

- Sun shading action starting immediately:
  Automatic operation is activated as soon as the Object 15 "Automatic" receives a "1" telegram. The output reacts immediately to the activation and shows the preset behaviour depending on sunlight conditions (Sun / beginning of the shading action / Sun end of the shading action). The sunlight conditions are derived from the "Sun / shading facade" object according to the set polarity - if necessary after the delays have elapsed.
  After an ETS programming operation or after switch-on of the supply voltage, the "Sunshine / shading facade" object is initialised with "0" and, unlike the simple sun protection, evaluated immediately depending on the preset polarity so that shading against sunlight can begin immediately on activation of the automatic sun protection function. The reception of a "0" telegram by the object "Automatic" always terminates an automatic operation independent of the state of the "Sunshine / shading facade" object.

  Application example:
  Private house with conservatory. The conservatory is equipped with Venetian blinds to shade the place against sunlight. When the conservatory is used, automatic operation is activated, for instance, with a pushbutton sensor on the wall. The Venetian blind actuator then carries out the shading operation immediately if sunshine was previously detected. The actuator then carries out the configured behaviour at the end of Sunshine / Shading, if no sunshine was detected on activating Automatic operation.

- Activation of the sun shading only on the next update:
  In this configuration, the polarity of the automatic object can be preset. The automatic operation is activated as soon as object 16 "Automatic" is set to 'active' in consideration of polarity. A reaction at the output occurs, however, only after a new change of state ("0"->"1" or "1" -> "0") has been signalled via the "Sunshine / shading facade" object. In this case, the new state (beginning of sunshine/shading or end of sunshine/shading) determines the behaviour of the output immediately depending on the preset polarity.
  After an ETS programming operation or after switch-on of the supply voltage, the object "Automatic" must at first have data written into it by the bus also in case of inverted polarity before the automatic operation can be activated.
  The reception of an 'Automatic deactivated' telegram by the "Automatic" object always terminates an automatic operation independent of the state of the "Sunshine / shading facade" object.

  Application example:
  An office building is equipped with several Venetian blinds to shade individual offices against sunlight. In the early morning hours, the automatic sun protection is activated in a central place in the building, e.g. in the porter's lodge. The Venetian blinds will, however, not move into the shading positions unless the system has actually reported sunshine for the building facades in question.

The behaviour at the end of automatic operation is configured separately in the ETS and is executed whenever the automatic mode is terminated and when no function with a higher priority is active at this time. In this situation, the blind can pass into an end position, be stopped or shown no special reaction. Tracking of positions is possible as well.

Disabling functions of the extended sun protection:
In the event of the sun shading action starting immediately, the automatic operation can optionally be disabled with an additional communication object. The objects "Automatic" and "Automatic mode disable" are logically combined (AND with feedback). When disabling is activated, the automatic operation is reset and thus aborted. The output concerned will then show the behaviour at the end of automatic operation. The automatic mode can only be reactivated if the disabling object is released and if object 15 "Automatic" is updated again by writing a "1" into it. Any attempt to activate the automatic mode while a disable is active will be ignored.

Automatic operation disabling example:
An office room is equipped with Venetian blinds to shade the room against sunlight. The room is moreover equipped with a pushbutton sensor on the wall with which the automatic operation can be activated or also deactivated. When the automatic mode is activated, the room is immediately shaded against sunlight, if necessary. Depending on the time of day or in the event of disturbing sunlight falling into the room, the people in the room can therefore decide for themselves whether automatic shading is desired or not.
If required, the automatic sun protection is disabled in a central place of the building, for instance, in the porter's lodge. The automatic control of the Venetian blinds can then be deactivated, if servicing work is being carried out (window cleaning or similar work). After the end of disabling, for instance, at the end of the working hours, automatic operation can only be restarted if it is reactivated in any of the rooms in case of need.

In addition, also the direct operation of an output can be disabled with an independent disabling object. When disabling is active, a direct operation can – independently of the preset priority – never override a sun protection function. In this case, direct operation is non operational in other functions, too. During disabling, incoming direct operation telegrams are completely ignored (positions received via the bus can then not be tracked either).
If the disabling command is received while a movement initiated by direct operation is in progress, the movement will still be completely finished. Thereafter, direct operation is disabled.

Direct operation disabling example:
An office building is equipped with several Venetian blinds to shade individual offices against sunlight. During the working hours, the rooms are to be shaded automatically. Any direct operation – e.g. by means of a simple Venetian blind pushbutton sensor on the wall – is to be disabled during the day. For this reason, the direct operation is disabled, for instance, by the porter or by a building services management system. Cleaners must have the possibility of controlling the Venetian blinds directly only after the normal working hours. In this case, direct operation can again be centrally enabled during evening and night hours.

The disabling functions for automatic and for direct operation can also be combined so that it is possible to intervene at any time and as required by the situation in sun protection control functions.

Sunshine signal in the extended sun protection mode:
In the sun protection mode, the system is informed about the prevailing sunshine conditions via the "Sunshine / shading facade" communication object. The system the decides whether shading is required or not. In the extended sun protection mode, the sunshine signal is only evaluated when the automatic operation is activated as well.

A new value received via the "Sunshine / shading facade" object can optionally be evaluated with a time delay. This feature permits suppressing brief brightness variations caused, for instance, by passing clouds or by a thunderstorm. The time delay is started after an update of the "Sunshine / shading facade" object also in those cases where the automatic operation is deactivated so that the newly received information about the sunshine conditions may possibly also be processed with a delay, if the automatic operation is activated later on.
Unlike in the simple sun protection mode, an update of the "Sunshine / shading facade" object from active to active or from inactive to inactive in the extended sun protection mode shows generally no reaction. The behaviour of the output is only influenced if a change of state is being detected. An update of the sunshine signal alone does not result in the activation of the automatic operation either.

When the automatic operation is active, the reaction of a specific output at the beginning of shading can be preset separately in the ETS. This setting permits, amongst other things, approaching fixed configured positions or positions preset via the bus and thus variable. Positions for sun protection purposes can be variably preset, for instance, by means of a weather station for sun position tracking.
In addition, it is possible in case of a defined sun protection positioning movement to have a reference movement executed by forced control. This ensures that identical blind positions are approached synchronously by different outputs in case of a sun protection positioning

movement.
At the end of sun shading in active Automatic operation, the reaction of an output can also be configured separately. In this case, too, it is possible, amongst other things, to approach fixed configured positions.

By means of a priority setting in the ETS parameters it can be specified whether the evaluation of the sunshine signal in the automatic mode can be influenced by a direct operation or whether the automatic mode basically locks the corresponding output during sun protection. The "Manual control", "Forced position" and "Safety" functions invariably have a higher priority so that these functions can override, but not terminate a sun protection including an automatic operation. Thus, the sun protection function is re-executed at the end of a function with a higher priority, if the automatic sunshine protection is still active.
An update (from activated to activated) of the "Automatic" object causes the sun protection to be reactivated, if it had been influenced and cancelled beforehand by a direct operation in accordance with the lower priority.

The schematic diagram of the extended sun protection (figure 23) and an example of how sensor components can be integrated into an extended sun protection configuration.

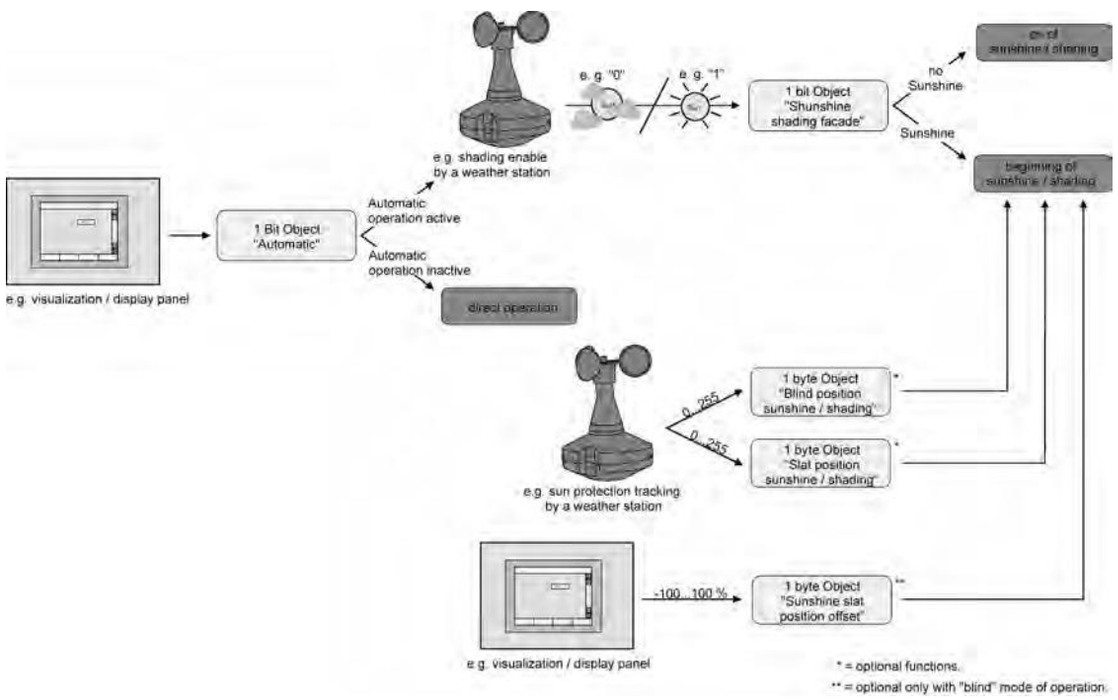

Figure 23: Schematic diagram illustrating the extended sun protection configuration
(for reasons of simplicity without disabling functions)

The function diagram (figure 24) shows all possible functions of the extended sun protection. For reasons of clarity, the functions with a higher priority (manual control, forced position, safety function) are not shown in the diagram.

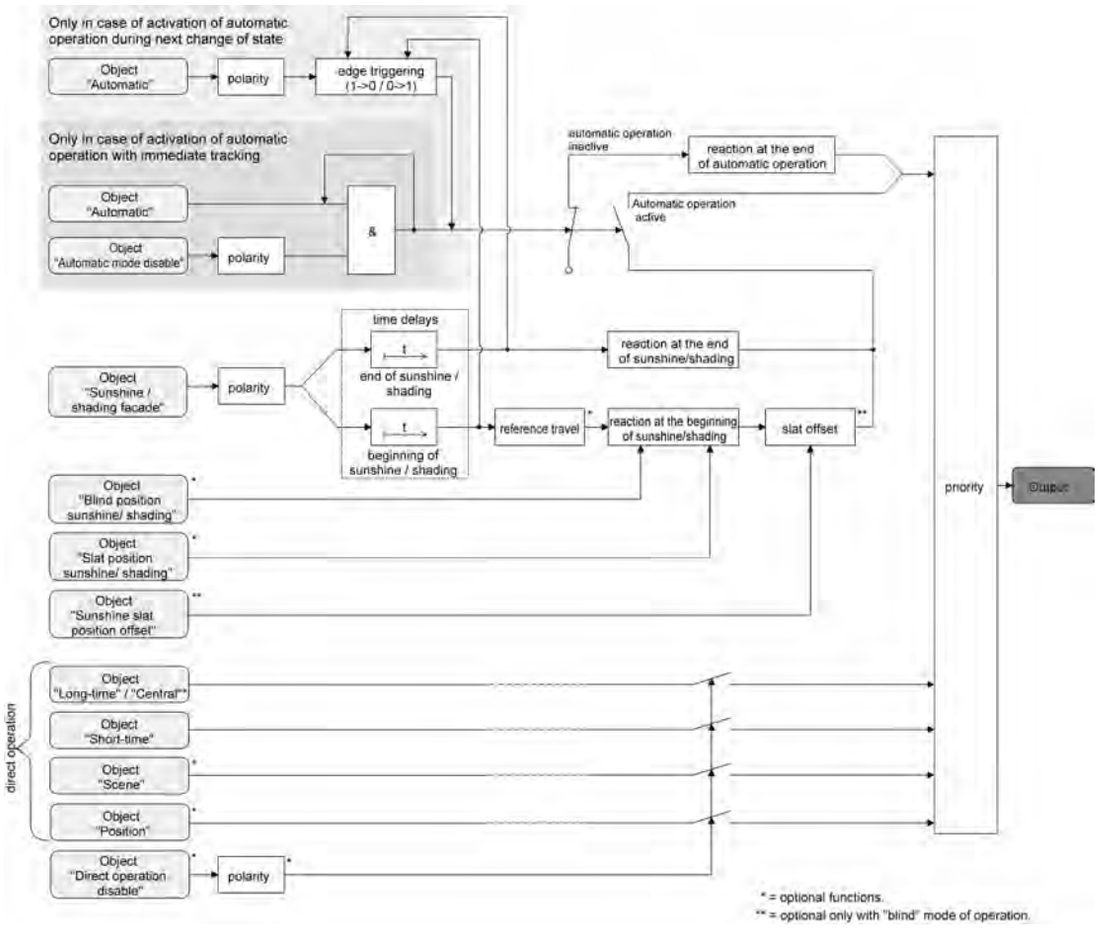

Figure 24: Function diagram illustrating the extended sun protection

- The following rules must be observed for the extended sun protection:
  After an ETS programming operation, the sun protection function including automatic operation is always deactivated. Activated sun protection (independent of the selected priority with respect to direct operation) remains active even after a bus voltage failure as long as the mains voltage supply is still on. The sun protection reaction last executed will therefore be executed again at the end of a temporary or permanent manual control (if enabled in case of bus failure), even if there is no bus voltage.

Presetting the type of sun protection

The type of sun protection can be preset separately for each output. The setting determines whether the simple or the enlarged type of sun protection is configured.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

- Set the parameter "Type of sun protection" on parameter page "Ax – Sun protection" to "simple sun protection".

  Simple sun protection is now configured. The necessary parameters and communication objects are visible.

- Set the parameter "Type of sun protection" on parameter page "Ax – Sun protection" to "enlarged sun protection".

  Enlarged sun protection is now configured. The necessary parameters and communication objects are visible.

- When the sun protection type parameters are changed, the assignments of group addresses to sun protection objects or other parameter settings are lost. For this reason, the sun protection type parameter should be selected directly at the beginning of the sun protection parameterization and then not be changed anymore later on.

Presetting the priority of sun protection (for simple sun protection only)

The priority of the sun protection function can be set separately for each output. In the simple sun protection, the priority relations between the "Sunshine / shading facade" object and the objects of direct operation (short-time, long-time, central or position telegram, scene recall) must be configured.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The function must have been configured for simple sun protection.

- Set the parameter "Priority of sun protection with respect to direct operation" on parameter page "Ax Sun protection" to "same priority".

  The sun protection mode can be overridden at any time by direct operation. In the same way, the sun protection overrides the direct operation, when a new "sunshine" telegram is received via the "Sunshine / shading facade" object and when a parameterized time delay, if any, has elapsed. If the sun protection function is overridden by a direct operation, the preset behaviour "Reaction at the end of sunshine / shading" will not be executed.

- Set the parameter "Priority of sun protection with respect to direct operation" on parameter page "Ax Sun protection" to "higher priority".

  An active sun protection will override a direct operation. The sun protection mode can therefore not be interrupted by a direct operation. Direct operation will be possible again only after the sun protection function is terminated.

- Set the parameter "Priority of sun protection with respect to direct operation" on parameter page "Ax Sun protection" to "lower priority".

  A direct operation can at any time override the sun protection mode. If the sun protection function is overridden by a direct operation, the preset behaviour "Reaction at the end of sunshine / shading" will not be executed. The sun protection function can only be reactivated after an enabling movement controlled by a direct operation has been effected and after a new "sunshine" telegram has been received via the "Sunshine / shading facade" object. If the enabling movement has not yet occurred, any attempt to activate the sun protection will be disregarded.
  Enabling movement:
  An enabling movement is an accomplished long-time travel movement into the upper end position which has been initiated by the objects "Long-time operation" or "Central travel control". A manual control, an upward travel movement after bus voltage failure or bus voltage return, a position approach to "0 %" or an upward travel movement after releasing enabling of forced-position or safety functions have no enabling effect.
  The sun protection is not enabled if the enabling movement has been interrupted. The sun protection function will be also be interlocked, if the output has been re-adjusted again by a direct operation after an accomplished enabling movement.
  After an ETS programming operation or after switch-on of the supply voltage (bus and mains voltage) the sun protection function is generally enabled.

- Manual local operation on the device itself, the forced position function and the safety functions have a fixed priority higher than that of the sun protection. The sun protection is overridden – but not terminated – by a function with a higher priority. After the end of the function with the higher priority the reaction at the beginning of sun protection will therefore be executed again, if the sun protection is still active at this time.
- With the settings "same priority" or "lower priority", the sun protection can be overridden by a direct operation only if the direct control action can be executed at once. A direct operation will therefore not override the sun protection during a manual control locally on the device, an active forced position function or an active safety function.

- Parameter setting "same priority" or "lower priority": A variable preset of curtain and slat positions or of a slat offset via the bus at the beginning of sunshine / shading shows no reaction at the output, if the sun protection was overridden by direct operation. However, the position data or offsets received are stored internally so that the new positions will be approached on reactivation of the sun protection.

Presetting the priority of automatic sun protection (for enlarged sun protection only)

The priority of the automatic sun protection function can be set separately for each output. In the enlarged sun protection, the priority relations between the "Sunshine / shading facade" object and the objects of direct operation (short-time, long-time, central or position telegram, scene recall) must be configured. The selected priority thus affects the evaluation of the sunshine signal in the automatic mode and not the automatic mode itself.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The function must have been configured for enlarged sun protection.

- Set the parameter "Priority of automatic operation with respect to direct operation" on parameter page "Ax Sun protection" to "same priority".

  The sunshine signal of the automatic sun protection mode and the corresponding reaction can be overridden at any time by direct operation. In the same way, the sunshine signal overrides the direct operation, when a new "sunshine" or "no sunshine" telegram is received via the "Sunshine / shading facade" object and when this telegram results in a change of state. Moreover, a parameterized delay time, if any, must have elapsed. When the sunshine signal is overridden by a direct operation, the preset behaviour "Reaction at the end of sunshine / shading" will not be executed.

- Set the parameter "Priority of automatic operation with respect to direct operation" on parameter page "Ax Sun protection" to "higher priority".

  An active automatic mode always overrides the direct operation independent of the sunshine signal. The sunshine signal can therefore not be interrupted by a direct operation. Direct operation will be possible again only after the automatic mode is terminated.

- Set the parameter "Priority of automatic operation with respect to direct operation" on parameter page "Ax Sun protection" to "lower priority".

  A direct operation can at any time override the sunshine signal. If the sunshine signal is overridden, the preset behaviour "Reaction at the end of sunshine / shading" will not be executed. The sunshine signal will be evaluated again only after an enabling movement controlled by a direct operation has been effected and when a new "sunshine" or
  "no sunshine" telegram is received via the "Sunshine / shading facade" object and when this telegram results in a change of state. The sunshine signal is ignored until the enabling movement is accomplished.
  Enabling movement:
  An enabling movement is an accomplished long-time travel movement into the upper end position which has been initiated by the objects "Long-time operation" or "Central travel control". A manual control, an upward travel movement after bus voltage failure or bus voltage return, a position approach to "0 %" or an upward travel movement after releasing enabling of forced-position or safety functions have no enabling effect.
  The sunshine signal is not enabled if the enabling movement has been interrupted. The sunshine signal will be also be interlocked, if the output has been re-adjusted again by a direct operation after an accomplished enabling movement.

- A direct operation never terminates the automatic mode. Irrespective of a function being overridden by a direct operation, an activation or a deactivation of the automatic mode (telegram update of the "Automatic" object) always re-enables the sunshine signal as well and evaluates it when the automatic mode is active. Attention must be paid to this behaviour especially in those cases where the "Automatic" object is cyclically overwritten by telegrams.

- Manual local operation on the device, the forced position function and the safety functions have a fixed priority higher than that of the automatic sun protection. The sun protection is overridden – but not terminated – by a function with a higher priority. After the end of the function with the higher priority the reaction last executed by the automatic sun protection will therefore be executed again, if the sun protection is still active at this time.
- With the settings "same priority" or "lower priority", the sunshine signal can be overridden by a direct operation only if the direct control action can be executed at once. A direct operation will therefore not override the sunshine signal during a manual control locally on the device, an active forced position function or an active safety function.
- Parameter setting "same priority" or "lower priority": A variable preset of curtain and slat positions or of a slat offset via the bus at the beginning of sunshine / shading shows no reaction at the output, if the sunshine signal was overridden by direct operation. However, the position data or offsets received are stored internally so that the new positions can be approached when the sensor signals that the sun is shining again.
- Irrespective of the preset priority, an update of the "Sunshine / shading facade" object from active to active or from inactive to inactive in the enlarged sun protection mode shows generally no reaction. The behaviour of the output is only influenced if a change of state is being detected.

Presetting the polarity of the "Sunshine / shading facade" object

The telegram polarity of the "Sunshine / shading facade" object can be preset separately for each output. This means that an adaptation to the signals from existing sensors or weather stations is possible in the simple and also in the enlarged sun protection mode.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

- Set the parameter "Polarity of 'Sunshine / shading facade' object" on parameter page "Ax Sun protection" to the required telegram polarity.

  The sunshine signal is evaluated in accordance with the preset priority.

- In the simple sun protection mode, an update (from activated to activated) of the "Sunshine / shading facade" object causes the sun protection to be reactivated, if it had been influenced and possibly been re-enabled beforehand by a direct operation in acc. with the preset priority.
- In the enlarged sun protection mode, an update of the "Sunshine / shading facade" object from active to active or from inactive to inactive shows generally no reaction. The behaviour of the output is only influenced if a change of state is being detected.

Presetting the activation of the automatic mode (for enlarged sun protection only)

As far as the activation of the automatic mode is concerned, two cases must be distinguished which can be configured with the help of ETS parameters separately for each output. Either a travel movement in acc. with the reaction at the beginning or the end of sunshine is executed immediately on activation of the automatic mode, or otherwise the system waits after activation of the automatic mode for a new change of state in the "Sunshine / shading facade" object until the corresponding output shows the reaction at the beginning or at the end of sunshine.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The function must have been configured for enlarged sun protection.

- Set the parameter "Activation of automatic mode by..." on parameter page "Ax Sun protection" to "object 'Automatic' and next change of state".

  Automatic operation is activated as soon as the "Automatic" object is set to 'active' in consideration of polarity. A reaction at the output occurs, however, only after a new change of state has been signalled via the "Sunshine / shading facade" object. In this case, the new state (beginning of sunshine/shading or end of sunshine/shading) determines the behaviour of the output.
- Set the parameter "Activation of automatic mode by..." on parameter page "Ax Sun protection" to "object 'Automatic' & immediate tracking".

Automatic operation is activated as soon as object "Automatic" receives a "1" telegram The behaviour of the output (beginning of sunshine/shading or end of sunshine/shading) is immediately determined by the state of the object "Sunshine / shading facade".

- Depending on the selected setting, the "Automatic" object either has object no. 15 or 16. In case of re-parameterization the assignments of group addresses to the automatic object is lost.

Presetting the polarity of the "Automatic" object (for enlarged sun protection only)

If the automatic mode is to be activated via the object and only at the next change of state of the sunshine signal (see "Presetting the activation of the automatic mode"), the telegram polarity of the automatic object can be preset in addition.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The enlarged sun protection must be configured for activation of the automatic mode on next change of state.

- Set the parameter "Polarity of 'Heating/cooling change-over' object" on parameter page "Ax Sun protection" to the required telegram polarity.

  The telegram to the "Automatic" object will be evaluated depending on the selected priority.

- After an ETS programming operation or after switch-on of the supply voltage, the object "Automatic" must at first have data written into it by the bus also in case of inverted polarity before the automatic operation can be activated.
- The polarity of the "automatic" object is not presettable, if the automatic mode is activated via the object with immediate tracking. In this case, the telegram polarity is fixed: Automatic ON = "1", Automatic OFF = "0".

Presetting the disabling function for the automatic mode (for enlarged sun protection only)

The automatic mode can be deactivated at any time via a separate disabling object. After enabling of the disabling function in the ETS parameters, the "Automatic mode disable" object becomes visible.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The enlarged sun protection must be configured for activation of the automatic mode with immediate tracking of the sunshine signal.

- Set the parameter "Disabling function for automatic mode ?" on parameter page "Ax Sun protection" to "yes".

  The disabling function is enabled. The parameter for setting of the polarity becomes visible.
- Set the parameter "Polarity of object 'Automatic mode disable'" on parameter page "Ax Sun protection" to the required telegram polarity.

  The telegram to the "Automatic mode disable" object will be evaluated depending on the selected priority.

- The objects "Automatic" and "Automatic mode disable" are logically combined (AND with feedback). When disabling is activated, the automatic operation is reset and thus aborted. The output concerned will then show the behaviour at the end of automatic operation. The automatic mode can only be reactivated, if the disabling object is released and if object 15 is updated again by writing a "1" into it. Any attempt of activating the automatic mode while a disable is active will be ignored.

- After an ETS programming operation or after switch-on of the supply voltage, the objects "Automatic" and "Automatic mode disable" are always initialized with "0". If the disabling object works with inverted polarity (setting "disabled" = "0") the disabling function is in this case immediately active. A bus voltage failure while the mains voltage is present has no effect on the state of the disabling object.

Presetting the disabling function for direct operation (for enlarged sun protection only)

The direct mode can be deactivated at any time via a separate disabling object. After enabling of the disabling function in the ETS parameters, the "Direct operation disable" object becomes visible.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The function must have been configured for enlarged sun protection.

- Set the parameter "Disabling function for direct mode ?" on parameter page "Ax Sun protection" to "yes".

  The disabling function is enabled. The parameter for setting of the polarity becomes visible.
- Set the parameter "Polarity of object 'Direct operation disable'" on parameter page "Ax Sun protection" to the required telegram polarity.

  The telegram to the "Direct operation disable" object will be evaluated depending on the selected priority.

- After an ETS programming operation or after switch-on of the supply voltage, the "Automatic mode disable" object is always initialized with "0". If the disabling object works with inverted polarity (setting "disabled" = "0") the disabling function is in this case immediately active. A bus voltage failure while the mains voltage is present has no effect on the state of the disabling object.

Presetting the reaction at the end of automatic operation (for enlarged sun protection only)

When the automatic operation is being deactivated – also by the disabling function – the output concerned will show the preset reaction, if no function with a higher priority is active at the time of deactivation. The preset reaction will not be executed either on termination of the automatic operation, if the sunshine signal is overridden on account of priority settings by a direct operation. The reaction at the end of automatic operation is preset on parameter page "Ax – Sun protection" (x = number of output). Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings ("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver").

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The function must have been configured for enlarged sun protection.

- Set the parameter "Reaction at the end of automatic operation" to "no reaction".

  At the end of automatic operation the relay of the output shows no reaction. Any travel movements still in progress at this instant will still be finished.
- Set the parameter "Reaction at the end of automatic operation" to "raising" or "opening the louver".

  At the end of automatic operation, the actuator raises the curtain or opens the venting louver.
- Set the parameter "Reaction at the end of automatic operation" to "lowering" or "closing the louver".

  At the end of automatic operation, the actuator lowers the curtain or closes the venting louver.

- Set the parameter "Reaction at the end of automatic operation" to "stop".

  At the end of automatic operation, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
- Set the parameter "Reaction at the end of automatic operation" to "position tracking".

  At the end of automatic operation, the output will be set to the state last adjusted statically before the automatic sun protection or to the state tracked and internally stored during the automatic sun protection. The position objects, the long-time object and the scene function are tracked.

- The behaviour preset in this parameter will only be executed, if no function with a higher priority (e.g. safety) is activated at the end of automatic operation.
- Parameter setting "Position tracking": The blind actuator can track absolute positions (position telegram, scene value) at the end of automatic operation only if the position data are known and if the positions have been predefined. There is otherwise no reaction at the end of automatic operation.
  Position data can be tracked, if the output was in a defined position before the automatic sun protection function or if a new position telegram was received via the position objects during the sun protection. In the latter case, a reference travel will be executed at the end of automatic operation, if the position before or during the sun protection was unknown.
  Known slat positions will also be tracked as described. This is also the case, when the height of the blind is unknown.
  Long-time travel movements (travels without position preset) will always be tracked.

Presetting a time delay for beginning and end of sunshine / shading

The telegram received via the object "Sunshine / shading facade" for activation or deactivation of shading (depending on polarity) can be evaluated with a time delay separately for each output. The preset delay times are always evaluated in the simple as well as in the enlarged sun protection mode.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

- Set the parameter "Time delay at the beginning of sunshine / shading" on parameter page "Ax – Beginning of sun protection" to the required delay time.

  The telegram for activation of the sun protection will be evaluated with a delay corresponding to the setting.
- Set the parameter "Time delay at the end of sunshine / shading" to the required delay time.

  The telegram for deactivation of the sun protection will be evaluated with a delay corresponding to the setting.

- A setting of "0" in the parameters deactivates the respective delay time. In this case, the state of the sunshine signal is evaluated immediately.
- Simple sun protection mode: An update (from activated to activated) of the "Sunshine / shading facade" object causes the sun protection to be reactivated in consideration of the delay time, if the sun protection had been influenced or aborted beforehand by a direct operation because of the same or a lower priority.

- Enlarged sun protection mode: The time delay is started after an update of the "Sunshine / shading facade" object also in those cases where the automatic operation is deactivated so that the newly received information about the sunshine conditions may possibly also be processed with a delay, if the automatic operation is activated later on. Unlike in the simple sun protection mode, an update of the "Sunshine / shading facade" object from active to active or from inactive to inactive in the enlarged sun protection mode shows generally no reaction. The behaviour of the output is only influenced if a change of state is being detected. An update of the sunshine signal alone does not result in the activation of the automatic operation either.

Presetting the reaction at the beginning of sunshine / shading

The behaviour of the output at the beginning of sunshine / shading – if applicable, after the end of the delay time – can be configured in the ETS separately for each output. In the simple sun protection mode, the behaviour will be executed, when the sun protection function is activated after receiving a new sunshine signal. In the enlarged sun protection mode, the output shows the parameterized reaction, when automatic operation is activated and when a new sunshine signal ("sun is shining") is being received or was received beforehand. The reaction will not be executed if a function with a higher priority is active at the time the new sunshine signal is received.
The reaction at the beginning of sunshine / shading is preset on parameter page "Ax – Beginning of sun protection" (x = number of output). Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings ("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver"). The ETS equally adapts the parameter selection depending on the preset mode of operation.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

- Set the parameter "Reaction at the beginning of sunshine / shading" to "no reaction".

  At the beginning of shading, the output switches over to sun protection while the relays of the output show no reaction. Any travel movements still in progress at this instant will still be finished.
- Set the parameter "Reaction at the beginning of sunshine / shading" to "raising" or "opening the louver".

  At the beginning of shading, the actuator raises the curtain or opens the venting louver.
- Set the parameter "Reaction at the beginning of sunshine / shading" to "lowering" or "closing the louver".

  At the beginning of shading, the actuator lowers the curtain or closes the venting louver.
- Set the parameter "Reaction at the beginning of sunshine / shading" to "stop".

  At the beginning of shading, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
- Set the parameter "Reaction at the beginning of sunshine / shading" to "internal scene recall". The number of the scene to be recalled must be specified in the parameter "Scene number (1…8)".

  At the beginning of shading, the blind actuator recalls the position value preset in the scene configuration for the output concerned. This is not a scene recall as in direct operation, but only an approach to the corresponding scene position value.
- Set the parameter "Reaction at the beginning of sunshine / shading" to "fixed position".

  At the beginning of shading, the blind actuator recalls a fixed position value for the output concerned.

- In the "Blinds" mode of operation, the setting "fixed position" can be selected separately for the height of the blind and for the slat position. For this reason, the ETS adapts the parameter selection and enlarges the setting options in this mode of operation.

- "Fixed position" only: Set the parameter "Fixed position of blind", "Fixed position of shutter/awning" or "Fixed position of venting louver" to "as specified by parameter". Thereafter, set the parameter "Position of blind (0…100%)", "Position of shutter/awning (0…100%)" or "Position of venting louver (0…100%)" to the desired position.

  At the beginning of shading, the output invariably approaches the parameterized position value.
- "Fixed position" only: Set the parameter "Fixed position of blind", "Fixed position of shutter/awning" or "Fixed position of venting louver" to "no change of current position".

  At the beginning of shading, the last adjusted height of the blind, of the shutter, of the awning or of the venting louver will be maintained.
- "Fixed position" and mode of operation = "blind" only: Set the parameter "Fixed slat position (0…100%)" to the desired position value."

  At the beginning of shading, the output invariably moves the slats to the parameterized position after the height of the blind has been adjusted.
- Set the parameter "Reaction at the beginning of sunshine / shading" to "variable position".

  At the beginning of shading, the blind actuator recalls the variable position value for the output concerned. The variable preset of the blind height, or the shutter, awning or venting louver positions takes place via the separate communication object "Sunsh./shading ... position" (for the slats in the "Blind" mode also via the separate object "Sunsh./shading slat position").

- In the "Blind" mode of operation, the "variable position" setting can be selected separately for the height of the blind and for the slat position. For this reason, the ETS adapts the parameter selection and enlarges the setting options in this mode of operation.

- The behaviour preset in this parameter will only be executed, if no function with a higher priority (e.g. safety) is activated at the time of shading.
- "Internal scene recall" setting: For this setting, the scene function of the output must be enabled in the ETS. Otherwise, the positions approached at the beginning of sunshine/ shading are undefined positions. The scene position values stored in the actuator by a scene storage function will be approached as well. A delay configured for scene recalls has no influence on the recall of the scene value by the sun protection function.
- "Variable position" setting: After an ETS programming operation or after switch-on of the supply voltage, the objects "Sunsh./shading ... position" and "Sunsh./shading slat position" must receive position values from the bus. Otherwise, the actuator makes no positioning attempts at the beginning of sunshine/shading as it has no valid position data.
  When the actuator is in operation, the position data can be updated at any time via the bus even if the sun protection is active (e.g. by a weather station for the purpose of sun position tracking). The blind actuator will then immediately approach the newly received positions if the sun protection is active. If a function with a higher priority is active, the actuator stores the newly received position values and approaches them during a later shading operation. The position data last received are not lost in a bus voltage failure (mains voltage on).

Presetting a forced reference travel in the sun protection mode

If needed, a reference travel can be executed by forced-control in the simple and in the enlarged sun protection mode at the beginning of a shading cycle, if fixed or variable position values or scene positions are to be approached. The execution of a reference travel by forced control at the beginning of shading can be used in a sun protection positioning operation to ensure that the curtains or slats are moved synchronously by different outputs to identical positions (e.g. in a long row of windows). Without the execution of reference travel by forced control, there might otherwise be positioning inaccuracies with a negative effect on the overall appearance of a building facade with the blinds let down.
A reference travel by forced control will always be executed in the simple sun protection mode, when the beginning of shading is signalled for the first time via the

"Sunshine/shading facade" object. Updates of the object from 'sun is shining' to 'sun is shining' do not initiate a reference travel, if the output is still in the sun protection position at this time.
A reference travel by forced control will be executed in the enlarged sun protection mode, when the automatic mode is active or is being activated and when the beginning of shading has been signalled via the "Sunshine / shading facade" object. Updates of the object from 'sun is shining' to 'sun is shining' will never initiate a reference travel. In this case, the sunshine signal must first change from 'sun is not shining' to 'sun is shining' before a new reference travel can take place.
A reference travel by forced control will always be executed for synchronization purposes as described and also in such cases where the position data of the curtain or the slats are known.
No reference travel by forced control will be executed at the end of shading.

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

- Set the parameter "Reference travel before every sun protection positioning operation ?" on parameter page "Ax Beginning of sun protection" (x = number of output) to "yes".

  At the beginning of shading there is always a reference travel by forced control as described. The preset position will be approached after the end of the reference travel.

- Set the parameter "Reference travel before every sun protection positioning operation ?" on parameter page "Ax Beginning of sun protection" (x = number of output) to "no".

  A reference travel at the beginning of sun protection will only be executed, if the position data are unknown, for instance, after an ETS programming operation or after switch-on of the power supply. In all other cases, the preset shading position will be approached immediately.

- A reference travel is the time required for a travel movement into the upper end position increased by 20 % and additionally by the parameterized travel time extension. A reference travel is not retriggerable.
- Variable position preset: No reference travel will be executed, if new position values are preset via the bus while the sun protection is active.
- "Blind" mode of operation: A terminated reference travel of for the height of the blind synchronizes at the same time also the slat position.

Slat offset in the sun protection mode (only "Blind" mode of operation)

For the slat position at the beginning of shading, an offset can be specified separately for each output, if fixed or variable slat positions are to be approached.
If necessary, the slat offset can correct the fixed or variable nominal slat position and thus allow the creation of an individual shading situation, when the sun protection is active. The offset can be preset in two ways...

- The slat offset can be parameterized statically in the ETS. The parameterization of a static offset value allows to vary the degree of shading in those parts of the building that are not exposed to full sunshine due to objects in front of the building. The variable slat angle adjusted by the sun protection control or the fixed angle specified in a parameter can thus be overridden so that the slats are always opened a bit wider than originally preset. Alternatively, the slats can also be closed completely by means of the static offset if too much sunlight is reflected into the room.
- The slat offset can additionally be adapted by the bus via the separate communication object "Sunshine slat position offset". In this way, the desired slat offset can also be adjusted during an active shading cycle and independent of a direct operation as, for instance, the short-time mode. Thus, it is possible, for instance, that persons in a room can correct the slat angle at any time 'manually' and individually by selecting another preset value at a touch sensor or a visualization. An offset preset via the object overwrites the value parameterized in the ETS.

The preset offset is taken into account in the simple and in the enlarged sun protection mode for each positioning move during an active shading cycle (beginning of sunshine/shading) and added to the predefined nominal slat position. The offset value can be varied within a range from -100 % … 0 … 100 % so that the slats can be moved in both directions into the respective

end positions (figure 25). At an offset of "0 %", the actual slat position is always identical with the predefined nominal slat position for sun protection purposes.

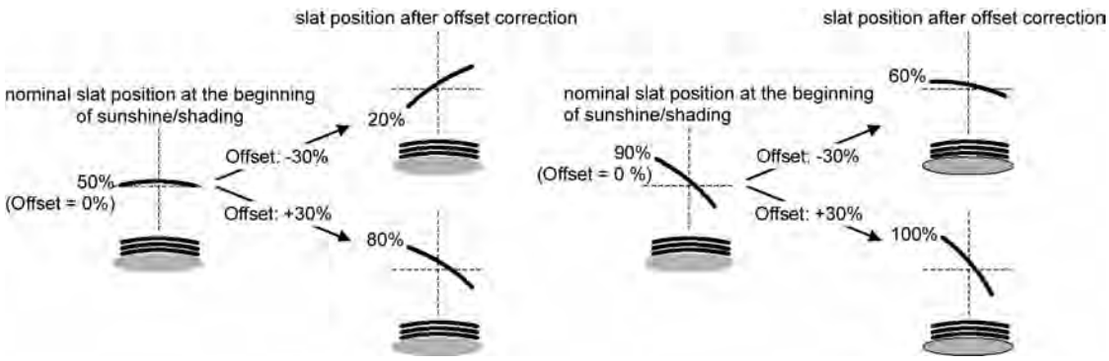

Figure 25: Functional principle of slat offset
(example showing slat type 1 / slat type 2 identical)

The position value actually adjusted with the offset after adding the slat position value is always between 0 and 100 %. Minimum and maximum position are thus determined by the slat end positions. These limits cannot be exceeded by specifying an greater offset. Example (figure 25)
…
Slat position at the beginning of sunshine/shading = 90 %
Slat position offset at the beginning of sunshine/shading = +30 %
-> The resulting slat position is 100% as the end position is reached.

In acc. with the KNX datapoint type 6,001 (DPT_Percent_V8), the data format of the communication object "Sunshine slat position offset" permits presetting positive and negative values in a range of 128 … 0 … +127. The actuator interprets the value received directly as an offset in %. Values below 100 or abovve +100 are limited to the minimum (-100 %) and maximum offset (+100 %) and evaluated accordingly.

An offset preset via the object overwrites the value parameterized in the ETS. In the event of a bus voltage failure or a mains voltage failure of the actuator, an offset value received via the communication object can be stored internally in a non-volatile memory so that the offset value last received is not lost even in case the complete power supply fails (bus voltage and mains voltage failure). As an alternative, the offset preset via the bus can be reset (0 %) in the event of a power supply failure with the result that the value parameterized in the ETS is again used in operation. The offset reaction preset in the event of bus or mains voltage failure can be parameterized in the ETS.

Configuring the slat offset in the sun protection mode (only "Blind" mode of operation)

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The function must be configured for the "Blind" mode of operation.

The reaction at the beginning of sunshine/shading must be configured for fixed or variable position preset.

- Set the parameter "Offset with fixed and variable slat position" on parameter page "Ax Beginning of sun protection" (x = number of output) to "no offset".

  The offset correction is deactivated. During shading (beginning of sunshine/shading), the fixed or variable slat position will be approached without offset correction. The other parameter relating to the offset are blanked out.
- Set the parameter "Offset with fixed and variable slat position" to "offset as parameterized".

  The static offset correction based on the parameter preset in the ETS is activated. During every shading operation (beginning of sunshine/shading), the nominal slat position is always corrected by the parameterized offset value.

- Set the parameter "Offset with fixed and variable slat position" to "offset as parameterized and via object".

  The offset correction based on the parameter preset in the ETS and via the object is activated. The slat offset is preset by a fixed value parameterized in the ETS and can be adapted dynamically with a separate communication object. During every shading operation (beginning of sunshine/shading), the nominal slat position is always corrected by the preset offset value.

- Set the parameter "Slat offset position (-100 … 100 %)" on parameter page "Ax - Beginning of sun protection" to the desired offset value.

  The parameterized value defines the static offset correction of the slat position. The parameterized value can be re-adjusted via the "Sunshine slat position offset" object, if the communication object has been enabled.

- Set the parameter "Store slat position offset adjusted via object in case of bus / mains voltage failure ?" to "no".

  The value received via the object will only be stored temporarily in volatile memory. Thus, the value received via the object only replaces the parameterized value only until the actuator is re-initialized (return of bus or mains voltage, if both voltages were off beforehand). After the initialization, the offset value parameterized in the ETS will be used again.

- Set the parameter "Store slat position offset adjusted via object in case of bus / mains voltage failure ?" to "yes".

  The value received via the object will be stored in case of bus or mains voltage failure in a non-volatile memory of the actuator. The originally parameterized offset value is definitely overwritten in the process. Only a new ETS programming operation sets the offset back to the parameterized value.

- An offset value received via the bus is stored temporarily or permanently in the actuator and taken into account during the next shading operation. The reception of an offset value during an active shading phase (beginning of sunshine/shading active) results in an immediate and 'visible' correction of the offset angle by the output.
- After an ETS programming operation, the offset is always set to the value parameterized in the ETS.
- Storage of the slat offset position in case of bus/mains voltage failure: The offset value preset via the object is stored only if one part of the supply voltage (mains or bus) is still present or if the supply fails completely after the mains voltage has been available before without interruption for at least 20 seconds after the last reset (storage capacitors sufficiently charged for storage purposes). In all other cases nothing is stored.
- The slat offset has no influence on the behaviour of an output at the end of a shading phase (end of sunshine/shading).

Presetting the reaction at the end of sunshine / shading (for simple sun protection only)

At the end of the shading phase – if applicable, after the end of the delay time – the output concerned will show the preset reaction, if no function with a higher priority is active at the time of deactivation. The preset reaction will not be executed at the end of shading either, if the sunshine signal is overridden on account of priority settings by a direct operation.
The reaction at the end of shading is preset on parameter page
"Ax – Sun protection" (x = number of output). Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings
("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver").

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The function must have been configured for simple sun protection.

- Set the parameter "Reaction at the end of sunshine / shading" to "no reaction".

At the end of shading, the relay of the output shows no reaction. Any travel movements still in progress at this instant will still be finished.

- Set the parameter "Reaction at the end of sunshine / shading" to "raising" or "opening the louver".

  At the end of shading, the actuator raises the curtain or opens the venting louver.
- Set the parameter "Reaction at the end of sunshine / shading" to "lowering" or "closing the louver".

  At the end of shading, the actuator lowers the curtain or closes the venting louver.
- Set the parameter "Reaction at the end of sunshine / shading" to "stop".

  At the end of shading, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
- Set the parameter "Reaction at the end of sunshine / shading" to "position tracking".

  At the end of shading, the output will be set to the state last adjusted statically before sun protection or to the state tracked and internally stored during sun protection. The position objects, the long-time object and the scene function are tracked.

- The behaviour preset in this parameter will only be executed, if no function with a higher priority (e.g. safety) is activated when the sun protection is enabled or when a direct operation has not overridden the sunshine signal on account of priority settings.
- Parameter setting "Position tracking": The blind actuator can track absolute positions (position telegram, scene value) at the end of sun protection only if the position data are known and if the positions have been predefined. There is otherwise no reaction at the end of shading.
  Position data can be tracked, if the output was in a defined position before the sun protection function or if a new position telegram was received via the position objects during the sun protection. In the latter case, a reference travel will be executed at the end of the sun protection, if the position before or during the sun protection was unknown. Known slat positions will also be tracked as described. This is also the case, when the height of the blind is unknown.
  Long-time travel movements (travels without position preset) will always be tracked.

Presetting the reaction at the end of sunshine / shading (for enlarged sun protection only)

The behaviour of the output at the end of sunshine / shading – if applicable, after the end of the delay time – can be configured in the ETS separately for each output. In the enlarged sun protection mode, the output shows the parameterized reaction, when automatic operation is activated and when a new sunshine signal
(change of state from "sun is shining" -> "sun is not shining") is being received. The reaction will not be executed if a function with a higher priority is active at the time the sunshine signal changes. The preset reaction will not be executed either, if the sunshine signal is overridden on account of priority settings by a direct operation.
The reaction at the end of sunshine / shading is preset on parameter page
"Ax – Beginning of sun protection" (x = number of output). Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings
("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver").

For the sun protection parameters to be visible, the sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output).

The function must have been configured for enlarged sun protection.

- Set the parameter "Reaction at the end of sunshine / shading" to "no reaction".

  At the end of shading, the relay of the output shows no reaction. Any travel movements still in progress at this instant will still be finished.
- Set the parameter "Reaction at the end of sunshine / shading" to "raising" or "opening the louver".

  At the end of shading, the actuator raises the curtain or opens the venting louver.

- Set the parameter "Reaction at the end of sunshine / shading" to "lowering" or "closing the louver".

  At the end of shading, the actuator lowers the curtain or closes the venting louver.
- Set the parameter "Reaction at the end of sunshine / shading" to "stop".

  At the end of shading, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
- Set the parameter "Reaction at the end of sunshine / shading" to "internal scene recall". The number of the scene to be recalled must be specified in the parameter "Scene number (1…8)".

  At the end of shading, the blind actuator recalls the position value preset in the scene configuration for the output concerned. This is not a scene recall as in direct operation, but only an approach to the corresponding scene position value.
- Set the parameter "Reaction at the end of sunshine / shading" to "fixed position".

  At the end of shading, the blind actuator recalls a fixed position value for the output concerned.

- In the "Blind" mode of operation, the setting "fixed position" can only be selected in common for the height of the blind and for the slat position.

- "Fixed position" only: Set the parameter "Fixed position of blind", "Fixed position of shutter/awning" or "Fixed position of venting louver" to "as specified by parameter". Thereafter, set the parameter "Position of blind (0…100%)", "Position of shutter/awning (0…100%)" or "Position of venting louver (0…100%)" to the desired position.

  At the end of shading, the output invariably approaches the parameterized position value.
- "Fixed position" only: Set the parameter "Fixed position of blind", "Fixed position of shutter/awning" or "Fixed position of venting louver" to "no change of current position".

  At the end of shading, the last adjusted height of the blind, of the shutter, of the awning or of the venting louver will be maintained.
- "Fixed position" and mode of operation = "blind" only: Set the parameter "Fixed slat position (0…100%)" to the desired position value."

  At the end of shading, the output invariably moves the slats to the parameterized position after the height of the blind has been adjusted.

- The behaviour preset in this parameter will only be executed, if no function with a higher priority (e.g. safety) is activated at the time the sunshine signal changes. The preset reaction will not be executed either, if the sunshine signal is overridden on account of priority settings by a direct operation.
- "Internal scene recall" setting: For this setting, the scene function of the output must be enabled in the ETS. Otherwise, the positions approached at the end of sunshine/shading are undefined positions. The scene position values stored in the actuator by a scene storage function will be approached as well. A delay configured for scene recalls has no influence on the recall of the scene value by the sun protection function.

Sun protection application examples

The present chapter describes different applications of the sun protection function of the blind actuator in combination with the Jung KNX / EIB weather station (order no. 2224 REG W) and the combination sensor (order no. WS 10 KS...).
The applications described can be used in the simple and in the enlarged sun protection mode. For the enlarged sun protection it is important that the automatic function must be activated, if the sunshine signal of the weather station is to evaluated and an reaction produced at the output. The disabling functions can optionally also be used for automatic operation or for direct operation.
For each application, there is also an outline given of which communication objects of the weather station are to be linked to the blind actuator.

Information on the required configuration of the KNX / EIB weather station can be found in the corresponding product documentation.

- I. Sun protection with brightness limit value monitoring and fixed sun protection positions:
  The limit value monitoring function of the weather station is used. The weather station transmits a "1" telegram via the "Limit value 1 [Sun...]" to the bus when a preset brightness limit value is exceeded. The shutter actuator activates the shading function and adjusts the curtain to the corresponding fixed sun protection position. In the operating mode "Blind" of the shutter actuator, the fixed slat position specified in the parameter is recalled in addition. When the brightness drops below the limit value for the measured brightness (with hysteresis, if programmed), the weather station transmits a "0" telegram to the bus. This deactivates the shading function in the shutter actuator and the corresponding reaction at the end of sunshine /shading will be executed. The communication objects must be linked according to presetting.

  Required parameterization of the shutter actuator (parameters not listed are optional):
  - simple or enlarged sun protection,
  - polarity object "Sunshine / shading facade" = "1" sunshine,
  - reaction at the beginning of sunshine / shading = fixed position,
  - fixed positions setting.(figure 26)

Figure 26: Programming of the communication objects for application example I

- II. Sun protection with shading control and fixed sun protection positions:

  The shading control of the weather station is used. When the preset basic brightness for shading operations is exceeded, the weather station transmits a 1-bit telegram of value "1" via the "Shading facade [shading control facades 1-4]" to the bus. The shutter actuator activates the shading function and adjusts the curtain to the corresponding fixed sun protection position. In the operating mode "Blind" of the shutter actuator, the fixed slat position specified in the parameter is recalled in addition.
  When the brightness drops below the basic brightness for shading operations (with hysteresis, if programmed), the weather station transmits a "0" telegram to the bus. This deactivates the shading function in the shutter actuator and the corresponding reaction at the end of sunshine /shading will be executed. The communication objects must be linked according to presetting.

  Required parameterization of the shutter actuator (parameters not listed are optional):
  - simple or enlarged sun protection,
  - polarity object "Sunshine / shading facade" = "1" sunshine,
  - reaction at the beginning of sunshine / shading = fixed position,
  - fixed positions setting.(figure 27)

Figure 27: Programming of the communication objects for application example II

- III. Sun protection with shading control and fixed curtain height and variable slat position tracking:

  The shading control of the weather station is used. The blinds connected to the shutter actuator are slatted blinds. When the basic brightness for shading operations is exceeded, the weather station transmits a 1-bit telegram of value "1" via the "Shading facade [shading control facade 1-4]" to the bus. The shutter actuator activates the shading function and adjusts the shutter to the corresponding fixed sun protection position. The individual facade control of the weather station transmits additionally the slat position to be preset for sun-dependent slat tracking via the 1-byte object "Slat position (%) facade [individual control facade ...]" to the bus. The slat position required for shading will thus be adjusted in the shutter actuator.
  When the brightness drops below the basic brightness for shading operations (with hysteresis, if programmed), the weather station transmits a "0" telegram via the "Shading facade [shading control facade 1-4]" to the bus. This deactivates the shading function in the shutter actuator and the corresponding reaction at the end of sunshine / shading will be executed.

  Ideally, the telegram "Slat position (%) facade [individual facade control …]" = "0 %" is suppressed in the weather station by means of a parameter. The extra slat positioning movement might otherwise adversely affect the behaviour of the output at the end of shading (possibly brief bucking).

  The global disabling function of the weather station should not be used for disabling the individual facade control. Disabling can be achieved, for instance, with the disabling function of the automatic operation in the shutter actuator and individually for each output. The communication objects must be linked according to presetting.

  Required parameterization of the shutter actuator (parameters not listed are optional):
  - simple or enlarged sun protection,
  - polarity object "Sunshine / shading facade" = "1" sunshine,
  reaction at the beginning of sunshine / shading = fixed blind position, variable slat position,
  - fixed blind position setting.(figure 28)

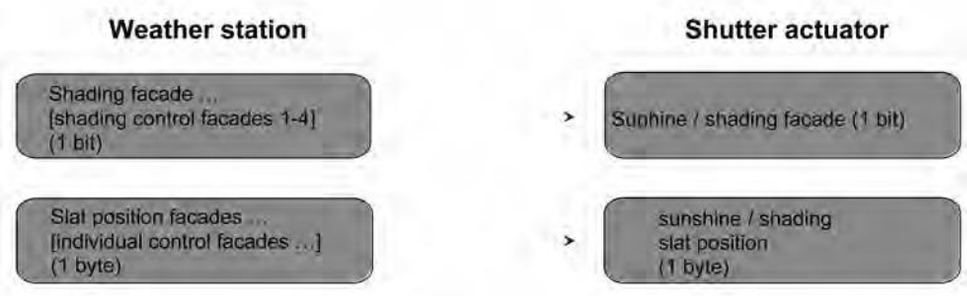

Figure 28: Programming of the communication objects for application example III

- IV. Sun protection with shading control and variable curtain height and variable slat position tracking:

  The shading control of the weather station is used. The blinds connected to the shutter actuator are slatted blinds. When the basic brightness for shading operations is exceeded, the weather station transmits a 1-bit telegram of value "1" via the "Shading facade [shading control facade 1-4]" to the bus. The shutter actuator activates the shading function.
  The individual facade control of the weather station transmits additionally the slat position to be preset for sun-dependent slat tracking via the 1-byte object "Slat position (%) facade [individual control facade ...]" and the blind height to be adjusted via the 1-byte object "shading facade curtain height threshold/position [individual control facade ...-]" to the bus. The slat position and the blind height required for shading will thus be adjusted in the shutter actuator.
  When the brightness drops below the basic brightness for shading operations (with hysteresis, if programmed), the weather station transmits a "0" telegram via the "Shading facade [shading control facade 1-4]" to the bus. This deactivates the shading function in the shutter actuator and the corresponding reaction at the end of sunshine / shading will be executed.

  Ideally, the telegrams "Slat position (%) facade [individual facade control …]" = "0 %" and "Shading facade curtain height threshold/position [individual control facade ...]" = 0 % are suppressed in the weather station by means of a parameter. The extra slat and blind positioning movement might otherwise adversely affect the behaviour of the output at the end of shading (possibly brief bucking).

  The global disabling function of the weather station should not be used for disabling the individual facade control. Disabling can be achieved, for instance, with the disabling function of the automatic operation in the shutter actuator and individually for each output. The communication objects must be linked according to presetting.

  Required parameterization of the shutter actuator (parameters not listed are optional):
  - simple or enlarged sun protection,
  - polarity object "Sunshine / shading facade" = "1" sunshine,
  - reaction at the beginning of sunshine / shading = variable blind position, variable slat position.(figure 29)

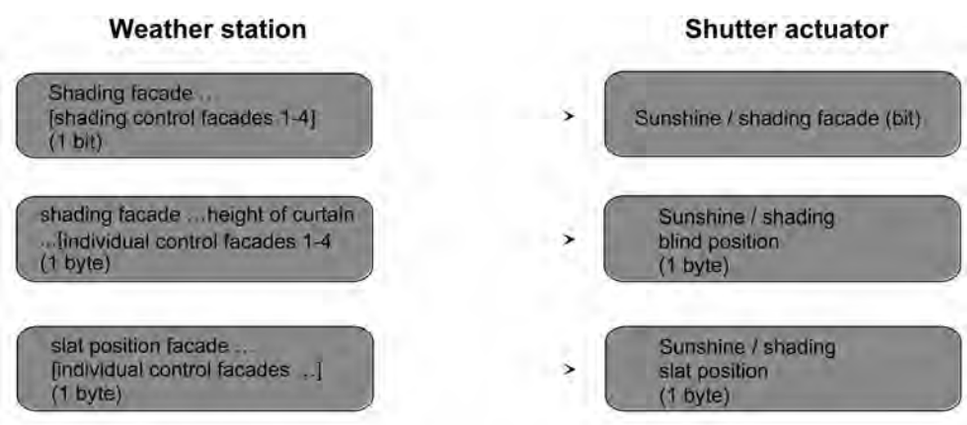

Figure 29: Programming of the communication objects for application example IV

- V. Sun protection with shading control and variable curtain height and fixed slat position:

  The shading control of the weather station is used. The blinds connected to the shutter actuator are slatted blinds. When the basic brightness for shading operations is exceeded, the weather station transmits a 1-bit telegram of value "1" via the "Shading facade [shading control facade 1-4]" to the bus. The shutter actuator activates the shading function and adjusts the corresponding fixed sun protection position for the slat angle.
  The individual facade control of the weather station transmits additionally the blind height to be adjusted via the 1-byte object "Shading facade curtain height threshold/position [individual control facade ...-]" to the bus. The blind height required for shading will thus be adjusted in the shutter actuator.
  When the brightness drops below the basic brightness for shading operations (with hysteresis, if programmed), the weather station transmits a "0" telegram via the "Shading facade [shading control facade 1-4]" to the bus. This deactivates the shading function in the shutter actuator and the corresponding reaction at the end of sunshine / shading will be executed.

  Ideally, the telegram "Shading facade curtain height threshold/position [individual facade control …]" ="0 %" is suppressed in the weather station by means of a parameter. The extra blind positioning movement might otherwise adversely affect the behaviour of the output at the end of shading (possibly brief bucking).

  The global disabling function of the weather station should not be used for disabling the individual facade control. Disabling can be achieved, for instance, with the disabling function of the automatic operation in the shutter actuator and individually for each output. The communication objects must be linked according to presetting.

  Required parameterization of the shutter actuator (parameters not listed are optional):
  - simple or enlarged sun protection,
  - polarity object "Sunshine / shading facade" = "1" sunshine,
  - reaction at the beginning of sunshine / shading = variable blind position, fixed slat position,
  - fixed slat position setting.(figure 30)

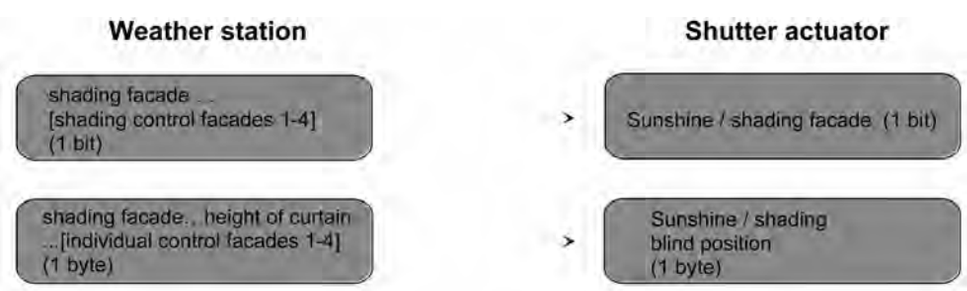

Figure 30: Programming of the communication objects for application example V

Automatic heating/cooling

Automatic heating/cooling can supplement the extended sun protection so that the sun shading of a room is available to an additional application.

When automatic heating / cooling is active, a presence signal – e.g. from a KNX / EIB presence monitor or a detector – is evaluated in addition to the signals of the extended sun protection function. The automatic sun protection function will then only be activated by the shutter actuator when persons are in the room. The room is then shaded or not shaded according to the sunshine signal - as described in previous chapters.
If no presence is signalled to the Venetian blind actuator, then the actuator also evaluates a

heating/cooling signal, which can be derived from a room temperature controller or an external thermostat, for example. In this case, the shading function can be used to support the heating or cooling function in a room. As no people are present in the room, intensive sunlight can be used, for instance, to heat up the room by opening the slats or by raising the blind. Similarly, the room can also be shaded against sunlight during the absence of people, if additional heating up of the room is not desired.

The evaluation of the three 1 bit signals "Presence", "Heating/cooling switchover" and "Sunshine / shading facade", whose telegram polarity can be set independently in the ETS, means that the extended sun protection function with automatic heating/cooling differentiates between the 6 statuses shown in Table 2 and the corresponding output reactions.

Presence signal	**Heating/ cooling switchover**	**Sunshine / shading facade**	**Reaction at output**
People present	--- (irrelevant)	Sunshine signal active	Reaction at the beginning of sunshine/shading
People present	--- (irrelevant)	Sunshine signal inactive	Reaction at the end of sunshine/shading
No people present	Heating active	Sunshine signal active	Reaction at the beginning of sunshine/shading with heating
No people present	Heating active	Sunshine signal inactive	Reaction at the end of sunshine/shading with heating
No people present	Cooling active	Sunshine signal active	Sunshine signal active reaction at the beginning of sunshine/shading with cooling
No people present	Cooling active	Sunshine signal inactive	Reaction at the end of sunshine/shading with cooling

States of the enlarged sun protection function with heating/cooling switchover

As described for the extended sun protection without automatic heating/cooling, the sunshine signal will be delayed, if a delay is configured in the ETS for this signal. In the same way, the presence signal can be evaluated independently after a delay, for example in order to 'debounce' short time changes to the signal state.
The schematic diagram (figure 31) shows the interaction of the different communication objects of the extended sun protection function in combination with the automatic heating/cooling function. The diagram moreover illustrates the principle of incorporating sensor components into the automatic heating/cooling system.

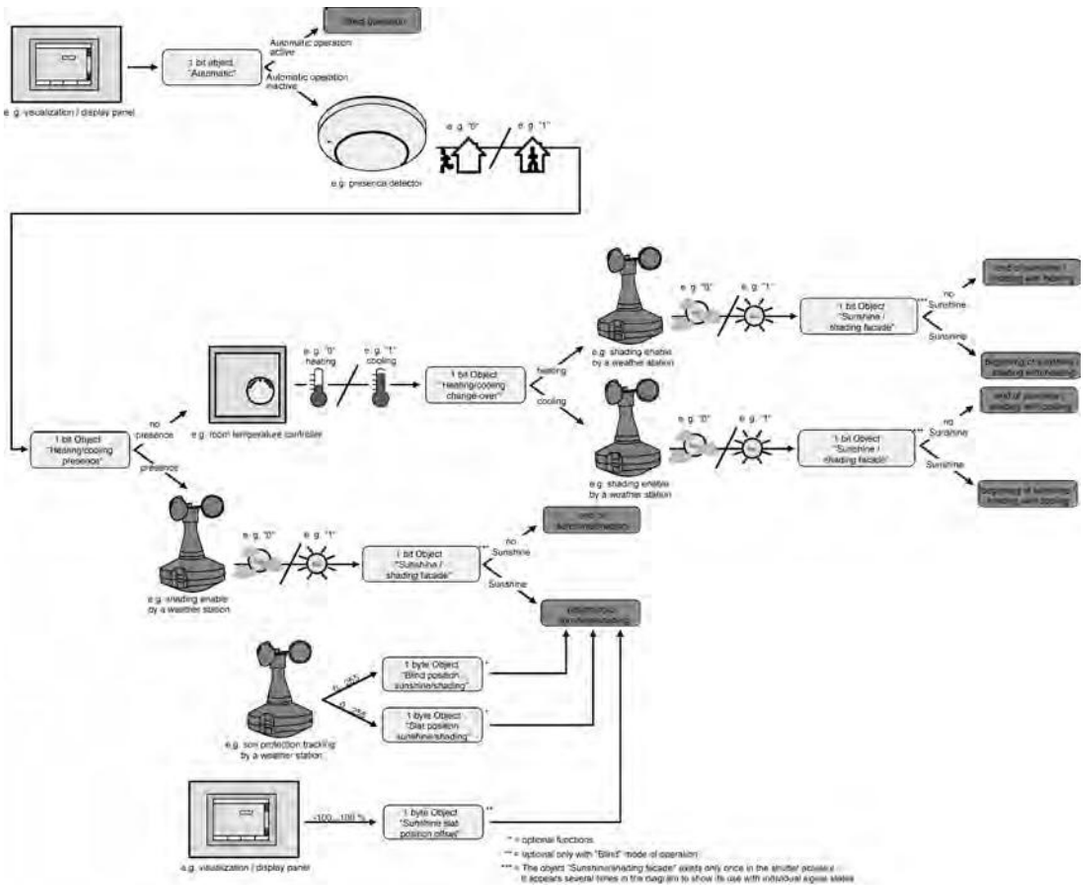

Figure 31: Schematic diagram of automatic heating/cooling
(for reasons of simplicity shown without disabling functions of the automatic or direct operation)

In accordance with the schematic diagram, the automatic heating/cooling function is only active when the automatic sun protection is active, too. Like in the extended sun protection mode without automatic heating/cooling, the automatic sun protection is activated via the object "Automatic" depending on the configuration either immediately or only after a change of state has been detected for one of the signals "Presence", "Heating/cooling switchover" and "Sunshine / shading facade" (cf. "Sun protection function – extended sun protection").
After an ETS programming operation or after switch-on of the power supply of the actuator (bus and mains voltage supply), the corresponding communication objects of the signals "Presence", "Heating/cooling switchover" and "Sunshine / shading facade" are initialised with "0". In accordance with the preset polarity, the state of the sunshine and of the presence signal as well as the heating/cooling state will be determined and the corresponding reaction executed provided the automatic sun protection function is active. When the automatic sun protection is active, any change of state of the presence signal or any change in the heating/cooling signal will be evaluated immediately and the corresponding reaction executed.

The schematic function diagram (figure 32) shows all possible functions of the extended sun protection with automatic heating/cooling. For reasons of clarity, the functions with a higher priority (manual control, forced position, safety function) are not shown in the diagram.

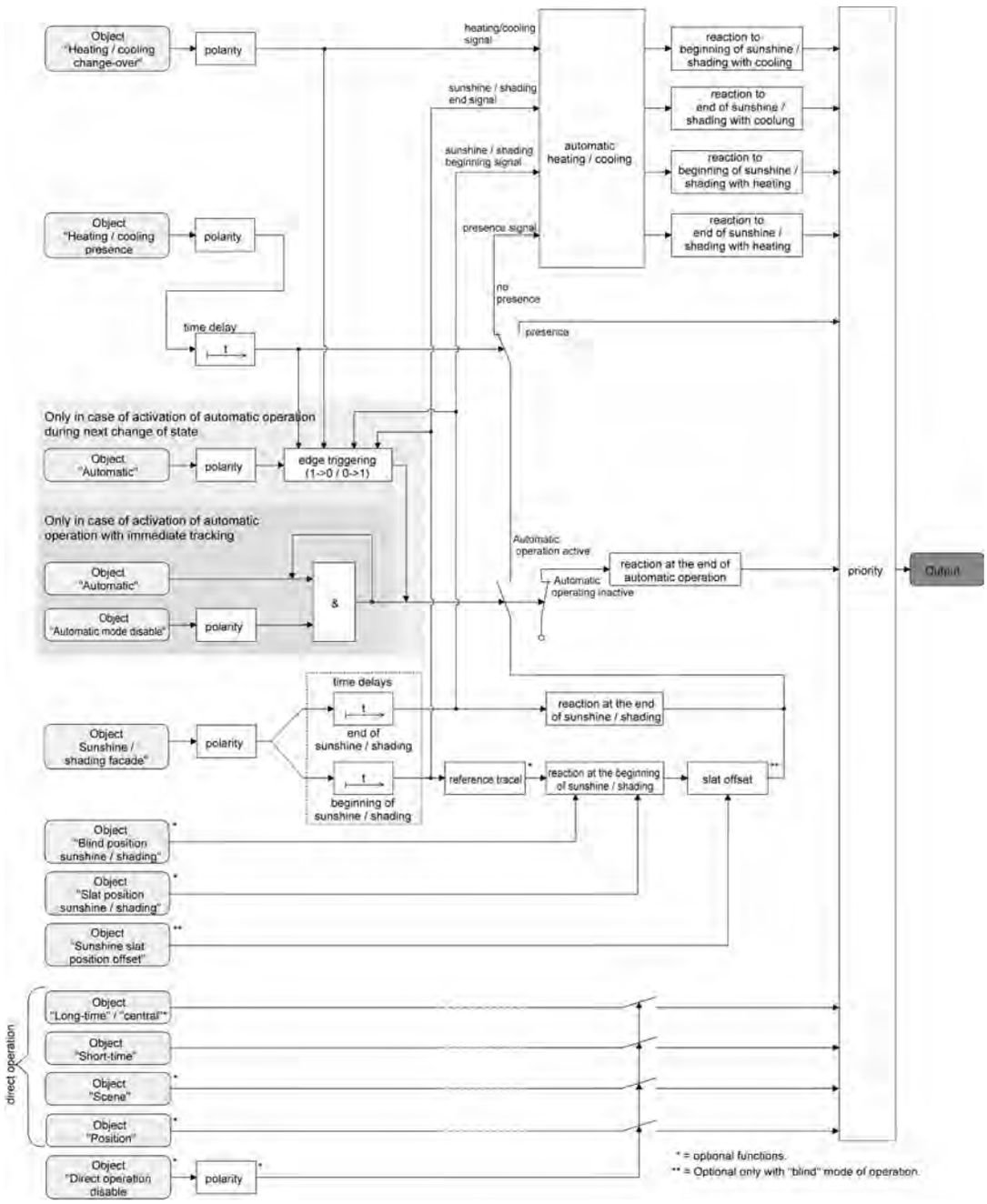

Figure 32: Schematic function diagram of automatic heating/cooling

Enabling automatic heating/cooling

Automatic heating/cooling can be preset separately for each output. When automatic heating/ cooling is enabled, the enlarged sun protection function will be supplemented by the necessary communication objects and parameters.

The sun protection function must be enabled on parameter page "Ax – Enabled functions (x = number of output). Moreover, the function must have been configured for enlarged sun protection.

- Set the parameter "Automatic heating/cooling" on parameter page "Ax – Automatic heating/cooling" to "enabled".

  The automatic heating/cooling function is enabled. The necessary parameters and communication objects are visible.

- Set the parameter "Automatic heating/cooling" on parameter page "Ax – Automatic heating/cooling" to "disabled".

  The automatic heating/cooling function is deactivated. The corresponding parameters and objects are blanked out. Only the enlarged sun protection without evaluation of the heating/ cooling and of the presence signal is now configured.

- If the automatic heating/cooling activation parameters are changed, the group address assignments and the parameter settings are lost. For this reason, the automatic heating/ cooling parameters should be selected directly at the beginning of parameterization and then not be changed anymore later on.

Presetting the polarity of the "Heating/cooling changeover" object

The telegram polarity of the "Heating / cooling changeover" object can be preset separately for each output. This means that an adaptation to the signals from existing room temperature controllers or from outside thermostats is possible.

For the parameters to be visible, automatic heating/cooling must be enabled on parameter page "Ax – Automatic heating/cooling" (x = number of output).

- Set the parameter "Polarity of 'Heating/cooling change-over' object" on parameter page "Ax Sun protection" to the required telegram polarity.

  The heating/cooling signal is evaluated in accordance with the preset priority.

- An update of the "Heating / cooling changeover" object from active to active or from inactive to inactive shows generally no reaction. The behaviour of the output is only influenced if a change of state is being detected.
- After switch-on of the power supply (bus and mains voltage) of the actuator , the heating/ cooling changeover function is initialized with an object value of "0"

Presetting the polarity of the "Heating/cooling presence" object

The telegram polarity of the "Heating / cooling presence" object can be preset separately for each output. This means that an adaptation to the signals from existing KNX/EIB presence monitors or detectors is possible.

For the parameters to be visible, automatic heating/cooling must be enabled on parameter page "Ax – Automatic heating/cooling" (x = number of output).

- Set the parameter "Polarity of 'Heating / cooling presence" object to the required telegram polarity.

  The presence signal is evaluated in accordance with the preset priority.

- An update of the "Heating / cooling presence" object from active to active or from inactive to inactive shows generally no reaction. The behaviour of the output is only influenced if a change of state is being detected.
- After switch-on of the power supply (bus and mains voltage) of the actuator , the heating / cooling / presence control is initialized with an object value of "0".

Presetting a time delay for beginning and end of presence

The telegram received via the object "Heating / cooling presence" for transmission of the presence state (depending on polarity) can be evaluated with a time delay separately for each output.

For the parameters to be visible, automatic heating/cooling must be enabled on parameter page "Ax – Automatic heating/cooling" (x = number of output).

- Set the parameter "Time delay at the beginning of presence" to the required delay time.

  The telegram for activation of the presence mode will be evaluated with a delay corresponding to the setting.
- Set the parameter "Time delay at the end of presence" to the required delay time.

The telegram for deactivation of the presence mode will be evaluated with a delay corresponding to the setting.

- A setting of "0" in the parameters deactivates the respective delay time. In this case, the presence state is evaluated immediately on reception of a telegram.
- An update of the "Heating / cooling presence" object from active to active or from inactive to inactive shows generally no reaction. The behaviour of the output is only influenced if a change of state is being detected. An update of the presence signal alone does not result in the activation of automatic operation either.
- The time delay is started after an update of the "Heating / cooling presence" object also in those cases where the automatic operation is deactivated so that the newly received presence state may possibly also be processed with a delay, if the automatic operation is activated later on.

Presetting the reaction of automatic heating/cooling

The behaviour of the output when automatic heating/cooling is active can be configured separately for each output. By evaluating the three 1-bit signals "Presence", "Heating/cooling changeover" and "Sunshine / shading facade" a distinction is made between four states...

- "Reaction at the **beginning** of sunshine/shading with **heating**"
- Reaction at the **end** of sunshine/shading with **heating**"
- Reaction at the **beginning** of sunshine/shading with **cooling**"
- Reaction at the **end** of sunshine/shading with **cooling**"

The reaction of an output can be set separately in ETS for each of the four states listed. There is no difference between the parameter settings for the individual states. For this reason, the following text describes the possible configuration only in the form of an example.
The reaction at the end of automatic heating/cooling operation is preset on parameter page "Ax Automatic heating/cooling" (x = number of output). Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings ("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver").

For the parameters to be visible, automatic heating/cooling must be enabled on parameter page "Ax – Automatic heating/cooling" (x = number of output).

- Set the parameter "Reaction at the ... of sunshine / shading" to "no reaction".

  During automatic heating/cooling, the relays of the output show no reaction. Any travel movements still in progress will still be finished.
- Set the parameter "Reaction at the ... of sunshine / shading" to "raising" or "opening the louver".

  During automatic heating/cooling, the actuator raises the curtain or opens the venting louver.
- Set the parameter "Reaction at the ... of sunshine / shading" to "lowering" or "closing the louver".

  During automatic heating/cooling, the actuator lowers the curtain or closes the venting louver.
- Set the parameter "Reaction at the ... of sunshine / shading" to "stop".

  During automatic heating/cooling, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
- Set the parameter "Reaction at the ... of sunshine / shading" to "internal scene recall". The number of the scene to be recalled must be specified in the parameter "Scene number (1…8)".

  During automatic heating/cooling, the blind actuator recalls the position value preset in the scene configuration for the output concerned. This is not a scene recall as in direct operation, but only an approach to the corresponding scene position value.
- Set the parameter "Reaction at the ... of sunshine / shading" to "fixed position".

During automatic heating/cooling, the blind actuator recalls a fixed position value for the output concerned.

- In the "Blind" mode of operation, the setting "fixed position" can only be selected in common for the height of the blind and for the slat position.

- "Fixed position" only: Set the parameter "Fixed position of blind", "Fixed position of shutter/awning" or "Fixed position of venting louver" to "as specified by parameter". Thereafter, set the parameter "Position of blind (0…100%)", "Position of shutter/awning (0…100%)" or "Position of venting louver (0…100%)" to the desired position.

  During automatic heating/cooling, the output invariably approaches the parameterized position value.
- "Fixed position" only: Set the parameter "Fixed position of blind", "Fixed position of shutter/awning" or "Fixed position of venting louver" to "no change of current position".

  During automatic heating/cooling, the position the last adjusted of the blind, of the shutter, of the awning or of the venting louver will be maintained.
- "Fixed position" and mode of operation = "blind" only: Set the parameter "Fixed slat position (0…100%)" to the desired position value".

  During automatic heating/cooling, the output invariably moves the slats to the parameterized position after the height of the blind has been adjusted.

- The parameterized reactions will not be executed if a function with a higher priority is active during automatic heating/cooling (e.g. safety function, forced position or manual control). The preset reaction will not be executed either, if the automatic sun protection is overridden on account of priority settings by a direct operation.
- "Internal scene recall" setting: For this setting, the scene function of the output must be enabled in the ETS. Otherwise, the positions approached during automatic heating/cooling are undefined positions. The scene position values stored in the actuator by a scene storage function will be approached as well. A delay configured for scene recalls has no influence on the recall of the scene value by the automatic heating/cooling function.

Scene function (with 4/8-channel device variant only available with ETS3.0d and higher).

An actuator can hold up to 8 scenes for each output and store scene position values for the height of a blind, shutter or awning or the position of a venting louver. In the 'Blind' mode, the user can also preset slat positions. The scene values are recalled or stored via a separate scene extension object by means of extension telegrams. A scene recall can optionally also be delayed.
The datapoint type of the extension object permits addressing of up to 64 scenes max. Therefore the parameter settings of a scene can be used to define the scene number (1...64) which is used to address the internal scene (1...8).

For the necessary communication objects and parameters
(on the "Ax Scenes" parameter page) to be displayed, the scene function must be enabled for each output on parameter page "Ax – Enabled functions (x = number of output).

The scene function must be assigned to direct operation via short-time, long-time, central or position telegrams, as for control of the output. For this reason, a recalled scene position can at any time be overridden by a manual control, a forced position or a safety function. The scene position last recalled can also be readjusted by other telegrams of the direct operation mode. The priority of direct operation and also of the scene function can be parameterized with respect to the sun protection function (cf. "Sun protection function").

Presetting a scene recall delay for the scene function

Each scene recall of an output can optionally also be delayed. With this feature, dynamical scene sequences can be configured if several outputs are combined with cyclical scene telegrams.

The scene function must be enabled on parameter page
"Ax – Enabled functions (x = number of output).

- Set the parameter "Delay scene recall?" on parameter page "Ax – Scenes" to "yes".

  The delay time is now activated and can be parameterized separately. The delay only influences the scene recall of the output. The delay time is started on arrival of a recall telegram. The corresponding scene will be recalled and the output set to the respective scene position value only after this time has elapsed.

- Each scene recall telegram restarts the delay time and retriggers it. If a new scene recall telegram is received while a delay is active (scene recall not yet executed), the old (and not yet recalled scene) will be rejected and only the scene last received executed.
- The scene recall delay has no influence on the storage of scene values. A scene storage telegram within a scene recall delay terminates the delay and thus the scene recall.
- In case of bus voltage failure, all time functions will be stopped. Therefore, all scene recalls that are still in the delay stage will be aborted. A scene recall received shortly before bus voltage failure is then lost, if the corresponding delay has not yet elapsed. A delayed scene recall will also be aborted, if a function with a higher priority (manual control, forced position, safety, sun protection, if the priority is the same as or higher than that of direct operation) is activated. The scene recall is nevertheless stored internally so that the scene positions last recalled can be tracked at the end of a higher-ranking function.

Presetting the ETS download behaviour for the scene function

During storage of a scene, the scene values are stored permanently in the device (cf. "Presetting the storage behaviour for scene functions"). To prevent the stored values from being replaced during ETS programming of the application or of the parameters by the originally programmed scene position values, the actuator can inhibit overwriting of the scene values. As an alternative, the original values can be reloaded into the device during each programming run of the ETS.

The scene function must be enabled on parameter page
"Ax – Enabled functions (x = number of output).

- Set the parameter "Overwrite the values stored in the device during an ETS download ?" on parameter page "Ax – Scenes" to "Yes".

  During each ETS programming of the application or of the parameters, the scene values parameterized in the ETS for the output concerned will be programmed into the actuator. Scene values stored in the device by means of a storage function will be overwritten, if any.
- Set the parameter "Overwrite the stored values in the device during an ETS download ?" on parameter page "Ax – Scenes" to "No".

  Scene values stored in the device with a storage function will be maintained. If no scene values have been stored, the position values last programmed in the ETS remain valid.

- When the actuator is put into operation for the first time, this parameter should be set to "yes" so that the output is initialized with valid scene values. In the blind actuator as delivered, the scene positions are internally set to default values as in the ETS product database.

Presetting scene numbers

The datapoint type of the scene extension object permits addressing of up to 64 scenes max. For this reason, the scene number (1...8) with which the scene is addressed, i.e. recalled or stored, must be determined for each internal scene (1...64) of the output.

The scene function must be enabled on parameter page
"Ax – Enabled functions (x = number of output).

- Set the parameter "Scene y activatable by scene number" (y = number of the scene (1…8)) on parameter page "Ax – Scenes" for each scene to the numbers with which the scenes are to be addressed.

  A scene can be addressed with the parameterized scene number. A setting of "0" deactivates the corresponding scene so that neither recalling nor storage is possible.

- If the same scene number is parameterized for several scenes, only the scene with the lowest internal scene number (1...8) will be addressed. The other internal scenes will be ignored in this case.

Presetting scene positions

Moreover, the position value (blind, shutter, awning, venting louver position) to be set for the output in case of a scene recall must be specified as well. In the "Blind" mode, the height of the blind and the slat position can be preset.

The scene function must be enabled on parameter page
"Ax – Enabled functions (x = number of output).

- Set the parameter "Position ... for scene y" (y = number of the scene (1…8) on parameter page "Ax – Scenes" for each scene to the desired position (0 %...100 %).

  In case of a scene recall, the output is set to the parameterized position.

- The parameterized position values are adopted in the actuator during programming with the ETS only if the parameter
  "Overwrite values stored in the device during an ETS download ?" is set to "yes".
- Before approaching the required scene position, the blind actuator performs a reference travel, if the current position data are unknown (e.g. after an ETS programming operation or after switch-on of the supply voltage).

Presetting the storage behaviour for the scene function

The current position value of a blind, shutter, awning, venting louver and also of a slat can be stored internally via the extension object on reception of a scene storage telegram. The position value can be influenced before storage by all functions of the output (e.g. short-time and long-time operation, central or scene recall telegram, safety and sun protection function and manual control).

The scene function must be enabled on parameter page
"Ax – Enabled functions (x = number of output).

- Set the parameter "Storage function for scene y" (y = number of the scene (1…8) on parameter page "Ax – Scenes" for each scene to "yes".

  The storage function is activated for the scene in question. On reception of a storage telegram via the "Scene extension" object, the current position value will be internally stored.
- Set the parameter "Storage function for scene y" (y = number of the scene (1…8) on parameter page "Ax – Scenes" for each scene to "no".

  The storage function is deactivated for the scene in question. A storage telegram received via the "scene extension" object will be rejected.

- The following rules apply for the position data to be stored:
  The current curtain, slat and louver positions are stored. With blinds, the height to be stored is always referred to a slat position of 100 %. Positions temporarily approached will be stored also for those outputs that are involved in a travel movement at the time of data storage.
  On account of the fact that position data are stored as integer percentage values (rounding to 0...100), a minor deviation from the positions reported back later during scene recall cannot be avoided.
  The data are stored only if the mains voltage has been available before without interruption for at least 20 seconds after the last reset (storage capacitors sufficiently charged for storage purposes). The data will not be stored, if the position data are unknown.

Forced-position function (with 4/8-channel device variant only available with ETS3.0d and higher)

The forced position function can be enabled for blind output. The forced position has the second highest priority after manual control. It therefore overrides the safety function, the sun protection function and the direct operation (short-time, long-time telegram, scenes, positioning , central). During a forced-position state, the output concerned is locked so that it can no longer be controlled with functions of a lower priority, but only with a manual control. At the end of a manual control, the forced-position action is re-executed if the forced position is still active.

The forced position function has a separate 2-bit communication object for each output. The state of the output in case of a forced position function is directly determined by the forced-position telegram. The first bit (bit 0) of the "Forced position" object specifies the travel direction to be forced onto the output as in long-time operation. The second bit (bit 1) activates or deactivates the forced-position state (cf. following table).

Bit 1	Bit 0	Function
0	x	Forced position not active normal control
0	x	Forced position not active normal control
1	0	Forced position active, raising / opening the louver
1	1	Forced position active, lowering / closing the louver

Bit coding of forced position

The behaviour of an output at the end of the forced-position function can be parameterized. The forced-position object can moreover be initialized on return of bus voltage. A mains failure alone (bus voltage present) has no effect on the state of the forced-position object. In case of a return of only the mains voltage, a previously activated forced position remains active.

- The forced-position travel time required by an output to move the drive into the end positions is determined by the "Travel time" parameter on
  parameter page "Ax - Time settings" or by the travel time learnt in case of automatic end position detection. Like the long-time operation, a forced-position travel is derived from the travel time. Downward travel: travel time + 20 %; Upward travel: travel time + 20 % + parameterized or taught-in travel time extension. Forced-position travels are not retriggerable.
- The slats of blinds are not repositioned at the end of forced-position travels into the end positions.
- Updates of the forced position object from "forced position active" to "forced position active" while maintaining the forced travel direction or from "forced position inactive" to "forced position inactive" show no reaction.
- After programming of the application or of the parameters with the ETS, the forced position is always cancelled.

- The forced position function remains active even after a bus voltage failure as long as the mains voltage supply is still on. The forced position function will therefore be executed again at the end of a temporary or permanent manual control – if enabled in case of bus failure – even if there is no bus voltage.
- The current state of the forced position function will be stored in case of bus or mains voltage failure.

Enabling the forced position function

The forced position function can be enabled separately for each output.

- Set the parameter "Forced position function" on parameter page "Ax - Enabled functions" (x = number of output) to "enabled".

  The forced position function is enabled. The corresponding communication object is created and the respective parameters on parameter page "Ax – Forced position" become visible.

Presetting the behaviour at the end of the forced position function

The behaviour of an output at the end of the forced-position function can be parameterized depending on the channel. The behaviour is parameterized on parameter page "Ax – Forced position" (x = number of output).

The forced position function of an output must be enabled on parameter page "Ax – Enabled functions (x = number of output). Only then are the channel-related parameters for the forced position function visible.

- Set the parameter "Behaviour at the end of the forced position function" to "position tracking".

  At the end of a forced position function, the output will be set to the state adjusted statically before the forced position function or to the state tracked and internally stored during the forced position function. The position objects, the long-time object and the scene function are tracked.
- Set the parameter "Behaviour at the end of the forced position function" to "no change".

  At the end of forced position function, the state last adjusted will not be changed. Thereafter, the output is again enabled. Any travel movements still in progress at this instant will still be finished.

- Parameter setting "Position tracking": The blind actuator can track absolute positions (position telegram, scene value) during activated forced control only if the position data are known and if positions have been predefined. If this is not the case, no reaction takes place at the time forced control is enabled.
  Position data can be tracked, if the output has been in a defined position before the forced position function or if a new position telegram has been received via the position objects while the forced position function was interlocked. In the latter case, a reference travel will be executed when the forced position function is enabled, if the position was unknown before or during the safety interlock.
  Known slat positions will also be tracked as described. This is also the case, when the height of the blind is unknown.
  Long-time travel movements (travels without position preset) will, however, always be tracked.
- The preset "Behaviour at the end of the forced position function" will only be executed, if the output passes over to direct operation at the end of the forced position function. If a safety function or a sun protection function is activated (independent of the preset priority with respect to direct operation), the function with the next lower priority will be executed. The parameterized behaviour will not be executed either if the forced position function is terminated by a preset on return of bus voltage. In this case, the preset "Behaviour after bus/mains voltage return" will be executed.

Presetting the behaviour of the forced position function after bus voltage return

The communication object of the forced position function can be initialized after bus voltage return. In this way, an output can be influenced and interlocked on bus initialization when the forced position function is being activated.
A mains failure alone has no effect on the forced position. In case of a return of only the mains voltage, a previously activated forced position remains active.
The behaviour after bus voltage return for the forced position function is parameterized separately for each output on the parameter pages
"Ax – Forced position" (x = number of output).
Depending on the selected mode of operation, the ETS adapts the designations of the parameter settings ("raising" ↔ "opening the louver" / "lowering" ↔ "closing the louver").
The parameterized state can be adopted into the "Forced position" communication object after bus return.

The forced position function of an output must be enabled on parameter page "Ax – Enabled functions (x = number of output). Only then are the channel-related parameters for the forced position function visible.

- Set the parameter "Behaviour after bus voltage return" to "no forced position active".

  After bus voltage return, the forced position function is deactivated. In this case, the preset "Behaviour after bus/mains voltage return" will be executed on return of bus voltage.
- Set the parameter "Behaviour after bus voltage return" to
  "forced position function ON, raising" or "forced position function ON, opening the louver".

  The forced position function is activated after bus voltage return and the curtain raised or the venting louver opened by forced control. The output concerned is interlocked by forced control until an enable signal is received via the bus. The parameter
  "Behaviour after bus voltage return" will in this case not be evaluated for the output concerned.
- Set the parameter "Behaviour after bus voltage return" to
  "forced position function ON, lowering" or "forced position function ON, closing the louver".

  The forced position function is activated after bus voltage return and the curtain raised or the venting louver opened by forcing. The output concerned is interlocked by forced control until an enable signal is received via the bus. The parameter
  "Behaviour after bus voltage return" will in this case not be evaluated for the output concerned.
- Set the parameter "Behaviour after bus voltage return" to
  "state of forced position before bus/mains failure".

  After bus voltage return, the forced-position state last selected and internally stored before bus or mains voltage failure will be tracked. An ETS programming operation deletes the stored state (reaction in that case same as with "no forced position active"). If the tracked state corresponds to "no forced position active", the parameter
  "Behaviour after bus/mains voltage return" will be executed on return of bus voltage.

- Setting or tracked state "no forced position active": The reaction of the output concerned after return of bus voltage is defined by the parameter
  "Behaviour after bus/mains voltage return".
- After programming of the application or of the parameters with the ETS, the forced position is always cancelled.

'Fabric-stretching' function

In the shutter/awning mode of operation, the Fabric-stretching function can be activated. The Fabric-stretching function permits stretching the fabric of an awning tight after lowering. The fabric-stretching function can also be used with shutters to re-open the slits of the shutter curtain after a downward movement into the lower end position.

If activated in the ETS parameters, fabric stretching is executed during each downward travel after stopping and after the parameterized changeover delay has elapsed. The curtain is then 'stretched' by moving briefly into the opposite travel direction (figure 33).

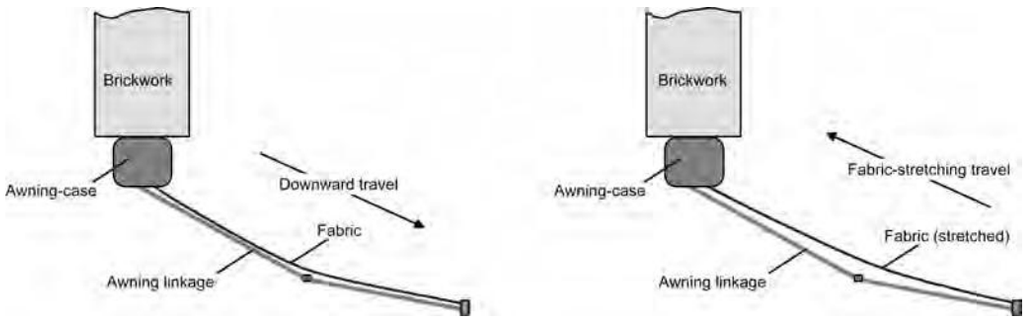

Figure 33: Fabric-stretching in an awning

The downward travel can be triggered by any of the following events: Long-time, short-time or position telegram, forced position, safety or sun protection function, central telegram or scene recall and also the manual control.

Sheet- stretching is never effected in upward travel movements.

- Fabric stretching affects the determination of positions and the position feedback since a fabric-stretching movement changes the position of a shutter or an awning. In a positioning move into the lower end position (100 %), the position value reported back after the fabric-stretching operation will always be a smaller one.
- Fabric-stretching cannot be parameterized in the blind or louver modes of operation.

Activating the fabric-stretching function

The fabric-stretching function can be activated independently for each shutter or awning output on parameter page "Ax – Enabled functions" (x = number of output).

The mode of operation selected must be the "Shutter/awning" mode.

o Set the parameter "Fabric-stretching function" to "enabled".

  Parameter page "Ax – Fabric-stretching" is enabled and the fabric-stretching function is activated.

- Fabric-stretching cannot be parameterized in the blind or louver modes of operation.

Presetting the fabric-stretching function

The fabric-stretching function can be parameterized independently for each shutter or awning output on parameter page "Ax – Fabric-stretching" (x = number of output). The travel time required for fabric stretching by means of a movement in opposite direction can be parameterized.

The fabric-stretching function must be activated.

o Select the desired value for the "Time for fabric-stretching" parameter.

  After the end of a downward travel the curtain stops and – after elapsing of the changeover delay – moves backwards in opposite direction for a period corresponding to the parameterized fabric-stretching time.

- The time for fabric stretching must be selected shorter than the parameterized or measured travel time of the shutter or awning. Otherwise, risk of malfunction.
- Fabric stretching will only be effected if the downward movement lasts longer than the parameterized fabric-stretching time.

4.2.4.3 Delivery state

In the as-delivered state, the actuator is passive, i.e. no telegrams are transmitted to the bus. The outputs can, however, be operated by manual control on the device, if the mains voltage is on. In the manual control mode, no feedback telegrams are sent to the bus. Other functions of the actuator are deactivated.

The device can be programmed and put into operation via the ETS. The physical address is preset to 15.15.255.

Moreover the device has been configured at the factory with the following characteristics...

- Venetian blind actuator 1/2-channel REG: 2-channel operation (230 V)
  Venetian blind actuator 2/4-channel REG: 4-channel operation (230 V)
  Venetian blind actuator 4/8-channel REG: 8-channel operation (230 V)
- No automatic end position detection
- Movement time (continuous run): 20 minutes
- Movement time extension: 2 %
- Break during movement direction changeover: 1 s
- Behaviour in case of bus voltage failure: no reaction
- Behaviour on bus or mains voltage return: Stop

4.2.5 Parameters

Description	Values	Comment
hGeneral		
Channel definition	**Two-channel (2 x 230 V AC)** One-channel (1 x 24 V DC)	This parameter defines how the channels are used. If 230 V AC drives are used, the device must be configured for 2-channel operation. Alternatively, the actuator must be set 1-channel operation when controlling a 12...48 V DC drive. ▪ This parameter is only visible with the Venetian blind actuator 1/2-channel REG!
Channel definition	**four-channel (4 x 230 V AC)** two-channel (2 x 24 V DC)	This parameter defines how the channels are used. If 230 V AC drives are used, the device must be parameterized for 4-channel operation. Alternatively, the actuator must be set to 2-channel operation, if 12...48 V DC drives are used. ▪ This parameter is only visible in blind actuator 2/4-channel REG!
Channel definition	**eight-channel (8 x 230 V AC)** four-channel (4 x 24 V DC)	This parameter defines how the channels are used. If 230 V AC drives are used, the device must be parameterized for 8-channel operation. Alternatively, the actuator must be set to 12-channel operation, if 48...2 V DC drives are used. ▪ This parameter is only visible in blind actuator 4/8-channel REG!
Delay after bus voltage return Minutes (0...59)	**0**...59	To reduce telegram traffic on the bus line after bus voltage activation (bus reset), after connection of the device to the bus line or after programming with the ETS, it is possible to delay all active feedback telegrams of the actuator. The parameter specifies in this case a delay valid for all devices. Only after the time configured here has elapsed are feedback telegrams for initialisation transmitted to the bus. Setting the delay time minutes.
Seconds (0...59)	0...**17**…59	Setting the delay time seconds.
Central function ?	Yes **No**	Setting "yes" enables the central function and thus the "Central travel control" object. Individual blind outputs can be assigned to the central function only if the function is enabled.
Central object polarity		

	0 = UP; 1 = DOWN **0 = DOWN; 1 = UP**	This parameter defines the polarity of the central object.
hSafety		
Safety functions	**disabled** enabled	If it is intended to make use of the 5 safety functions of the actuator and to parameterize them, the function must be enabled for all channels (setting "enabled"). If the safety functions are deactivated (setting: "disabled"), any programmed assignment of individual blind outputs to safety monitoring functions is not operational.
Wind alarm 1	**disabled** enabled	This parameter can be used to enable the first wind alarm and thus to enable the communication object (setting: "enabled"). If the first wind alarm is deactivated (setting: "disabled"), any programmed assignment of individual blind outputs to wind alarm 1 is not operational.
Wind alarm 2	**disabled** enabled	This parameter can be used to enable the second wind alarm and thus to enable the communication object (setting: "enabled"). If the first wind alarm is deactivated (setting: "disabled"), any programmed assignment of individual blind outputs to wind alarm 2 is not operational.
Wind alarm 3	**disabled** enabled	This parameter can be used to enable the third wind alarm and thus to enable the communication object (setting: "enabled"). If the third wind alarm is deactivated (setting: "disabled"), any programmed assignment of individual blind outputs to wind alarm 3 is not operational.
Rain alarm	**disabled** enabled	This parameter can be used to enable the rain alarm and thus to enable the communication object (setting: "enabled"). If the rain alarm is deactivated (setting: "disabled"), any programmed assignment of individual blind outputs to the rain alarm is not operational.
Frost alarm	**disabled** enabled	This parameter can be used to enable the frost alarm and thus to enable the communication object (setting: "enabled"). If the frost alarm is deactivated (setting: "disabled"), any programmed assignment of individual blind outputs to the frost alarm is not operational.
Priority of safety alarms	**wind -> rain -> frost** wind -> frost -> rain rain -> wind -> frost rain -> frost -> wind	This parameter defines the priority ranking of the individual safety alarms. Interpretation: high -> medium -> low.

	frost -> rain -> wind frost -> wind -> rain	▪ The three wind alarms have the same priority with respect to one another. ▪ The safety alarm enabling parameters and the priority parameter is only visible when the safety functions are enabled.
hSafety times		
Use wind alarm monitoring function ? (only if wind alarms are enabled!)	Yes **No**	If the wind alarms enabled under "Safety" are to be monitored cyclically for incoming telegrams to the safety objects, the monitoring function must be enabled here (setting: "yes"). In the opposite case (setting: "no"), the objects are not monitored cyclically. ▪ As soon as the monitoring function is activated, telegrams must be transmitted cyclically to all enabled wind alarm objects. ▪ The monitoring function may only be activated, if at least one wind alarm has been activated under "Safety".
Time for monitoring wind alarm Hours (0...23)	**0**...23	This parameter is used for programming the wind alarm monitoring time. Sets the monitoring time hours.
Minutes (1...59)	1...**25**...59	Sets the monitoring time minutes. *Presetting: 25 minutes* ▪ The cycle time of the transmitter should be less than half the parameterized monitoring time of the actuator. ▪ The times can only be set, if wind alarm monitoring is activated.
Use rain alarm monitoring function ?	Yes **No**	If the rain alarm enabled under "Safety" is to be monitored cyclically for incoming telegrams to the safety object, the monitoring function must be enabled here (setting: "yes"). In the opposite case (setting: "no"), the object is not monitored cyclically. ▪ As soon as the monitoring function is activated, telegrams must be transmitted cyclically to the enabled rain alarm object. ▪ The parameter is only visible, if the rain alarm has been enabled under "Safety".
Time for monitoring rain alarm Hours (0...23)	**0**...23	This parameter is used for programming the rain alarm monitoring time. Sets the monitoring time hours.
Minutes (1...59)	1...**2**...59	Sets the monitoring time minutes.

		Presetting: 2 minutes ▪ The cycle time of the transmitter should be less than half the parameterized monitoring time of the actuator. ▪ The times can only be set, if rain alarm monitoring is activated.
Use frost alarm monitoring function ?	Yes **No**	If the frost alarm enabled under "Safety" is to be monitored cyclically for incoming telegrams to the safety object, the monitoring function must be enabled here (setting: "yes"). In the opposite case (setting: "no"), the object is not monitored cyclically. ▪ As soon as the monitoring function is activated, telegrams must be transmitted cyclically to the enabled frost alarm object. ▪ The parameter is only visible, if the frost alarm has been enabled under "Safety".
Time for monitoring frost alarm Hours (0...23)	**0**...23	This parameter is used for programming the frost alarm monitoring time. Sets the monitoring time hours.
Minutes (1...59)	1...**2**...59	Sets the monitoring time minutes. *Presetting: 2 minutes* ▪ The cycle time of the transmitter should be less than half the parameterized monitoring time of the actuator. ▪ The times can only be set, if frost alarm monitoring is activated.
hManual control		
Manual control in case of bus voltage failure	Disabled **Enabled**	This parameter can be used for programming whether manual control is to be possible (enabled) or deactivated in case of bus voltage failure.
Manual control during bus operation	Disabled **Enabled**	This parameter can be used for programming whether manual control is to be possible (enabled) or deactivated during bus operation (bus voltage on).
Disabling function ?	Yes **No**	Manual control can be disabled via the bus, even if it is already active. For this purpose, the disabling object can be enabled here.
Polarity of disable object	**0 = enabled; 1 = disabled** 0 = disabled; 1 = enabled	This parameter sets the polarity of the disabling object. ▪ Only visible if the disabling function for manual control is enabled.
Transmit status ?	Yes **No**	The current state of manual control can be transmitted to the bus via a separate

		status object, if bus voltage is available (setting: "Yes").
Status object function and polarity		This parameter defines the information contained in the status object. The object is always "0", when the manual control mode is deactivated.
	0 = inactive; 1 = manual control active	The object is "1" when the manual control mode is active (temporary or permanent).
	0 = inactive; 1 = permanent manual control active	The object is "1" only when the permanent manual control is active. ▪ This parameter is visible only if the manual control status transmission is enabled. ▪ After bus voltage return, the status will only be transmitted actively to the bus ("0") if a manual control was ended by the bus return.
Behaviour at the end of permanent manual control during bus operation		The behaviour of the actuator at the end of permanent manual control depends on this parameter.
	No change	All telegrams received during an active permanent manual control mode for direct operation (long-time/short-time, positioning, scenes) are be rejected. After the end of the permanent manual control mode, the current state of all outputs remains unchanged. If, however, a function with a higher priority is being activated during manual control (safety, forced position, sun protection), the actuator activates the higher-ranking function for the corresponding outputs.
	output tracking	During an active permanent manual control all incoming telegrams (short-time telegrams excepted) are internally tracked. At the end of manual control, the outputs are adjusted accordingly.
Disable bus control of individual outputs during bus operation	Yes **No**	Individual outputs can be disabled locally during permanent manual control, so that the disabled outputs can no longer be controlled via the bus. Disabling via manual control is only permitted if this parameter is set to "Yes".

hAx – General
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs. / All outputs can be parameterized independently).

Mode of operation (to be adjusted first!)	**blind** shutter / awning venting louver	The blind actuator can be used to control different drive systems. This parameter defines which type of drive or which type of curtain is connected to the output.

- The ETS adapts all of the following parameters (designations, visible/ non visible, etc.) dynamically to the respective "mode of operation" parameter. For this reason, the "Mode of operation" parameter should be adjusted before all other parameters of an output.

Behaviour after ETS programming

The actuator permits setting the preferred relay contact position after ETS programming separately for each output.

Raising / opening the louvre

After programming with the ETS, the actuator raises the blind or opens the venting louvre.

Lowering / closing the louvre

After programming with the ETS, the actuator lowers the blind or closes the venting louvre.

Stop

After programming with the ETS, the actuator switches the relays of the output to the "stop" position. A drive movement, if any, will be interrupted.

- The configured behaviour will be executed after every application or parameter download by the ETS. A simple download of the physical address alone or partial programming of only the group addresses has the effect that this parameter is disregarded and that the configured "Behaviour after bus/mains voltage-return" will be executed instead.

Behaviour in case of bus voltage failure

The actuator permits setting the preferred relay contact position in case of bus voltage failure separately for each output.

Stop

In case of bus voltage failure, the actuator switches the relays of the output to the "stop" position. A drive movement, if any, will be interrupted.

Raising / opening the louvre

After bus voltage failure, the actuator raises the blind or opens the venting louvre.

Lowering / closing the louvre

After bus voltage failure, the actuator lowers the blind or closes the venting louvre.

Approaching a position

In case of bus voltage failure, the connected drive can approach a position specified by further parameters.

No reaction

In the event of bus voltage failure, the relay of the output shows no reaction. Any drive movements still in progress at the time of failure will be completely finished.

		▪ The configured behaviour will only be executed, if no manual control is activated.
Position of Venetian blind in case of bus voltage failure (0...100%)	**0**...100	This parameter specifies the Venetian blind position to be approached in case of bus voltage failure. ▪ This parameter is only visible, if "Behaviour in case of bus voltage failure" is set to "approach position". ▪ This parameter is only visible in the Venetian blind operating mode.
Position of slat in case of bus voltage failure (0...100%)	**0**...100	This parameter specifies the slat position to be approached in case of bus voltage failure after the Venetian blind has been positioned at the desired height. ▪ This parameter is only visible, if "Behaviour in case of bus voltage failure" is set to "approach position". ▪ This parameter is only visible in the Venetian blind operating mode.
Position of roller shutter/ awning in case of bus voltage failure (0...100%)	**0**...100	This parameter specifies the roller shutter or awning position to be approached in case of bus voltage failure. ▪ This parameter is only visible, if "Behaviour in case of bus voltage failure" is set to "approach position". ▪ This parameter is only visible in the roller shutter/awning operating mode.
Position of venting louvre in case of bus voltage failure (0...100%)	**0**...100	This parameter specifies the venting louvre position to be approached in case of bus voltage failure. ▪ This parameter is only visible, if "Behaviour in case of bus voltage failure" is set to "approach position". ▪ This parameter is visible only in the 'Venting louvre' operating mode.
Behaviour after bus or mains voltage return		The actuator permits setting the preferred relay contact position after mains voltage return separately for each output. This means that the configured behaviour is executed when either the bus or the mains voltage is switched on again.
	Stop	In case of bus or mains voltage return, the actuator switches the relays of the output to the "stop" position. A drive movement, if any, will be interrupted.
	Raising / opening the louvre	After bus or mains voltage return, the actuator raises the curtain or opens the venting louvre.

	Lowering / closing the louvre	After bus or mains voltage return, the actuator lowers the curtain or closes the venting louvre.
	Position during bus/mains failure	After bus or mains voltage return, the state last existing and internally stored before bus or mains voltage failure will be tracked.
	Approaching a position	On bus or mains voltage return, the connected drive can travel to a position specified by other parameters.
	No reaction	In the event of bus or mains voltage return, the relay of the output shows no reaction. Any drive movements still in progress at the time of failure will be completely finished. The reactions active at the time of mains failure are re-executed on return of the mains supply. Interrupted short or long time travel movements are restarted at full length and position approaches are continued from the point of interruption. ▪ The configured behaviour will only be executed, if no forced position on bus voltage return is activated.
Venetian blind position on bus/mains voltage return (0...100%)	**0**...100	This parameter specifies the Venetian blind position to be approached in case of bus or mains voltage return. ▪ This parameter is only visible, if "Behaviour in case of bus or mains-voltage return" is set to "approach position". ▪ This parameter is only visible in the Venetian blind operating mode.
Slat position on bus/ mains voltage return (0...100%)	**0**...100	This parameter specifies the slat position to be approached in case of bus or mains voltage return after the Venetian blind has been positioned at the desired height. ▪ This parameter is only visible, if "Behaviour in case of bus or mains-voltage return" is set to "approach position". ▪ This parameter is only visible in the Venetian blind operating mode.
Roller shutter/awning position on bus/mains voltage return (0...100%)	**0**...100	This parameter specifies the roller shutter or awning position to be approached in case of bus or mains voltage return. ▪ This parameter is only visible, if "Behaviour in case of bus or mains-voltage return" is set to "approach position". ▪ This parameter is only visible in the roller shutter/awning operating mode.

Position of venting louvre on return of bus/ mains voltage (0...100%)	**0**...100	This parameter specifies the venting louvre position to be approached in case of bus or mains voltage return. ▪ This parameter is only visible, if "Behaviour in case of bus or mains-voltage return" is set to "approach position". ▪ This parameter is visible only in the 'Venting louvre' operating mode.
Travelling time extension for upward travel	**2 %** 3 % 4 % 5 % 6 % 7 % 8 % 9 % 10 % 12.5 %	The blind actuator prolongs all upward movements or venting louver movements into the open position based on the time extension specified in this parameter. The time extension expressed in percent is the difference between the measured travel time needed to reach the lower end position (completely closed position) and the time needed to reach the upper end position (completely open position). ▪ This parameter is only visible, when the automatic end position detection is not deactivated.

h"Ax - Time settings"
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs. / All outputs can be parameterized independently).

Automatic end position detection ?	Yes **No**	This parameter specifies whether the travel time of the curtain or of the venting louver is determined automatically by the actuator (detection of the end positions of the drive) or specified as a fixed value in a parameter.
Short time operation		This parameter can be used to configure the reaction to a received short time telegram.
	No (only stop)	The drive will only be stopped if it is executing a movement at the time of telegram reception. There is no reaction if no movement is in progress.
	Yes	Short-time operation is started on reception of a short-time telegram when the drive is stationary. If the drive is in motion at the time of telegram reception, it will be stopped.
Time for short time operation Seconds (0...59)	0…**2**...59	This parameter defines the duration of short-time operation. Sets the monitoring time seconds.
Milliseconds (0...99 x 10)	**0**...99	Sets the monitoring time milliseconds. *Presetting: 2 seconds* ▪ The duration of short time operation should in no case exceed half the slat adjusting time.

		▪ This parameter is only visible, if the parameter "Short time operation" is set to "yes".
Blind travelling time Minutes (0...19)	0...**1**...19	This parameter defines the travelling time of the blind. The time needed for a complete travel from the upper into the lower end position must be determined. Sets the minutes of the blind travelling time.
Seconds (0...59)	0...**40**...59	Sets the seconds of the blind travelling time. *Presetting: 40 seconds* ▪ The travelling time must be determined precisely. ▪ The travelling time parameters are only visible when the automatic end position detection is not enabled. ▪ These parameters are visible only in the 'Blind' mode of operation.
Shutter/awning travelling time Minutes (0...19)	0...**1**...19	This parameter defines the travelling time of the shutter or awning. The time needed for a complete travel from the upper into the lower end position must be determined. Sets the minutes of the shutter or awning travelling time.
Seconds (0...59)	0...**40**...59	Sets the seconds of the shutter or awning travelling time. *Presetting: 40 seconds* ▪ The travelling time must be determined precisely. ▪ The travelling time parameters are only visible when the automatic end position detection is not enabled. ▪ These parameters are visible only in the 'Shutter/awning' mode of operation.
Venting louver travelling time Minutes (0...19)	0...**1**...19	This parameter defines the travelling time of the venting louver. The time needed for a complete travel from the completely open into the completely closed position must be determined. Sets the minutes of the venting louver travelling time.
Seconds (0...59)	0...**40**...59	Sets the seconds of the venting louver travelling time. *Presetting: 40 seconds* ▪ The travelling time must be determined precisely.

- The travelling time parameters are only visible when the automatic end position detection is not enabled.
- These parameters are visible only in the 'Venting louver' mode of operation.

Slat moving time Minutes (0...19)	**0**...19	This parameter defines the travelling time of the slats. The time needed for a complete travel movement from the completely open slat position into the completely closed slat position (downward direction) must be determined. Sets the minutes of the slat moving time.
Seconds (0...59)	0...**5**...59	Sets the seconds of the slat moving time. *Presetting: 5 seconds*

- The travelling time must be determined precisely.
- The slat moving time must be selected shorter than the blind travelling time.
- These parameters are visible only in the 'Blind' mode of operation.

Change-over time for travel direction changes	1.5 s **1 s** 2 s 5 s	Defines the break during a change of travel direction (change-over time).

hAx – Enabled functions
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs. / All outputs can be parameterized independently).

Feedback functions	**disabled** enabled	This parameter can be used to disable or to enable the feedback functions. When the function is enabled, the required parameters will be displayed under "Ax –Feedbacks".
Safety functions	**disabled** enabled	This parameter can be used disable or to enable the safety functions. When the function is enabled, the required parameters will be displayed under "Ax –Safety".
Sun protection functions	**disabled** enabled	This parameter can be used disable or to enable the sun protection functions. When the function is enabled, the corresponding parameters will be displayed under "Ax - Sun protection" (3 parameter nodes) and the necessary objects enabled.
Scene function	**disabled** enabled	This parameter can be used disable or to enable the scene function. When the function is enabled, the corresponding parameters will be displayed under "Ax - Scenes" and the necessary object enabled.

Forced position function	**disabled**	This parameter can be used to disable or to enable the forced position function. When the function is enabled, the corresponding parameters will be displayed under "Ax - Forced position" and the necessary object enabled.
	enabled	
Fabric-stretching function	**disabled**	This parameter can be used disable or to enable the fabric-stretching function. When the function is enabled, the corresponding parameters will be displayed under "Ax - Fabric-stretching" and the necessary object enabled.
	enabled	
		▪ This parameter is visible only in the 'Shutter/awning' mode of operation.
Assignment to central function ?		This parameter determines the assignment of the output to the central function.
	yes (enable central function under "General")	The output is assigned to the central function. The central function is supposed to have been enabled under "General". The assignment has otherwise no effect on the blind output.
	No	The output is not assigned to the central function.

hAx – Feedbacks
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs.)

Venetian blind position feedback		The current Venetian blind position of the output can be reported separately back to the bus.
	No feedback	No feedback object available for the output. Feedback deactivated.
	Feedback object is active signalling object	Feedback and the object are activated. The object transmits actively (telegram transmission after change).
	Feedback object is passive status object	Feedback and the object are activated. The object is passive (telegram transmission only as a response to 'Read' request).
		▪ The communication flags of the object are automatically set by the ETS according to the setting.
		▪ This parameter is only visible in the Venetian blind operating mode.
Roller shutter/awning position feedback		The current roller shutter or awning position of the output can be reported separately back to the bus.
	No feedback	No feedback object available for the output. Feedback deactivated.
	Feedback object is active signalling object	Feedback and the object are activated. The object transmits actively (telegram transmission after change).

	Feedback object is passive status object	Feedback and the object are activated. The object is passive (telegram transmission only as a response to 'Read' request). ▪ The communication flags of the object are automatically set by the ETS according to the setting. ▪ This parameter is only visible in the roller shutter/awning operating mode.
Venting louvre position feedback		The current venting louvre position of the output can be reported separately back to the bus.
	No feedback	No feedback object available for the output. Feedback deactivated.
	Feedback object is active signalling object	Feedback and the object are activated. The object transmits actively (telegram transmission after change).
	Feedback object is passive status object	Feedback and the object are activated. The object is passive (telegram transmission only as a response to 'Read' request). ▪ The communication flags of the object are automatically set by the ETS according to the setting. ▪ This parameter is visible only in the 'Venting louvre' operating mode.
Time delay for feedback telegram after bus voltage return ?	Yes (delay time under "General"!) **No**	The feedback telegram can be transmitted to the bus with a delay after bus voltage return or after programming with the ETS. Setting "Yes" activates the delay time of the feedback in case of bus voltage return. The delay time is configured under "General". ▪ This parameter is only visible in case of an actively transmitting feedback object.
Slat position feedback		The current slat position of the output can be reported separately back to the bus.
	No feedback	No feedback object available for the output. Feedback deactivated.
	Feedback object is active signalling object	Feedback and the object are activated. The object transmits actively (telegram transmission after change).
	Feedback object is passive status object	Feedback and the object are activated. The object is passive (telegram transmission only as a response to 'Read' request). ▪ The communication flags of the object are automatically set by the ETS according to the setting.

		▪ This parameter is only visible in the Venetian blind operating mode.
Time delay for feedback telegram after bus voltage return ?	Yes (delay time under "General"!) **No**	The feedback telegram can be transmitted to the bus with a delay after bus voltage return or after programming with the ETS. Setting "Yes" activates the delay time of the feedback in case of bus voltage return. The delay time is configured under "General".
		▪ This parameter is only visible in case of an actively transmitting feedback object.
Invalid Venetian blind position feedback		The actuator can report to the bus that the current blind position is unknown (e.g. after an initialisation, when no reference travel has been executed as yet).
	No feedback	No feedback object available for the output. Feedback deactivated.
	Feedback object is active signalling object	Feedback and the object are activated. The object transmits actively (telegram transmission after change).
	Feedback object is passive status object	Feedback and the object are activated. The object is passive (telegram transmission only as a response to 'Read' request).
		▪ The communication flags of the object are automatically set by the ETS according to the setting. ▪ This parameter is only visible in the Venetian blind operating mode.
Invalid roller shutter/ awning position feedback		The actuator can report to the bus that the current roller shutter/awning position is unknown (e.g. after an initialisation, when no reference travel has been executed as yet).
	No feedback	No feedback object available for the output. Feedback deactivated.
	Feedback object is active signalling object	Feedback and the object are activated. The object transmits actively (telegram transmission after change).
	Feedback object is passive status object	Feedback and the object are activated. The object is passive (telegram transmission only as a response to 'Read' request).
		▪ The communication flags of the object are automatically set by the ETS according to the setting. ▪ This parameter is only visible in the roller shutter/awning operating mode.
Invalid venting louvre position feedback		The actuator can report to the bus that the current venting louvre position is unknown (e.g. after an initialisation,

		when no reference travel has been executed as yet).
	No feedback	No feedback object available for the output. Feedback deactivated.
	Feedback object is active signalling object	Feedback and the object are activated. The object transmits actively (telegram transmission after change).
	Feedback object is passive status object	Feedback and the object are activated. The object is passive (telegram transmission only as a response to 'Read' request). ▪ The communication flags of the object are automatically set by the ETS according to the setting. ▪ This parameter is visible only in the 'Venting louvre' operating mode.
Time delay for feedback telegram after bus voltage return ?	Yes (delay time under "General"!) **No**	The feedback telegram can be transmitted to the bus with a delay after bus voltage return or after programming with the ETS. Setting "Yes" activates the delay time of the feedback in case of bus voltage return. The delay time is configured under "General". ▪ This parameter is only visible in case of an actively transmitting feedback object.
Drive movement feedback		The actuator can report to the bus that the connected drive is active, i.e. the output is supplying power to the drive for a travel direction.
	No feedback	No feedback object available for the output. Feedback deactivated.
	Feedback object is active signalling object	Feedback and the object are activated. The object transmits actively (telegram transmission after change).
	Feedback object is passive status object	Feedback and the object are activated. The object is passive (telegram transmission only as a response to 'Read' request). ▪ The communication flags of the object are automatically set by the ETS according to the setting.
Time delay for feedback telegram after bus voltage return ?	Yes (delay time under "General"!) **No**	The feedback telegram can be transmitted to the bus with a delay after bus voltage return or after programming with the ETS. Setting "Yes" activates the delay time of the feedback in case of bus voltage return. The delay time is configured under "General". ▪ This parameter is only visible in case of an actively transmitting feedback object.

hAx – Safety
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs.)

Assignment to wind alarms	**No**	This parameter defines whether the output responds to a wind alarm and to which of the alarms.
	Wind alarm 1	
	Wind alarm 2	
	Wind alarm 3	
	Wind alarm 1 + 2	
	Wind alarm 1 + 3	
	Wind alarm 2 + 3	
	Wind alarm 1 + 2 + 3	
Behaviour in case of wind alarm		This parameter defines the behaviour of the output at the beginning of a wind alarm.
	no reaction	At the beginning of the wind alarm or wind alarms, the output is interlocked and the relay of the output shows no reaction. Any travel movements in progress at this instant will still be completely finished.
	raising / opening the louver	The actuator raises the curtain or opens the venting louver at the beginning of the wind alarm or wind alarms and locks the output thereafter.
	raising / closing the louver	The actuator lowers the curtain or closes the venting louver at the beginning of the wind alarm or wind alarms and locks the output thereafter.
	stop	At the beginning of the wind alarm or wind alarms, the actuator switches the relays of the output to "stop" and locks the output. A travel movement, if any, will be interrupted.
		▪ The behaviour preset in this parameter will be executed when one of the assigned wind alarms is activated. ▪ This parameter is only visible, if the output has been assigned to at least one wind alarm.
Assignment to rain alarm	Yes	This parameter defines whether the output responds to the rain alarm.
	No	
Behaviour in case of rain alarm		This parameter defines the behaviour of the output at the beginning of the rain alarm.
	no reaction	At the beginning of the rain alarm, the output is interlocked and the relay of the

		output shows no reaction. Any travel movements in progress at this instant will still be completely finished.
	raising / opening the louver	The actuator raises the curtain or opens the venting louver at the beginning of the rain alarm and locks the output thereafter.
	raising / closing the louver	The actuator lowers the curtain or closes the venting louver at the beginning of the rain alarm and locks the output thereafter.
	stop	At the beginning of the rain alarm, the actuator switches the relays of the output to "stop" and locks the output. A travel movement, if any, will be interrupted.
		▪ This parameter is only visible, if the output has been assigned to the rain alarm.
Assignment to frost alarm	Yes **No**	This parameter defines whether the output responds to the frost alarm.
Behaviour in case of frost alarm		This parameter defines the behaviour of the output at the beginning of the frost alarm.
	no reaction	At the beginning of the frost alarm, the output is interlocked and the relay of the output shows no reaction. Any travel movements in progress at this instant will still be completely finished.
	raising / opening the louver	The actuator raises the curtain or opens the venting louver at the beginning of the frost alarm and locks the output thereafter.
	raising / closing the louver	The actuator lowers the curtain or closes the venting louver at the beginning of the frost alarm and locks the output thereafter.
	stop	At the beginning of the frost alarm, the actuator switches the relays of the output to "stop" and locks the output. A travel movement, if any, will be interrupted.
		▪ This parameter is only visible, if the output has been assigned to the frost alarm.
Behaviour at the end of safety (wind, rain, frost)		This parameter defines the behaviour of the output at the end of all safety functions.
	no reaction	At the end of the safety functions, the output is unlocked and the relay of the output shows no reaction. Any travel movements still in progress at this instant will still be finished.

	raising / opening the louver	The actuator unlocks the output at the end of all safety alarms and raises the curtain or opens the venting louver.
	raising / closing the louver	The actuator unlocks the output at the end of the safety functions and lowers the curtain or closes the venting louver.
	stop	At the end of the safety functions, the output is unlocked and the actuator switches the relays of the output into the "stop" position. A travel movement, if any, will be interrupted.
	tracking the position	At the end of safety, the output will be set to the state last adjusted before the safety function or to the state tracked and internally stored during the safety function. The position objects, the long-time object and the scene function are tracked.

- The behaviour preset in this parameter will only be executed, if the output passes over to direct operation at the end of safety. Direct operation will be executed when a sun protection function is active.

hAx – Sun protection
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs.)

Type of sun protection		This parameter defines the scope of sun protection functions.
	simple sun protection	Reduced scope of functions with standard configuration possibilities.
	enlarged sun protection mode	Enlarged scope of functions including the possibilities of the simple sun protection. In addition, the connected drive can be integrated in shading control systems depending on the position of the sun. Automatic heating/cooling can also be realized.
Priority of sun protection with respect to direct operation		This parameter defines the priority of the sun protection function with respect to direct operation.
	same priority	The sun protection can be overridden by direct operation and vice versa. Only after the next reception of a "sun is shining" signal will the sun protection mode be activated again.
	higher priority	The sun protection has the higher priority and cannot be aborted by a direct operation.
	Lower priority	The direct operation has the higher priority and cannot be aborted by sun protection. The sun protection can be

		activated only after an enabling movement into the upper end position initiated by a direct operation has occurred without interruption. ▪ Direct operation = long-time/short-time operation; Positioning via objects, scenes, central control. ▪ This parameter is only visible in the simple sun protection.
Priority of automatic operation with respect to direct operation		This parameter defines the priority of automatic operation with respect to direct operation. The selected priority affects the evaluation of the sunshine signal in the automatic mode and not the automatic mode itself.
	same priority	The evaluation of the sunshine signal in the automatic mode can be overridden by a direct operation. In the same way, a direct operation is overridden by the reception of a new sunshine telegram.
	higher priority	The automatic mode has the higher priority and cannot be aborted by a direct operation irrespective of the state of the sunshine signal. A direct operation will be possible again only after the automatic mode is terminated.
	Lower priority	The direct operation has the higher priority and cannot be aborted by a sunshine signal in the automatic mode. The sunshine signal is evaluated again only after an enabling movement into the upper end position initiated by a direct operation has occurred without interruption and only if the automatic mode is activated and not disabled at this time. ▪ Direct operation = long-time/short-time operation; Positioning via objects, scenes, central control. ▪ This parameter is only visible in the extended sun protection.
Polarity of the "Sunshine / shading facade" object	**sunshine = 1; no sunshine = 0** Sunshine = 0; no sunshine = 1	This parameter defines the polarity of the input object "Sunshine / shading facade" of the sun protection.
Activation of automatic operation via...		This parameter defines how to activate the automatic mode and the reactions resulting from such activation.
	Object "Automatic" & next change of state	Automatic operation is activated as soon as the "Automatic" object is set to 'active' in consideration of polarity. A reaction at the output occurs, however, only after a new change of state has

		been signalled via the "Sunshine / shading facade" object. In this case, the new state (beginning of sun protection or end of sun protection) determines the behaviour of the output.
	object "Automatic" & immediate tracking	Automatic operation is activated as soon as the "Automatic" object receives a "1" telegram. The state of the object "Sunshine / shading facade" immediately determines the behaviour of the output (beginning of sun protection, end of sun protection). ▪ The reception of a telegram 'Automatic mode inactive' at the "Automatic" object immediately ends the automatic mode in both cases. The behaviour is in this case defined by the parameter "Reaction at the end of automatic operation".
Polarity of "Automatic" object	**Automatic mode: activated = 1; deactivated = 0** Automatic mode: activated = 0; deactivated = 1	This parameter defines the polarity of the automatic object. ▪ This parameter is only visible, if the parameter "Activation of automatic operation via..." is set to "automatic" & next change of state".
Disabling function for automatic mode ?	Yes **No**	The automatic mode can be disabled. When disabling is active, the automatic mode is aborted. It can only be reactivated, if a "1" is written into the "Automatic" object. The objects "Automatic" and "Automatic mode disable" are logically combined (AND with feedback). The "Yes" setting enables the disabling function and makes the disabling object visible. ▪ This parameter is only visible, if the parameter "Activation of automatic operation via..." is set to "object automatic & immediate tracking".
Polarity of "Automatic mode disable" object	Automatic mode: enabled = 1; disabled = 0 **Automatic mode: enabled = 0; disabled = 1**	This parameter defines the polarity of the automatic mode disable object. Disabling is active when a telegram with polarity 'disabled' is received. ▪ This parameter is only visible, if the parameter "Disabling function for automatic mode ?" is set to "Yes".
Disabling function for direct operation ?	Yes **No**	Direct operation can be disabled. When disabling is active, a direct operation can – independently of the preset priority – never abort a sun protection function. In this case, direct operation is disabled in other functions, too. The "Yes" setting enables the disabling function and makes the disabling object visible.

		▪ Direct operation = long-time/short-time operation; Positioning via objects, scenes, central control.
Polarity of "Direct operation disable" object	Automatic mode: enabled = 1; disabled = 0 **Automatic mode: enabled = 0; disabled = 1**	This parameter defines the polarity of the disabling object for direct operation. Disabling is active when a telegram with polarity 'disabled' is received. ▪ This parameter is only visible, if the parameter "Direct operation disable?" is set to "Yes".
Reaction at the end of automatic operation		This parameter defines the behaviour of the output at the end of automatic operation and also at the beginning of an automatic operation disable.
	no reaction	At the end of automatic operation, the sun protection function is ended and the relay of the output shows no reaction. Any travel movements still in progress at this instant will still be finished.
	raising / opening the louver	At the end of automatic operation, the actuator terminates the sun protection and raises the curtain or opens the venting louver.
	raising / closing the louver	At the end of automatic operation, the actuator terminates the sun protection and lowers the curtain or closes the venting louver.
	stop	At the end of automatic operation the sun protection is terminated and the actuator switches the relays of the output to "stop". A travel movement, if any, will be interrupted.
	tracking the position	At the end of automatic operation, the output will be set to the state last adjusted before the automatic sun protection or to the state tracked and internally stored during the automatic sun protection. The position objects, the long-time object and the scene function are tracked. ▪ The behaviour preset in this parameter will only be executed, if no function with a higher priority (e.g. safety) is activated at the end of automatic operation.

hAx – Beginning of sun protection
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs.)

Time delay beginning of sunshine / shading Minutes (0...59)	**0**...59	The telegram received via the object "Sunshine / shading facade " for activation of shading (according to polarity) can be evaluated with a time delay. Setting the minutes of the delay time.

Seconds (0...59)	0...**30**...59	Setting the delay time seconds. *Presetting: 30 seconds* ▪ A time setting of "0" in the parameters deactivates the respective delay time. In this case, the state of shading is evaluated immediately.
Reaction at the beginning of sunshine / shading		This parameter defines the behaviour of the output at the beginning of shading – if applicable, after the end of the delay time.
	No reaction	At the beginning of shading, the output switches over to sun protection while the relays of the output show no reaction. Any movements still in progress at this instant will still be finished.
	Raising	At the beginning of shading, the actuator raises the blind.
	Lowering	At the beginning of shading, the actuator lowers the blind.
	Stop	At the beginning of shading, the actuator switches the relays of the output to the "stop" position. A drive movement, if any, will be interrupted.
	Internal scene recall	At the beginning of sun shading, the Venetian blind actuator recalls the position values set in the scene configuration for the appropriate output. This is not a scene recall as in direct operation, but only an approach of the corresponding scene position values.
	Venetian blind or slat position fixed	At the beginning of shading, the output controls the approach to a configured fixed Venetian blind and slat position.
	Venetian blind position fixed / slat position variable	At the beginning of shading, the output controls the approach to a configured fixed Venetian blind position and to slat position preset by a separate object and thus variable.
	Slat position fixed / Venetian blind position variable	At the beginning of shading, the output controls the approach to a configured fixed slat position and to a Venetian blind position preset by a separate object and thus variable.
	Venetian blind and slat position variable	At the beginning of shading, the output controls the approach to the Venetian blind and slat positions preset by two separate objects and thus variable. ▪ This parameter is visible only in the 'Venetian blind' operating mode.
Reaction at the beginning of sunshine / shading		This parameter defines the behaviour of the output at the beginning of shading –

		if applicable, after the end of the delay time.
	No reaction	At the beginning of shading, the output switches over to sun protection while the relays of the output show no reaction. Any movements still in progress at this instant will still be finished.
	Raising	At the beginning of shading, the actuator raises the blind.
	Lowering	At the beginning of shading, the actuator lowers the blind.
	Stop	At the beginning of shading, the actuator switches the relays of the output to the "stop" position. A drive movement, if any, will be interrupted.
	Internal scene recall	At the beginning of sun shading, the Venetian blind actuator recalls the position values set in the scene configuration for the appropriate output. This is not a scene recall as in direct operation, but only an approach of the corresponding scene position values.
	Fixed roller shutter / awning position	At the beginning of shading, the output controls the approach to a configured fixed roller shutter / awning position.
	Roller shutter / awning position variable	At the beginning of shading, the output controls the approach to the roller shutter / awning position preset by a separate object and thus variable.
		▪ This parameter is visible only in the "Roller Shutter / Awning" operating mode.
Reaction at the beginning of sunshine / shading		This parameter defines the behaviour of the output at the beginning of shading – if applicable, after the end of the delay time.
	No reaction	At the beginning of shading, the output switches over to sun protection while the relays of the output show no reaction. Any movements still in progress at this instant will still be finished.
	Opening the louvre	At the beginning of shading, the actuator opens the venting louvre.
	Closing the louvre	At the beginning of shading, the actuator closes the venting louvre.
	Stop	At the beginning of shading, the actuator switches the relays of the output to the "stop" position. A drive movement, if any, will be interrupted.
	Internal scene recall	At the beginning of sun shading, the Venetian blind actuator recalls the position values set in the scene configuration for the appropriate output.

		This is not a scene recall as in direct operation, but only an approach of the corresponding scene position values.
	Fixed venting louvre position	At the beginning of shading, the output controls the approach to a configured fixed venting louvre position.
	Venting louvre position variable	At the beginning of shading, the output controls the approach to the venting louvre position preset by a separate object and thus variable.
		▪ This parameter is visible only in the "Venting louvre" operating mode.
Scene number (1...8)	**1**...8	This parameter defines the number of the internal scene which is recalled at the beginning of shading.
		▪ This parameter is only visible, if the parameter "Reaction at the beginning of sunshine / shading" is set to "internal scene recall".
Fixed Venetian blind position		The fixed Venetian blind position at the beginning of shading can either be preset statically by a separate parameter or basically adjusted to the value prevailing at the time of shading activation, i.e. remain unchanged.
	Same as configured value	At the beginning of shading, the configured Venetian blind position value will be approached.
	No change in current position	At the beginning of shading, the current position of the Venetian blind will be maintained. In this case, the output behaves as if only the slat were positioned as a result of shading.
		▪ This parameter is only visible, if the Venetian blind is to approach a fixed position at the beginning of shading. ▪ This parameter is visible only in the 'Venetian blind' operating mode.
Venetian blind position (0...100 %)	0...**50**…100	This parameter sets the fixed position of the Venetian blind to be approached at the beginning of shading.
		▪ This parameter is only visible, if the parameter "Fixed position of Venetian blind" is set to "as specified by parameter". ▪ This parameter is visible only in the 'Venetian blind' operating mode.
Fixed slat position (0...100 %)	0...**50**…100	This parameter sets the fixed position of the slat to be approached at the beginning of shading and, as the case may be, after positioning of the Venetian blind.

		▪ This parameter is only visible, if the slat is to approach a fixed position at the beginning of shading. ▪ This parameter is visible only in the 'Venetian blind' operating mode.
Fixed roller shutter / awning position		The fixed position of the roller shutter or awning at the beginning of shading can either be preset statically by a separate parameter or basically adjusted to the value prevailing at the time of shading activation, i.e. remain unchanged.
	Same as configured value	At the beginning of shading, the configured roller shutter or awning position will be approached.
	No change in current position	At the beginning of shading, the current position of the roller shutter or awning will be maintained. Any movements in progress at the time of shading activation will be finished.
		▪ This parameter is only visible when the roller shutter or awning should approach a fixed position value at the beginning of sun shading. ▪ This parameter is visible only in the "Roller Shutter / Awning" operating mode.
Position of roller shutter / awning (0...100 %)	0...**50**…100	This parameter sets the fixed position of the roller shutter or awning to be approached at the beginning of shading.
		▪ This parameter is only visible, if the parameter "Fixed position of shutter / awning" is set to "as specified by parameter". ▪ This parameter is only visible in the "Roller shutter/Awning" operating mode.
Fixed position of venting louvre		The fixed venting louvre position at the beginning of shading can either be preset statically by a separate parameter or basically adjusted to the value prevailing at the time of shading activation, i.e. remain unchanged.
	Same as configured value	At the beginning of shading, the configured venting louvre position will be approached.
	No change in current position	At the beginning of shading, the current position of the venting louvre will be maintained. Any movements in progress at the time of shading activation will be finished.
		▪ This parameter is only visible if the venting louvre is to approach a fixed position at the beginning of shading.

		▪ This parameter is visible only in the "Venting louvre" mode of operation.
Position of venting louvre (0...100 %)	0...**50**…100	This parameter sets the fixed position of the venting louvre to be approached at the beginning of shading. ▪ This parameter is only visible, if the parameter "Fixed position of venting louvre" is set to "as specified by parameter". ▪ This parameter is visible only in the "Venting louvre" operating mode.
Reference movement before each sun protection positioning operation ?	Yes **No**	A forced reference movement of the drive is performed before sun protection positioning (setting "yes"). A reference movement is a positioning movement into the upper end position or into the completely open position. By means of a forced reference movement, drives connected to different outputs can be synchronised. If no synchronising movement is forced (setting "no"), the actuator performs a reference movement only once after return of the power supply.
Offset with fixed and variable slat position		For 'manual' readjustment of the slat angle during a shading or sun position tracking operation, a slat offset can be preset. The offset corrects the preset slat angle in positive or in negative direction. The lighting conditions in a room can thus be individually adapted by persons present in the room.
	no offset	The offset correction is deactivated.
	offset as parameterized	The slat offset is statically preset by means of a fixed parameter value.
	offset as parameterized and via object	The slat offset is preset by a fixed parameter value and can be dynamically adapted via a separate communication object. ▪ This parameter is only visible, if the slat is to approach a fixed or a variable position at the beginning of shading. ▪ This parameter is visible only in the 'Blind' mode of operation.
Offset slat position (-100..100 %)	-100…**0**...100	This parameter is used for setting the slat offset. The value specified in this parameter is added at the beginning of shading to the current slat angle. ▪ Even with offset correction, the 0...100% slat position limits cannot be overstepped.

- It should be noted that the parameterized offset value can be overwritten by the object after reception of a dynamical value.
- This parameter is only visible, if the parameter "Offset with fixed and variable slat position" is set to "Offset as parameterized" or to "Offset as parameterized and via object".
- This parameter is visible only in the 'Blind' mode of operation.

Store offset slat position in case of bus/mains voltage failure ?"		If the offset is preset via the object, this parameter defines whether the received value is to be stored in the actuator's NV memory.
	Yes	The value received via the object will be stored in case of bus or mains voltage failure in a non-volatile memory of the actuator. The originally parameterized offset value is definitely overwritten in the process.
	no	The value received via the object will only be stored temporarily in volatile memory. Thus, the value received via the object replaces the parameterized value only until the actuator is re-initialized (return of bus or mains voltage, if both voltages were off beforehand). After the initialization, the offset value parameterized in the ETS will be used again.

- This parameter is only visible, if the parameter "Offset with fixed and variable slat position" is set to "offset as parameterized and via object".
- This parameter is visible only in the 'Blind' mode of operation.

hAx – End of sun protection
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs.)

Time delay end of sunshine / shading Minutes (0...59)	**0**...59	The telegram received via the object "Sunshine / shading facade " for deactivation of shading (according to polarity) can be evaluated with a time delay. Setting the minutes of the delay time.
Seconds (0...59)	0...**30**...59	Setting the delay time seconds. *Presetting: 30 seconds*

- A time setting of "0" in the parameters deactivates the respective delay time. In this case, the state of shading is evaluated immediately.

Reaction at the end of sunshine / shading		This parameter defines the behaviour of the output at the end of shading – if applicable, after the end of the delay time.
	no reaction	At the end of shading, the output quits the sun protection mode and the relays of the output show no reaction. Any travel movements still in progress at this instant will still be finished.
	raising / opening the louver	At the end of shading, the actuator raises the curtain or opens the venting louver.
	lowering / closing the louver	At the end of shading, the actuator lowers the curtain or closes the venting louver.
	stop	At the end of shading, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted. ▪ The behaviour preset in this parameter will only be executed if no function with a higher priority (e.g. safety) is activated at the end of shading. ▪ This parameter is only visible in the simple sun protection.
	tracking the position	At the end of shading, the output will be set to the state last adjusted before sun protection or to the state tracked and internally stored during sun protection. The position objects, the long-time object and the scene function are tracked.
Reaction at the end of sunshine / shading		This parameter defines the behaviour of the output at the end of shading – if applicable, after the end of the delay time.
	no reaction	At the end of shading, the relays of the output show no reaction. Any travel movements still in progress at this instant will still be finished.
	raising	At the end of shading, the actuator raises the curtain.
	lowering	At the end of shading, the actuator lowers the curtain.
	stop	At the end of shading, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
	internal scene recall	At the end of shading, an internal scene of the actuator is recalled.
	blind or slat position fixed	

		At the end of shading, the output moves to a parameterized fixed blind and slat position. ▪ This parameter is only visible in the enlarged sun protection. ▪ This parameter is visible only in the 'Blind' mode of operation. ▪ This parameter does not define the behaviour of the output at the end of automatic operation (cf. parameter "Reaction at the end of automatic operation")!
Reaction at the end of sunshine / shading		This parameter defines the behaviour of the output at the end of shading – if applicable, after the end of the delay time.
	no reaction	At the end of shading, the relays of the output show no reaction. Any travel movements still in progress at this instant will still be finished.
	raising	At the end of shading, the actuator raises the curtain.
	lowering	At the end of shading, the actuator lowers the curtain.
	stop	At the end of shading, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
	internal scene recall	At the end of shading, an internal scene of the actuator is recalled.
	shutter / awning position fixed	At the end of shading, the output moves to a parameterized fixed shutter / awning position. ▪ This parameter is only visible in the enlarged sun protection. ▪ This parameter is visible only in the "Shutter / awning" mode of operation. ▪ This parameter does not define the behaviour of the output at the end of automatic operation (cf. parameter "Reaction at the end of automatic operation")!
Reaction at the end of sunshine / shading		This parameter defines the behaviour of the output at the end of shading – if applicable, after the end of the delay time.
	no reaction	At the end of shading, the relays of the output show no reaction. Any travel movements still in progress at this instant will still be finished.
	opening the louver	At the end of shading, the actuator opens the venting louver.

	closing the louver	At the end of shading, the actuator closes the venting louver.
	stop	At the end of shading, the actuator switches the relays of the output to the "stop" position. A travel movement, if any, will be interrupted.
	internal scene recall	At the end of shading, an internal scene of the actuator is recalled.
	venting louver position fixed	At the end of shading, the output moves to a parameterized fixed venting louver position.
		▪ This parameter is only visible in the enlarged sun protection. ▪ This parameter is visible only in the "Venting louver" mode of operation. ▪ This parameter does not define the behaviour of the output at the end of automatic operation (cf. parameter "Reaction at the end of automatic operation")!
Scene number (1...8)	**1**...8	This parameter defines the number of the internal scene which is recalled at the end of shading. ▪ This parameter is only visible, if the parameter "Reaction at the end of sunshine / shading" is set to "internal scene recall".
Fixed position of blind		The fixed blind position at the end of shading can either be preset statically by a separate parameter or basically remain at the value set or tracked by the shading operation.
	as specified by parameter	At the end of shading, the parameterized blind position will be approached.
	no change in current position	At the end of shading, the current position of the blind will be maintained. In this case, the output behaves as if only the slat were positioned as a result of the end of shading. ▪ This parameter is only visible, if the blind is to approach a fixed position at the end of shading. ▪ This parameter is visible only in the 'Blind' mode of operation.
Position of blind (0...100 %)	0...**50**…100	This parameter sets the fixed position of the blind to be approached at the end of shading. ▪ This parameter is only visible, if the parameter "Fixed position of blind" is set to "as specified by parameter".

		▪ This parameter is visible only in the 'Blind' mode of operation.
Fixed position of slat (0...100 %)	0...**50**…100	This parameter sets the fixed position of the slat to be approached at the end of shading and, as the case may be, after positioning of the blind.
		▪ This parameter is only visible, if the slat is to approach a fixed position at the beginning of shading. ▪ This parameter is visible only in the 'Blind' mode of operation.
Fixed position of shutter / awning		The fixed position of the shutter or awning at the end of shading can either be preset statically by a separate parameter or basically adjusted to the value prevailing at the time of shading activation, i.e. remain unchanged.
	as specified by parameter	At the end of shading, the parameterized shutter / awning position will be approached.
	no change in current position	At the end of shading, the current position of the shutter or awning will be maintained. Any travel movements in progress at the time of shading activation will be finished.
		▪ This parameter is only visible, if the shutter or awning is to approach a fixed position at the end of shading. ▪ This parameter is visible only in the "Shutter / awning" mode of operation.
Position of shutter / awning (0...100 %)	0...**50**…100	This parameter sets the fixed position of the shutter or awning to be approached at the end of shading.
		▪ This parameter is only visible, if the parameter "Fixed position of shutter / awning" is set to "as specified by parameter". ▪ This parameter is visible only in the "Shutter / awning" mode of operation.
Fixed position of venting louver		The fixed venting louver position at the end of shading can either be preset statically by a separate parameter or basically adjusted to the value prevailing at the time of shading activation, i.e. remain unchanged.
	as specified by parameter	At the end of shading, the parameterized venting louver position will be approached.
	no change in current position	At the end of shading, the current position of the venting louver will be maintained. Any travel movements in progress at the time of shading activation will be finished.

		▪ This parameter is only visible if the venting louver is to approach a fixed position at the end of shading. ▪ This parameter is visible only in the "Venting louver" mode of operation.
Position of venting louver (0...100 %)	0...**50**…100	This parameter sets the fixed position of the venting louver to be approached at the end of shading. ▪ This parameter is only visible, if the parameter "Fixed position of venting louver" is set to "as specified by parameter". ▪ This parameter is visible only in the "Venting louver" mode of operation.

hAx – Automatic heating/cooling
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs.)

Automatic heating/ cooling	**disabled** enabled	This parameter can be used to activate the automatic heating/cooling function. The automatic heating/cooling function adds a presence detection function to the enlarged sun protection mode. If a person is present, the enlarged sun protection is executed as described. If nobody is present, however, the blinds, shutters, awnings or venting louvers can be operated in such a way that these devices support the heating or cooling function of the building. When the function is enabled, the other parameters and objects are visible. ▪ The automatic heating/cooling function can only be activated in the enlarged sun protection mode. ▪ Moreover, the automatic heating/ cooling function is only active when the automatic mode of the enlarged sun protection function is activated.
Object polarity "Heating/cooling switchover"	**Cooling = 0; Heating = 1** Cooling = 1; Heating = 0	This parameter defines the polarity of the object for heating/cooling switchover. This object is linked, for instance, with room temperature controllers or outside thermometers. ▪ The heating/cooling switchover is initialised after the return of the supply voltage of the actuator according to the object value "0" and the set polarity. ▪ This parameter is visible only if automatic heating/cooling is enabled.
Object polarity "Heating/cooling presence"	**No presence = 0; Presence = 1** No presence = 1; Presence = 0	This parameter defines the polarity of the object for presence control in case of automatic heating/cooling. This object is linked, for example, with presence detectors.

		▪ The heating/cooling presence control is initialised after the return of the supply voltage of the actuator according to the object value "0" and the set polarity. ▪ This parameter is visible only if automatic heating/cooling is enabled.
Time delay at the beginning of presence Minutes (0...59)	**0**...59	The telegram received via the object "Heating/cooling presence" for activation of the presence function (in acc. with polarity) can be evaluated with a time delay. Setting the minutes of the delay time.
Seconds (0...59)	0...**30**...59	Setting the delay time seconds. *Presetting: 30 seconds* ▪ A time setting of "0" in the parameters deactivates the respective delay time. In this case, the state of the presence object is evaluated immediately. ▪ These parameters are visible only if automatic heating/cooling is enabled.
Time delay at the end of presence Minutes (0...59)	**0**...59	The telegram received via the object "Heating/cooling presence" for deactivation of the presence function (in acc. with polarity) can be evaluated with a time delay. Setting the minutes of the delay time.
Seconds (0...59)	0...**30**...59	Setting the delay time seconds. *Presetting: 30 seconds* ▪ A time setting of "0" in the parameters deactivates the respective delay time. In this case, the state of the presence object is evaluated immediately. ▪ These parameters are visible only if automatic heating/cooling is enabled.
Reaction at sunshine / shading Beginning with cooling * End with cooling * Beginning with heating * End with heating *		This parameter defines the behaviour of the output at the end / at the beginning of sunshine / shading with heating / cooling – if applicable, after the end of the delay time.
	no reaction	The relays of the output show no reaction. Any travel movements still in

		progress at this instant will still be finished.
	raising	The actuator raises the curtain.
	lowering	The actuator lowers the curtain.
	internal scene recall	An internal scene of the actuator is recalled.
	blind or slat position fixed	At the end of shading, the output moves to a parameterized fixed blind and slat position.

- This parameter is visible only if automatic heating/cooling is enabled.
- This parameter is visible only in the 'Blind' mode of operation.
- *: The parameter settings for heating or cooling or beginning or end must be parameterized separately. The setting options - also for the follow-up parameters - are identical in all cases.

Reaction at sunshine / shading Beginning with cooling * End with cooling * Beginning with heating * End with heating *		This parameter defines the behaviour of the output at the end / at the beginning of sunshine / shading with heating / cooling – if applicable, after the end of the delay time.
	no reaction	The relays of the output show no reaction. Any travel movements still in progress at this instant will still be finished.
	raising	The actuator raises the curtain.
	lowering	The actuator lowers the curtain.
	internal scene recall	An internal scene of the actuator is recalled.
	fixed shutter / awning position	The output moves to a parameterized fixed shutter or awning position.

- This parameter is visible only if automatic heating/cooling is enabled.
- This parameter is visible only in the "Shutter / awning" mode of operation.

- *: The parameter settings for heating or cooling or beginning or end must be parameterized separately. The setting options - also for the follow-up parameters - are identical in all cases.

Reaction at sunshine / shading Beginning with cooling * End with cooling * Beginning with heating * End with heating *		This parameter defines the behaviour of the output at the end / at the beginning of sunshine / shading with heating / cooling – if applicable, after the end of the delay time.
	no reaction	The relays of the output show no reaction. Any travel movements still in progress at this instant will still be finished.
	opening the louver	The actuator opens the venting louver.
	closing the louver	The actuator closes the venting louver.
	internal scene recall	An internal scene of the actuator is recalled.
	venting louver position fixed	At the end of shading, the output moves to a parameterized fixed venting louver position.

- This parameter is visible only if automatic heating/cooling is enabled.
- This parameter is visible only in the "Venting louver" mode of operation.
- *: The parameter settings for heating or cooling or beginning or end must be parameterized separately. The setting options - also for the follow-up parameters - are identical in all cases.

Scene number (1...8)	**1**...8	This parameter defines the number of the internal scene which is recalled.

- This parameter is only visible, if the parameter "Reaction in case of sunshine / shading" of the automatic heating/cooling function is set to "internal scene recall".

Fixed position of blind		The fixed blind position in case of automatic heating/cooling can either be preset statically by a separate parameter or basically remain at the current value.
	as specified by parameter	The parameterized position of the blind will be approached.

	no change in current position	The current position of the blind will be maintained. In this case, the output behaves as if only the slat were positioned. ▪ This parameter is only visible, if the blind is to approach a fixed position in case of automatic heating/ cooling. ▪ This parameter is visible only in the 'Blind' mode of operation.
Position of blind (0...100 %)	0...**50**…100	This parameter sets the fixed position of the blind to be approached in case of automatic heating/cooling. ▪ This parameter is only visible, if the parameter "Fixed position of blind" is set to "as specified by parameter". ▪ This parameter is visible only in the 'Blind' mode of operation.
Fixed position of slat (0...100 %)	0...**50**…100	This parameter sets the fixed position of the slat to be approached in case of automatic heating/cooling and, as the case may be, after positioning of the blind. ▪ This parameter is only visible, if the slat is to approach a fixed position with automatic heating/cooling. ▪ This parameter is visible only in the 'Blind' mode of operation.
Fixed position of shutter / awning		The fixed shutter/awning position in case of automatic heating/cooling can either be preset statically by a separate parameter or basically remain at the current value.
	as specified by parameter	The parameterized shutter / awning position will be approached.
	no change in current position	The current shutter / awning position will be maintained. ▪ This parameter is only visible, if the shutter or awning is to approach a fixed position in case of automatic heating/cooling. ▪ This parameter is visible only in the "Shutter / awning" mode of operation.
Position of shutter / awning (0...100 %)	0...**50**…100	This parameter sets the fixed position of the blind to be approached with automatic heating/cooling. ▪ This parameter is only visible, if the parameter "Fixed position of shutter / awning" is set to "as specified by parameter".

		▪ This parameter is visible only in the "Shutter / awning" mode of operation.
Fixed position of venting louver		The fixed venting louver position in case of automatic heating/cooling can either be preset statically by a separate parameter or basically remain at the current value.
	as specified by parameter	The parameterized venting louver position will be approached.
	no change in current position	The current position of the venting louver will be maintained.
		▪ This parameter is only visible, if the venting louver is to approach a fixed position in case of automatic heating/cooling. ▪ This parameter is visible only in the "Venting louver" mode of operation.
Position of venting louver (0...100 %)	0...**50**…100	This parameter sets the fixed position of the venting louver to be approached in case of automatic heating/cooling.
		▪ This parameter is only visible, if the parameter "Fixed position of venting louver" is set to "as specified by parameter". ▪ This parameter is visible only in the "Venting louver" mode of operation.

hAx – Scenes
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs.)

Delay scene recall ?	Yes **No**	A scene is recalled via the scene extension object. If needed, the scene recall on the actuator can be made with a delay after reception of a recall telegram (setting: "Yes"). The recall is alternatively made immediately on reception of the telegram (setting: "No").
		▪ A recall delay has no influence on the storage of scene values.
Delay time Minutes (0...59)	**0**...59	This parameter is used for programming the duration of the delay time for a scene recall. Set the delay time minutes.
Seconds (0...59)	0...**10**...59	Sets the delay time seconds. *Presetting: 10 seconds*
		▪ The delay time parameters are only visible, if the parameter "Delay scene recall ?" is set to "yes".
Overwrite values stored in the device during an ETS download ?	**Yes** no	During storage of a scene, the scene values (current states of the outputs concerned) are stored internally in the device. To prevent the stored values

		from being replaced during an ETS programming operation by the originally programmed scene states, the actuator can inhibit overwriting of the scene values (setting: "No"). As an alternative, the original values can be reloaded into the device during each ETS programming operation (setting: "Yes").
Scene X can be activated by scene number (scene number "0" = scene deactivated) *X = depending on the scene (1...8)*	0…**1***...64 **: The predefined scene number is dependent on the scene (1...8).*	The actuator distinguishes between up to 8 different scenes which are recalled via the scene extension object or stored. The datapoint type of the extension object, however, permits addressing a maximum of 64 scenes. This parameter defines the scene number (1...64) which is used to address the internal scene (1...8). A setting of "0" deactivates the corresponding scene.
Position of blind for scene X *X = depending on the scene (1...8)*	**0***...100 **: The predefined position value is dependent on the scene (1...8).*	This parameter is used for parameterizing the blind position which is executed when the scene is recalled. ▪ This parameter is visible only in the 'Blind' mode of operation.
Position of slat for scene X *X = depending on the scene (1...8)*	**0***...100 **: The predefined position value is dependent on the scene (1...8).*	This parameter is used for parameterizing the slat position which is executed when the scene is recalled. ▪ This parameter is visible only in the 'Blind' mode of operation.
Position of shutter/ awning for scene X *X = depending on the scene (1...8)*	**0***...100 **: The predefined position value is dependent on the scene (1...8).*	This parameter is used for parameterizing the shutter or awning position which is executed when the scene is recalled. ▪ This parameter is visible only in the 'Shutter/awning' mode of operation.
Position of venting louver for scene X *X = depending on the scene (1...8)*	**0***...100 **: The predefined position value is dependent on the scene (1...8).*	This parameter is used for parameterizing the venting louver position which is executed when the scene is recalled. ▪ This parameter is visible only in the "Venting louver" mode of operation.
Storage function for scene X *X = depending on the scene (1...8)*	Yes **No**	Setting "yes" enables the storage function of the scene. If the function is enabled, the current position (0...100 %) can be stored internally via the extension object on reception of a storage telegram. If "no" is selected, the storage telegrams are rejected.

hAx – Forced position
(x = number of output / In 12...48 VDC operation, outputs 1 + 2, 3 + 4, 5 + 6 and 7 + 8 combined into pairs.)

Behaviour at the end of the forced position function		The behaviour of the output at the beginning of a forced position function is directly determined by the forced position telegram. The behaviour of the

		output at the end of the forced position function can be configured.
	Tracking the position	At the end of the forced position state, the output will be set to the position last existing before the forced position function or to the one tracked internally while the forced position function was active.
	No change	At the end of forced position state, the position last adjusted will not be changed. Thereafter, the output is again enabled.
Behaviour after bus voltage return		The forced position communication object can be initialised after bus voltage return.
	No forced position active	The forced position is deactivated after bus voltage return.
	Forced position on, raising / opening the louvre	After bus voltage return, the forced position is activated and the blind raised or the venting louvre opened.
	Forced position on, lowering / closing the louvre	After bus voltage return, the forced position is activated and the blind lowered or the venting louvre closed.
	State of forced position before bus/mains voltage failure	After bus voltage return, the forced-position state last selected and internally stored before bus or mains voltage failure will be tracked. An ETS programming operation deletes the stored state (reaction in that case same as with "no forced position active"). ▪ This parameter is evaluated even after an ETS download of the application or of parameters. ▪ The forced-position parameters are only visible, if the parameter "Forced-position function" under "Ax enabled functions" is set to "enabled".

5 Appendix

5.1 Index

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Blinds actuator, 4-gang DC 12-48 V
Art.-No.: 2424 REG HE
Blinds actuator, 2-gang AC 230 V, 1-gang DC 12-48 V
Art.-No.: 2502 REG HE
Blinds actuator, 4-gang AC 230 V, 2-gang DC 12-48 V
Art.-No.: 2504 REG HE
Blinds actuator, 8-gang AC 230 V, 4-gang DC 12-48 V
Art.-No.: 2508 REG HE
Shutter actuator 4-gang AC 230 V
Art.-No.: 2504 REGHER

Operating instructions

1 Safety instructions

Electrical equipment may only be installed and fitted by electrically skilled persons.

Failure to observe the instructions may cause damage to the device and result in fire and other hazards.

Danger of electric shock. Device is not suitable for disconnection from supply voltage.

For parallel connection of several motors to an output it is essential to observe the corresponding instructions of the manufacturers, and to use a cut-off relay if necessary. The motors may be destroyed.

Use only venetian blind motors with mechanical or electronic limit switches. Check the limit switches for correct adjustment. Observe the specifications of the motor manufacturers. Device can be damaged.

Danger of electric shock on the SELV/PELV installation. Do not connect loads for mains voltage and SELV/PELV together on a single Venetian blind actuator.

These instructions are an integral part of the product, and must remain with the end customer.

2 Device components

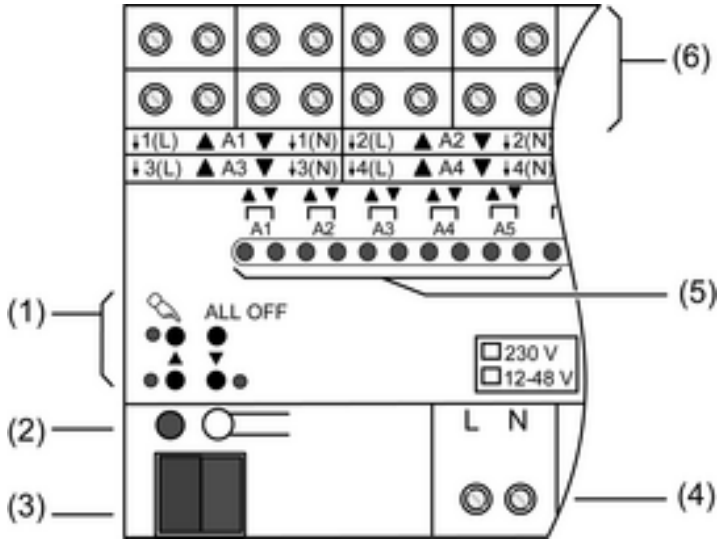

Figure 1

(1) Button field for manual control
(2) Programming button and LEDs
(3) KNX connection
(4) Connection for mains supply

(5) Status LEDs for outputs

(6) Connection for Venetian blind motors

3 Function

System information

This device is a product of the KNX system and complies with the KNX directives. Detailed technical knowledge obtained in KNX training courses is a prerequisite to proper understanding.

The function of this device depends upon the software. Detailed information on loadable software and attainable functionality as well as the software itself can be obtained from the manufacturer´s product database.

Planning, installation and commissioning of the device are carried out with the aid of KNX-certified software. Full functionality with KNX commissioning software version ETS3.0d onwards.

An updated version of the product database, technical descriptions and conversion programs and other auxiliary programs are available on our Internet website.

Intended use

- Switching of electrically driven Venetian blinds, rolling shutters, awnings and similar hangings for AC 230 V mains voltage or DC 12...48 V extra-low voltage.
- Mounting on DIN rail according to EN 60715 in distribution boxes

Product characteristics

- Outputs can be operated manually, construction site mode
- Blind/shutter position directly controllable
- Acknowledgement of the blind/shutter position in bus and manual mode
- Safety functions: 3 independent wind alarms, rain alarm, frost alarm
- Integration into the temperature management of the building
- Disabling of individual outputs manually or via bus

▮ Delivery state: Outputs can be operated using button field, construction site mode.

Only shutter actuators:

- Suitable for 230 V AC motors and 12...48 V DC motors
- Automatic operation time detection for 230 V motors can be set
- Slat position directly controllable
- Acknowledgement of travelling state and slat position in bus and manual mode
- Light scene function
- "Top" and "Bottom" forced position via higher-level controller
- Sun protection function

4 Operation

Operating elements

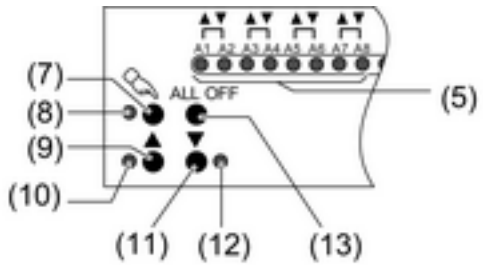

Figure 2

(5) Status LEDs for outputs

(7) Button ⊂ – Manual control

(8) LED c – on: continuous manual mode
(9) Button n: move hanging up/Stop
(10) LED n – on: hanging moves up, manual mode
(11) Button o: move hanging downwards/Stop
(12) LED o – on: hanging moves down, manual mode
(13) Button **ALL OFF**: Stop all hangings

In operation with the button field the device distinguishes between a short and a long press.
- Short: pressing for less than 1 second
- Long: pressing for between 1 and 5 seconds

Status indication

The status LED **A1...** (5) indicate the states of the outputs.
- Off: Output switched off
- On: Output switched on
- Flashes slowly: Output in manual mode
- Flashes quickly: Output disabled via continuous manual mode

Operating modes
- Bus operation: Operation via push-button sensors or other bus devices
- Short-term manual operation: Manual operation locally with button field, automatic return to bus operation.
- Continuous manual mode: Exclusively manual operation on the device

▪ No bus operation is possible in manual mode.
▪ No manual mode is possible in case of bus failure.
▪ After a bus failure and restoration the device switches to bus operation.
▪ After a power failure and restoration the device switches to bus operation.
▪ The manual mode can be disabled in ongoing operation via a bus telegram.

Priorities
- Highest priority: manual mode
- 2nd priority: forced position
- 3rd priority: safety function
- 4th priority: sun protection
- Lowest priority: bus mode: moving up/down, slat positioning, scenes, positioning

Switching on the temporary manual control

Operation using the button field is programmed and not disabled.

o Press the c button briefly.
LEDs **A1** flash, LED c remains off.

▪ After 5 seconds without a button-press, the actuator returns automatically to bus operation.

Deactivating temporary manual control

The device is in short-term manual mode.

o No button-press for 5 seconds.

- or -

o Press c button briefly as many time as necessary until the actuator leaves the short-time manual mode.
LEDs **A1...** no longer flash, but rather indicate the output status.
Depending on the programming, the hangings move to the position that is active after the manual mode is switched off, e.g. to the forced position, safety or sun protection position.

Switching on permanent manual control

Operation using the button field is programmed and not disabled.

o Press the c button for at least 5 seconds.

LED c is illuminated, LEDs **A1** flash, continuous manual mode is switched on.

Deactivating permanent manual control

The device is in continuous manual mode.

- Press the c button for at least 5 seconds.
  LED c is off, bus operation is switched on.
  Depending on the programming, the hangings move to the position that is active after the manual mode is switched off, e.g. to the forced position, safety or sun protection position.

Operating the outputs

The device is in continuous or short-term manual mode.

- Press c button briefly as many times as necessary until the desired output is selected.
  LEDs of the selected output **A1...** flash.
  The LEDs n and o indicate the status.
- Operate output with n or o button.
  Short: Stop hanging.
  Long: Move hanging upwards/downwards.
  The selected hanging executes the corresponding commands.
  The LEDs n and o indicate the status.

▪ Short-term manual operation: After running through all of the outputs the device exits manual mode after another brief press.

Stop all hangings

The device is in continuous manual mode.

- Press the **ALL OFF** button.
  All outputs switch off; all hangings stop moving.

Disabling individual outputs

The device is in continuous manual mode.

- Press c button briefly as many times as necessary until the desired output is selected.
  The status LEDs of the selected output **A1...** flash.
- Press buttons n and o simultaneously for at least 5 seconds.
  Selected output **A1...** is disabled.
  The status LEDs of the selected output **A1...** flash quickly.
- Activate bus mode (see section Deactivating permanent manual control).

▪ A disabled output can be operated in manual mode.

▪ When a disabled output is selected in manual mode, the corresponding status LEDs flash twice briefly at intervals.

Re-enabling outputs

The device is in continuous manual mode.

- Press c button briefly as many times as necessary until the desired output is selected.
  The status LEDs of the selected output **A1...** flash twice briefly at time intervals.
- Press buttons n and o simultaneously for at least 5 seconds.
  Selected output **A1...** is enabled.
  LEDs of the selected output **A1...** flash slowly.
- Activate bus mode (see section Deactivating permanent manual control).

5 Information for electrically skilled persons

5.1 Fitting

Fitting the device

DANGER!
Electrical shock when live parts are touched.
Electrical shocks can be fatal.
Before carrying out work on the device or load, disengage all the corresponding circuit breakers. Cover up live parts in the working environment.

CAUTION!
Danger of destruction if several motors are connected in parallel to one output.
Limit switch contacts can weld together and motors, blinds/shutters and the Venetian blind actuator can be destroyed.
Observe the manufacturer's instructions. Use cutoff relay if necessary!

Observe the temperature range. Ensure sufficient cooling.

- Mount the device on DIN rail. Output terminals must be at the top.

Installing the cover

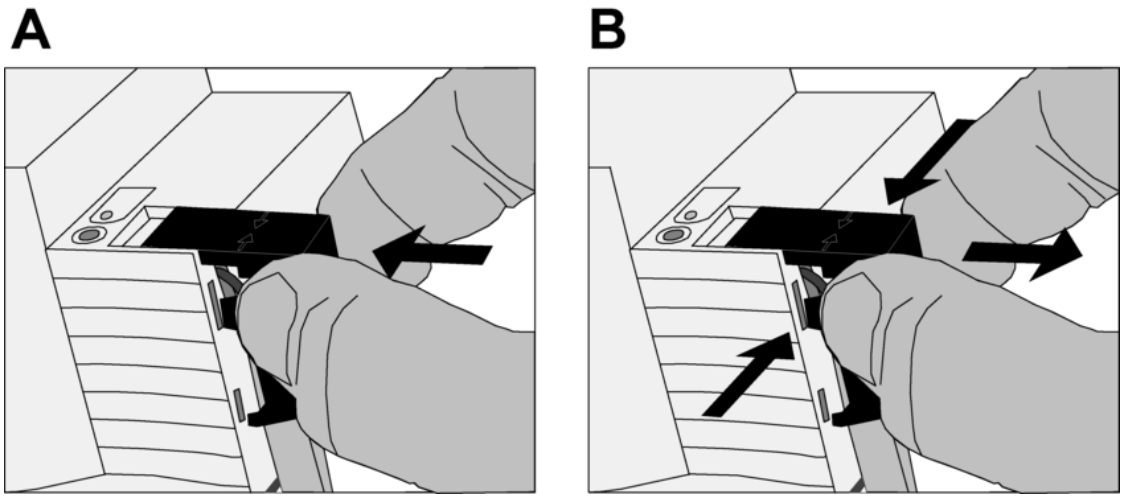

Figure 3

After connection of the bus cable Install the cover to protect the bus connection against hazardous voltages in the connection area.

- Route the bus cable towards the rear.
- Install cover on top of the bus terminal so that it snaps into place.

Removing the cover

- Press the cover to the side and pull it off.

5.2 DC 24 V venetian blind actuator: electrical connection

Connecting the device

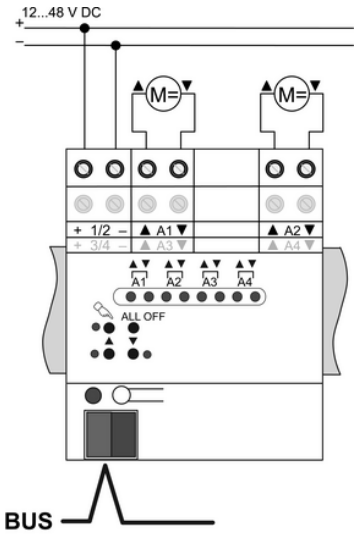

Figure 4

Only for DC motors 12...48 V. Observe the admissible load ratings.

- Connect bus cable with connecting terminal.

Terminals **1/2** supply power to the device electronics and outputs **A1** and **A2**. For operation of the actuator it is necessary to connect an external 24 V DC power supply to **1/2**.

Terminals **3/4** supply power to outputs **A3** and **A4**.

CAUTION!
The polarity of the external power supply units must be the same.
There is otherwise risk of irreparable damage to the actuator.
Note polarity of the external voltages.

The supply voltages must be designed in such a way that a safe and reliable operating voltage is provided under all load conditions – especially when the motors are first switched on.

Do not connect any AC voltage.

- Connect power supply to terminals **1/2** or **3/4**.
- Connect motors to load terminals **A1** ... . **A4**.
- Drives for venting louvers or windows must be connected in such a way that they open in travel direction "UP " and close in travel direction "DOWN".

5.3 Shutter actuators AC 230 V and roller shutter actuator: electrical connection

Connecting the device without automatic operation time detection

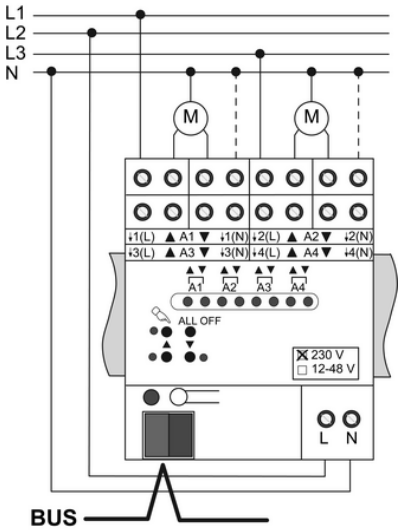

Figure 5

- o Connect bus cable with connecting terminal (figure 5).
- o Connect mains voltage supply (figure 5).
- o Connecting the motors (figure 6).
- o Mark **230 V** use on label (figure 6).
- ▪ The N conductor connections (14) serve only to detect the operation time and do not provide any N potential.
- ▪ If motors with high-impedance inputs are connected, then the corresponding N conductor can be connected. The associated output must not be under current for a longer period without interruption due to retriggering. This can lead to impermissible heating of the device. Note maximum duty cycle (see chapter "Technical data").

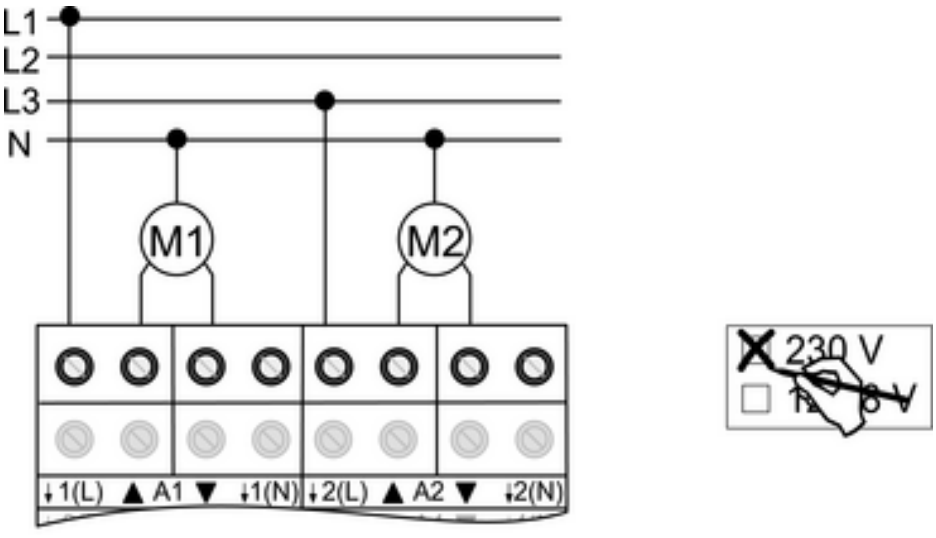

Figure 6

Connecting the device with automatic operation time detection

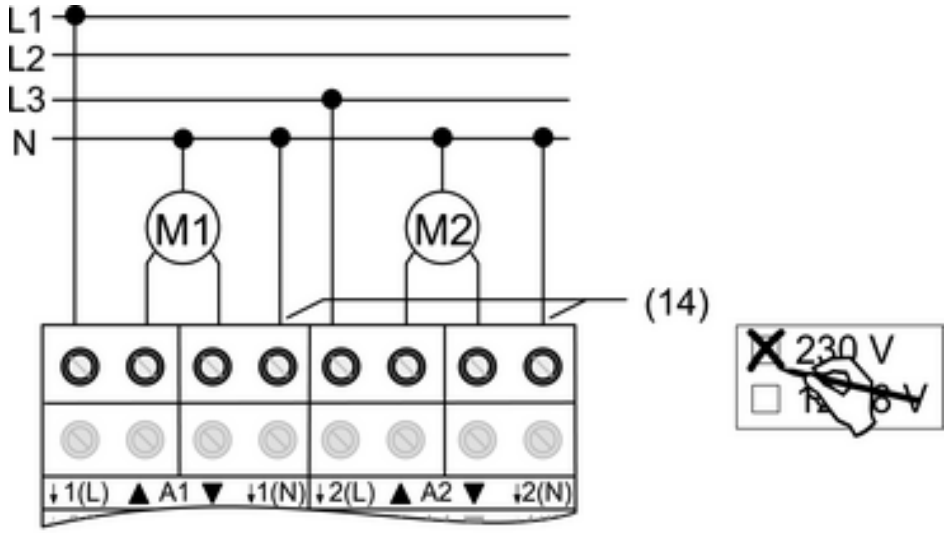

Figure 7

- Not for roller shutter actuator.

When appropriately programmed and wired, the venetian blind actuator detects the operation time of the individual hangings and saves them. The actuator measures the voltage at the outputs against the connected neutral conductor (14), and uses it to determine the end positions. During operation the venetian blind actuator adjusts itself to changed operation times, e.g. due to ageing of the motors.

- The automatic operation time detection cannot be used for 110 V AC motors, DC motors, motors with electronic limit switches, or for motors that are connected to the outputs using cutoff relays.
- Only for 230 V AC motors with mechanical limit switches.

Automatic operation time detection is activated in the application software.

Hangings are not disabled.

- Connect bus cable with connecting terminal (figure 5).
- Connect mains voltage supply (figure 5).
- Connect only one motor per output.
- Connecting the motor (figure 7).
- Connect the N conductor of the corresponding motor to the N conductor terminals (14) (figure 7). Note RCCB wiring.
- Mark **230 V** use on label (figure 7).
- The N conductor connections for the individual outputs and mains voltage connection are not connected internally.
- If an output is energised without interruption for a prolonged time due to retriggering, the device may heat up excessively. Note maximum duty cycle (see chapter "Technical data").
- The automatic operation time detection is performed during commissioning and the determined operation time is saved permanently.

Connecting the device for 12...48 V DC motors

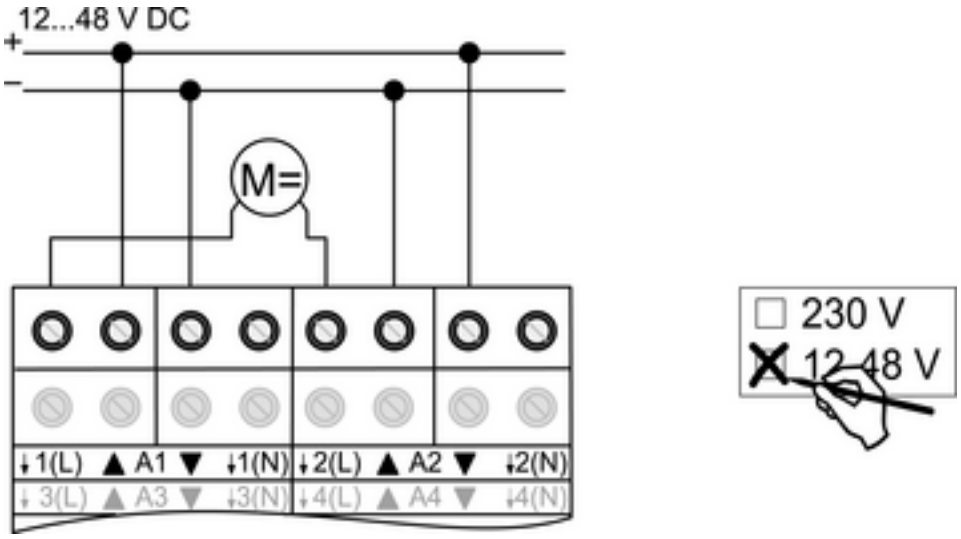

Figure 8

- Not for roller shutter actuator.

The adjacent Venetian blind outputs **A1** and **A2** ... **A7** and **A8** can be used jointly to switch a DC motor.

The venetian drive actuator is programmed as a DC device.

- Connect bus cable with connecting terminal (figure 5).
- Connect mains voltage supply (figure 5).
- Connect only one motor per output.
- Connecting the motors (figure 8).
- Mark **12-48 V** use on label (figure 8).
- For DC operation, manual mode for outputs **A2**, **A4...** is without function. The status LEDs indicate the relay states.

5.4 Commissioning

Measuring the hanging and slat operation time

The hanging operation time is important for position and scene runs. For slatted Venetian blinds the slat adjusting time is by design part of the overall hanging operation time. The opening angle of the slats is therefore set as the operation time between the positions "Open" and "Closed".

The upwards travel generally lasts longer than the downwards travel, and is taken into account as the operation time extension in %.

- Measure upwards and downwards operation time of the hanging.
- Measure slat adjusting time between "Open" and "Closed".
- Enter the measured values in the parameter setting – Downwards travel in seconds and operation time extension in percent.
- In the case of automatic operation time detection, no measurement of the hanging operation times is performed.
- Automatic measurement of the slat adjusting time is not possible.

Load the address and the application software

- Switch on the bus voltage
- Assign physical address.
- Load the application software into the device.

- Note the physical address on the device label.

Performing a reference run

The Venetian drive actuator can only move to scenes and directly called positions only if it has saved the positions of the hangings. To do this, each output has to perform a reference run.

- Move hangings to the upper end position.
- Wait until the output relay and the limit switch have switched off.
- The Venetian blind actuator does not save the hangings position permanently. After a power failure and restoration it carries out another reference run.
- Without a reference run the Venetian blind actuator generates an internal "Invalid position" message for each output that can be read out.

Automatic operation time detection: save operation times

- Not for roller shutter actuator.
- Only for 230 V motors.

When operation time detection is activated, the device can only set positions and scenes when it has saved the operation times. The operation times must be saved during interference-free conditions, i.e. no additional operations, no wind, no snow, no obstructions.

Automatic operation time detection is activated in the application software.

The associated N conductors are connected for the outputs in question (Figure 5).

- Teaching runs must be performed only in manual mode or using commissioning software.
- Move hangings to the upper end position (see chapter "Perform reference run"). Upper end position has been reached:
- Move hangings to lower end position in manual mode.
- Move hangings to upper end position in manual mode.

  Operation times have been saved.
- The venetian blind actuator saves the operation times permanently.
- Without saved operation times the venetian blind actuator generates an internal "Invalid position" message for each output that can be read out.
- During operation the venetian blind actuator adjusts itself to changed blind/shutter travelling times, e.g. caused by ageing of the motors. The slat operation time is taken into account here. The changed times are only saved permanently in continuous manual mode.

6 Appendix

6.1 Technical data

Supply	
Rated voltage	
Art.-No.: 2424 REG HE	DC 12 ... 48 V =
Art.-No.: 2502 REG HE	AC 230 / 240 V ~
Art.-No.: 2504 REG HE	AC 230 / 240 V ~
Art.-No.: 2508 REG HE	AC 230 / 240 V ~
Art.-No.: 2504 REGHER	AC 230 / 240 V ~
Mains frequency	
Art.-No.: 2424 REG HE	—
Art.-No.: 2502 REG HE	50 / 60 Hz
Art.-No.: 2504 REG HE	50 / 60 Hz
Art.-No.: 2508 REG HE	50 / 60 Hz
Art.-No.: 2504 REGHER	50 / 60 Hz
Ambient conditions	
Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +70 °C
Power loss	
Art.-No.: 2424 REG HE	max. 1 W
Art.-No.: 2502 REG HE	max. 4.5 W
Art.-No.: 2504 REG HE	max. 4.5 W

Art.-No.: 2508 REG HE	max. 6 W
Art.-No.: 2504 REGHER	max. 4.5 W
Venetian blind outputs	
Minimum switching current	100 mA
Switching current AC 250 V	
Art.-No.: 2424 REG HE	—
Art.-No.: 2502 REG HE	AC 6 A
Art.-No.: 2504 REG HE	AC 6 A
Art.-No.: 2508 REG HE	AC 6 A
Art.-No.: 2504 REGHER	AC 6 A
Switching current DC 12 V	
Art.-No.: 2424 REG HE	6 A
Art.-No.: 2502 REG HE	6 A
Art.-No.: 2504 REG HE	6 A
Art.-No.: 2508 REG HE	6 A
Art.-No.: 2504 REGHER	—
Switching current DC 24 V	
Art.-No.: 2424 REG HE	6 A
Art.-No.: 2502 REG HE	6 A
Art.-No.: 2504 REG HE	6 A
Art.-No.: 2508 REG HE	6 A
Art.-No.: 2504 REGHER	—
Switching current DC 48 V	
Art.-No.: 2424 REG HE	3 A
Art.-No.: 2502 REG HE	3 A
Art.-No.: 2504 REG HE	3 A
Art.-No.: 2508 REG HE	3 A
Art.-No.: 2504 REGHER	—
Blind/shutter travelling time	max. 20 min
Duty cycle	max. 50% (cycle time ≤ 40 min)
Automatic operation time adaptation	
Art.-No.: 2424 REG HE	max. 20% of the blind/shutter travelling time
Art.-No.: 2502 REG HE	max. 20% of the blind/shutter travelling time
Art.-No.: 2504 REG HE	max. 20% of the blind/shutter travelling time
Art.-No.: 2508 REG HE	max. 20% of the blind/shutter travelling time
Art.-No.: 2504 REGHER	—
Fitting width	
Art.-No.: 2424 REG HE	72 mm / 4 modules
Art.-No.: 2502 REG HE	72 mm / 4 modules
Art.-No.: 2504 REG HE	72 mm / 4 modules
Art.-No.: 2508 REG HE	144 mm / 8 modules
Art.-No.: 2504 REGHER	72 mm / 4 modules
Weight	
Art.-No.: 2424 REG HE	approx. 300 g
Art.-No.: 2502 REG HE	approx. 250 g
Art.-No.: 2504 REG HE	approx. 300 g
Art.-No.: 2508 REG HE	approx. 550 g
Art.-No.: 2504 REGHER	approx. 300 g
Connections supply and load	
Connection mode	Screw terminal
Single stranded	0.5 ... 4 mm²
finely stranded with conductor sleeve	0.14 ... 2.5 mm²
finely stranded without conductor sleeve	0.34 ... 4 mm²
KNX	
KNX medium	TP 1
Commissioning mode	S-mode
Rated voltage KNX	DC 21 ... 32 V SELV
Power consumption KNX	typical 150 mW
Connection mode KNX	Standard terminal

6.2 Troubleshooting

Manual control with button field not possible

Cause 1: Manual control has not been programmed.

Program manual control.

Cause 2: Manual control via bus disabled.

Enable manual control.

Output cannot be operated.

Cause 1: Output is disabled.

Cancel disabling.

Cause 2: Forced position, safety function or sun protection is active for the output in question.

As long as higher-order functions are active for an output, this output cannot be operated.

Cause 3: Motor with high-impedance input is connected.

Connect N conductor for the corresponding output.

- Note connection instructions. Note maximum duty cycle (Technical data). If the N conductor is connected and the associated output is under current for a longer period without interruption due to retriggering, then impermissible heating of the device may result.

None of the outputs can be operated.

Cause 1: All of the outputs are disabled-

Cancel disabling.

Cause 2: Continuous manual mode is active.

Deactivate manual mode (see chapter "Switch off continuous manual mode").

Cause 3: Forced position, safety function or sun protection is active for all outputs.

As long as higher-order functions are active, no operation is possible.

Cause 4: Application software has been stopped, programming LED is flashing.

Perform reset: Disconnect device from bus, switch on again after 5 seconds.

Position- and scene runs are not executed or executed improperly

Cause 1: Sun protection, safety function or manual mode is activated.

As long as higher-order functions are active, no position or scene runs are possible.

Cause 2: No operation time saved.

Save operation times (see chapter "Automatic operation time detection: save operation times").

- Without saved operation times the Venetian blind actuator moves the hangings upwards or downwards for position and scene runs – depending on whether the hangings are in the upper or lower half.

Cause 3: Automatic operation time detection is activated and N conductor is not connected.

Correct electrical connection

- or -

Deactivate automatic operation time detection.

Cause 4: Automatic operation time detection is activated, but the switching voltage is < 230 V or motors with electronic limit switches are being used.

Deactivate automatic operation time detection.

Correct electrical connection and remove N conductor.

Hanging does not move to end position, position and scene runs faulty.

Cause: Hanging operation time has been set incorrectly.

Correct hanging operation time.

The hanging moves upwards before the positioning and scene run.

Cause: No position saved, e.g. due to power failure.

Hanging performs reference run. Do not interrupt hanging run.

6.3 Accessories

Connection cover	Art.-No.: 2050 K
Isolating relay AP	Art.-No.: TR-S
Isolating relay REG	Art.-No.: TR-S REG
Isolating relay UP	Art.-No.: TR-SUP

6.4 Warranty

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

We provide a warranty as provided for by law.

Please send the unit postage-free with a description of the defect to our central customer service office:

ALBRECHT JUNG GMBH & CO. KG
Service Center
Kupferstr. 17-19 D-
44532 Lünen
Service-Line: +49 (0) 23 55 . 80 65 51
Telefax: +49 (0) 23 55 . 80 61 89
mail.vka@jung.de

General equipment
Service-Line: +49 (0) 23 55 . 80 65 55
Telefax: +49 (0) 23 55 . 80 62 55
mail.vkm@jung.de

KNX equipment
Service-Line: +49 (0) 23 55 . 80 65 56
Telefax: +49 (0) 23 55 . 80 62 55
mail.vkm@jung.de

The Œ symbol is a free trade symbol, which is solely intended for the authorities and does not guarantee any properties.

ALBRECHT JUNG GMBH & CO. KG
Volmestraße 1
D-58579 Schalksmühle

Telefon: +49.23 55.8 06-0
Telefax: +49.23 55.8 06-1 89
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Internet: www.jung.de
www.jung-katalog.de

NL

Tastsensor

Veiligheidsinstructies

De inbouw en montage van elektrische apparaten mag alleen door een elektromonteur worden uitgevoerd.

Als de handleiding niet wordt opgevolgd, kunnen schade aan het apparaat, brand of andere gevaren ontstaan.

Deze handleiding is onderdeel van het product en moet door de eindklant worden bewaard.

Constructie apparaat

(1) Bedieningsknoppen
(2) Status-LED
(3) Bedrijfs-LED

Functie

Systeeminformatie

Dit apparaat is een product van het KNX-systeem en voldoet aan de KNX-richtlijnen. Gedetailleerde vakkennis door KNX-opleidingen wordt verondersteld.

De werking van het apparaat is softwareafhankelijk. Gedetailleerde informatie over softwareversies en de betreffende functies, alsmede de software zelf, zijn te vinden in de productdatabase van de fabrikant.

Planning, installatie en inbedrijfname van het apparaat volgen met behulp van KNX-gecertificeerde software. Volledige functionaliteit met KNX-inbedrijfnamesoftware vanaf versie ETS3.0d.

De productdatabase, technische beschrijvingen en conversie- en andere hulpprogramma's vindt u altijd in de meest actuele versie op onze internetpagina.

Correct gebruik

- Bedienen van verbruikers, bijv. verlichting aan/uit, dimmen, jaloezieën omhoog/omlaag, lichtsterktes, temperaturen, oproepen en opslaan van lichinstellingen etc.
- Montage in apparaatdoos conform DIN 49073

Producteigenschappen

- Tastsensorfuncties zoals schakelen, dimmen, jaloeziebesturing, meetsensor, oproepen lichtinstelling etc., afhankelijk van de gekozen applicatie
- Ieder een status-LED per bedieningsvlak, afhankelijk van uitrusting en programmering per tuimelschakelaar samen of afzonderlijk schakelbaar.
- Een witte bedrijfs-LED als oriënteringslampje en voor de weergave van de programmeertoestand
- Geïntegreerde buskoppeling

Bediening

De bediening van functies of elektrische verbruikers is voor ieder apparaat individueel instelbaar. Twee bedieningstypen zijn standaard:

- Eenvlakbediening:
  Het in-/uitschakelen of lichter/donkerder dimmen bijv. van een verlichting vindt afwisselend plaats door herhaaldelijk bedienen van de bedieningsvlakken.
- Tweevlakbediening:
  Twee tegenover elkaar liggende bedieningsvlakken vormen een functioneel paar. Bedienen links bijv. schakelt/dimt verlichting aan/helderder, bediening rechts uit/donkerder.

Functie of verbruiker bedienen

De bediening van verbruikers zoals verlichting, jaloezieën enz. volgt via de bedieningsvlakken en hangt af van de programmering van het apparaat.

o Een bedieningsvlak bedienen.

De bijbehorende functie wordt uitgevoerd.

i De bedieningsimpuls is actief gedurende de aanraking. Afhankelijk van de functie kan korte of lange bediening een verschillende actie tot gevolg hebben, bijv. schakelen/dimmen.

Informatie voor elektromonteurs

Montage en elektrische aansluiting

GEVAAR!

Elektrische schok bij het aanraken van onderdelen in de montageomgeving die onder spanning staan.

Elektrische schokken kunnen dodelijk letsel tot gevolg hebben.

Voordat werkzaamheden aan het apparaat worden uitgevoerd, moet het stroomloos worden geschakeld en moeten spanningvoerende delen in de omgeving worden afgedekt!

Apparaat monteren en aansluiten

(4) Demontageborging
(5) Draagring
(6) Frames
(7) Tastsensor
(8) Borgschroef
(9) Beletteringsveld

o De draagring (5) op de juiste plaats op een apparaatdoos monteren. De demontageborging (4) moet rechtsonder zitten.
o Buskabel met aansluitklem op de tastsensor (7) aansluiten.
o Tastsensor (7) met frame (6) op de draagring drukken, tot deze borgt.
o Beletteringsveld (9) van de onderste tuimelschakelaar losmaken.
o Borgschroef (8) vastschroeven. Deze steekt voorgemonteerd in de ronde opening.
o Beletteringsveld (9) weer monteren.

GB

Push button

Safety instructions

Electrical equipment must be installed and fitted by qualified electricians.

Failure to observe the instructions may cause damage to the device and result in fire and other hazards.

These instructions are an integral part of the product, and must remain with the end customer.

Device components

(1) Button
(2) Status LED
(3) Operation LED

Function

System information

This device is a product of the KNX system and complies with the KNX directives. Detailed technical knowledge obtained in KNX training courses is a prerequisite to proper understanding.

The function of this device depends upon the software. Detailed information on loadable software and attainable functionality as well as the software itself can be obtained from the manufacturer´s product database. Planning, installation and commissioning of the device

are carried out with the aid of KNX-certified software. Full functionality with KNX commissioning software version ETS3.0d onwards.

An updated version of the product database, technical descriptions and conversion programs and other auxiliary programs are available on our Internet website.

Intended purpose

- Operation of loads, e.g. light on/off, dimming, blinds up/down, brightness values, temperatures, calling up and saving light scenes, etc.
- Installation in appliance box to DIN 49073

Product characteristics

- The pushbutton functions switching, dimming, controlling shutters, valuators, calling up scenes, etc., depending on the application selected
- One status LED per operating area, switchable jointly or separately, depending on the equipment and programming of each rocker
- A white operation LED as an orientation light and to indicate the programming status
- Integrated bus coupling unit

Operation

The operation of functions or electrical consumers can be set individual for each device. Two operating modes are used:

- Single button operation:
  Switching on or off or dimming brighter/darker, e.g. of lighting, takes place alternately when the pushbutton is pressed repeatedly.
- Two button operation:
  Two pushbuttons next to each other form a function pair. Pressing the left button, for example, switches or dims lighting on or brighter, pressing the right one switches it off or makes it darker.

Operating a function or load

Operation of consumers such as lighting, blinds, etc. are operated using the pushbuttons and depends on the programming of the device.

o Press a pushbutton.

The stored function is executed.

i The actuation pulse is relative to the length of touch. Depending on the function, short and long actuations may trigger different actions, e.g. switching/dimming.

Information for qualified electricians

Fitting and electrical connection

DANGER!

Electrical shock on contact with live parts in the fitting environment.

Electric shocks can be fatal.

Before working on the device, disconnect the power supply and cover up live parts in the working environment.

Fitting and connecting the device

(4) Dismantling protection
(5) Supporting frame
(6) Frame
(7) Push button
(8) Retaining screw
(9) Labelling panel

o Fit the supporting frame (5) in the right position on an appliance box. The dismantling protection (4) must be at the bottom right.
o Connect the bus line to the pushbutton senor (7) using the connecting terminal.
o Push the pushbutton sensor (7) with the frame (6) onto the supporting frame until it locks into place.
o Detach the labelling panel (9) from the bottom rocker.
o Screw the retaining screw (8) tight. This is prefitted in the round opening.
o Reattach the labelling panel (9).

D

Tastsensor

Sicherheitshinweise

Einbau und Montage elektrischer Geräte dürfen nur durch Elektrofachkräfte erfolgen.

Bei Nichtbeachten der Anleitung können Schäden am Gerät, Brand oder andere Gefahren entstehen.

Diese Anleitung ist Bestandteil des Produktes und muss beim Endkunden verbleiben.

Geräteaufbau

(1) Bedientasten
(2) Status-LED
(3) Betriebs-LED

Funktion

Systeminformation

Dieses Gerät ist ein Produkt des KNX-Systems und entspricht den KNX-Richtlinien. Detaillierte Fachkenntnisse durch KNX-Schulungen werden zum Verständnis vorausgesetzt.

Die Funktion des Gerätes ist softwareabhängig. Detaillierte Informationen über Softwareversionen und jeweiligen Funktionsumfang sowie die Software selbst sind der Produktdatenbank des Herstellers zu entnehmen.

Planung, Installation und Inbetriebnahme des Gerätes erfolgen mit Hilfe einer KNX-zertifizierten Software. Volle Funktionalität mit KNX-Inbetriebnahme-Software ab Version ETS3.0d.

Produktdatenbank, technische Beschreibungen sowie Konvertierungs- und weitere Hilfsprogramme finden Sie stets aktuell auf unserer Internet-Seite.

Bestimmungsgemäßer Gebrauch

- Bedienen von Verbrauchern, z. B. Licht ein/aus, Dimmen, Jalousien auf/ab, Helligkeitswerte, Temperaturen, Abrufen und Abspeichern von Lichtszenen etc.
- Montage in Gerätedose nach DIN 49073

Produkteigenschaften

- Tastsensor-Funktionen Schalten, Dimmen, Jalousiesteuerung, Wertgeber, Szenenaufruf etc., je nach gewählter Applikation
- Je eine Status-LED pro Bedienfläche, je nach Ausstattung und Programmierung pro Wippe gemeinsam oder separat schaltbar
- Eine weiße Betriebs-LED als Orientierungslicht sowie zur Anzeige des Programmierzustands
- Integrierter Busankoppler

Bedienung

Die Bedienung von Funktionen oder elektrischen Verbrauchern ist für jedes Gerät individuell einstellbar. Zwei Bedienarten sind üblich:

- Einflächenbedienung:
  Das Ein-/Ausschalten oder heller/dunkler Dimmen z. B. einer Beleuchtung erfolgt abwechselnd durch wiederholtes Betätigen der Tastfläche.
- Zweiflächenbedienung:
  Zwei gegenüberliegende Tastflächen bilden ein Funktionspaar. Betätigen links z. B. schaltet/dimmt eine Beleuchtung ein/heller, Betätigen rechts aus/dunkler.

Funktion oder Verbraucher bedienen

Die Bedienung von Verbrauchern wie Beleuchtung, Jalousien etc. erfolgt über die Tastflächen und hängt von der Programmierung des Geräts ab.

o Eine Tastfläche betätigen.

Die hinterlegte Funktion wird ausgeführt.

i Der Betätigungsimpuls liegt für die Dauer der Berührung an. Funktionsabhängig können kurze und lange Betätigungen unterschiedliche Aktionen auslösen, z. B. Schalten/Dimmen.

Informationen für Elektrofachkräfte

Montage und elektrischer Anschluss

GEFAHR!

Elektrischer Schlag bei Berühren spannungsführender Teile in der Einbauumgebung.

Elektrischer Schlag kann zum Tod führen.

Vor Arbeiten am Gerät freischalten und spannungsführende Teile in der Umgebung abdecken!

Gerät montieren und anschließen

(4) Demontagesicherung
(5) Tragring
(6) Rahmen
(7) Tastsensor
(8) Sicherungsschraube
(9) Beschriftungsfeld

o Den Tragring (5) lagerichtig auf eine Gerätedose montieren. Die Demontagesicherung (4) muss sich unten rechts befinden.
o Busleitung mit Anschlussklemme an den Tastsensor (7) anschließen.
o Tastsensor (7) mit Rahmen (6) auf den Tragring stecken, bis er einrastet.
o Beschriftungsfeld (9) von der unteren Wippe lösen.
o Sicherungsschraube (8) festschrauben. Diese steckt vormontiert in der runden Öffnung.
o Beschriftungsfeld (9) wieder montieren.

Bedienungs- und Montageanleitung
Operation- and Assembly Instructions

Tastsensor

Push button

Best.-Nr. /Order-No.
7514 xx xx

KNX/EIB

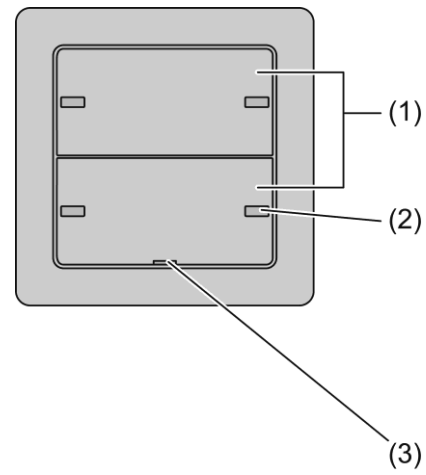
D GB NL

Berker GmbH & Co. KG
Klagebach 38
58579 Schalksmühle/Germany
Telefon + 49 (0) 2355/905-0
Telefax + 49 (0) 2355/905-111
www.berker.de

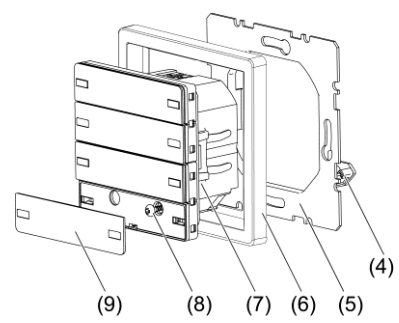
Berker Schalter und Systeme

24.02.2009
32568701_01
970-9486000

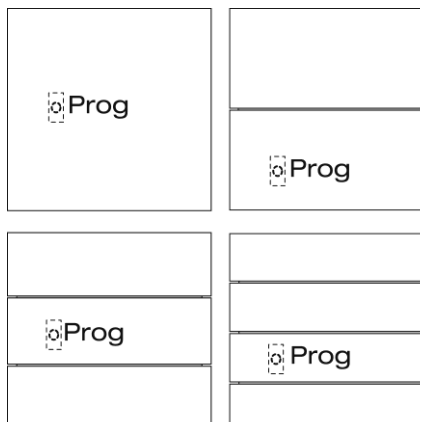
1



2



3



(D)

Inbetriebnahme

Physikalische Adresse und Anwendungssoftware laden

Projektierung und Inbetriebnahme mit ETS3.0d mit Patch A oder neuer.

Das Gerät ist angeschlossen und betriebsbereit.

- Wenn das Gerät keine – oder eine falsche – Anwendungssoftware enthält, blinkt die Betriebs-LED langsam.
- Die Programmiertaste befindet sich hinter einem Beschriftungsfeld. Die genaue Lage – je nach Ausführung – siehe Bild (Bild 3).
- Das Beschriftungsfeld über der Programmiertaste lösen.
- Programmiermodus aktivieren: Programmiertaste betätigen.

  Die Betriebs-LED (3) blinkt schnell.
- Physikalische Adresse in das Gerät laden.

  Die Betriebs-LED (3) kehrt in den vorherigen Zustand – aus, ein oder langsam blinken – zurück.
- Gerät mit physikalischer Adresse beschriften.
- Anwendungs-Software in das Gerät laden.
- Beschriftungsfeld wieder montieren.

Anhang

Technische Daten

KNX Medium	TP 1
Inbetriebnahmemodus	S-Mode
Nennspannung KNX	DC 21 V ... 32 V SELV
Leistungsaufnahme KNX	typ. 150 mW
Anschlussart KNX	Anschlussklemme
Schutzart	IP 20
Schutzklasse	III
Umgebungstemperatur	+5 ... +45 °C
Lager-/Transporttemperatur	-20 ... +70 °C

Gewährleistung

Technische und formale Änderungen am Produkt, soweit sie dem technischen Fortschritt dienen, behalten wir uns vor.

Wir leisten Gewähr im Rahmen der gesetzlichen Bestimmungen.

Im Gewährleistungsfall bitte an die Verkaufsstelle wenden oder das Gerät portofrei mit Fehlerbeschreibung an unser Service-Center senden.

Berker GmbH & Co. KG
Service-Center
Hubertusstraße 17
D-57482 Wenden-Ottfingen
Telefon: 0 23 55 / 90 5-0
Telefax: 0 23 55 / 90 5-111

(GB)

Start-up

Loading the physical address and application software

Configuration and commissioning with ETS3.0d Patch A or more recent.

The device is connected and ready for operation.

- If the device does not receive any application software, or the wrong application software, then the operation LED flashes slowly.
- The programming button is located behind a labelling panel. Refer to the image (picture 3) for the exact position - depending on the version.
- Release the labelling panel above the programming button.
- Activating Programming mode: press the programming button.

  The operation LED (3) flashes quickly.
- Load physical address into the device.

  The operation LED (3) switches back to the previous status - off, on or flashing slowly.
- Write the physical address on the device label.
- Load application software into the device.
- Reattach the labelling panel.

Appendix

Technical data

KNX medium	TP 1
Commissioning mode	S mode
Rated voltage KNX	DC 21 V ... 32 V SELV
Power consumption KNX	typical 150 mW
Connection mode KNX	Terminal
Degree of protection	IP 20
Safety class	III
Ambient temperature	+5 ... +45 °C
Storage/transport temperature	-20 ... +70 °C

Warranty

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

Our products are under guarantee within the scope of the statutory provisions.

If you have a warranty claim, please contact the point of sale or ship the device postage free with a description of the fault to the appropriate regional representative.

(NL)

Inbedrijfname

Fysiek adres en toepassingssoftware laden

Projectering en inbedrijfname met ETS3.0d met patch A of nieuwer.

Het apparaat is aangesloten en bedrijfsklaar.

- Als het apparaat geen – of de verkeerde – toepassingssoftware bevat, knippert de bedrijfs-LED langzaam.
- De programmeertoets bevindt zich achter een beletteringsveld. Zie voor de exacte positie, afhankelijk van de uitvoering, figuur (afbeelding 3).
- Het beletteringsveld via de programmeertoets wissen.
- Programmeermodus activeren: programmeertoets bedienen.

  De bedrijfs-LED (3) knippert snel.
- Fysiek adres in het apparaat laden.

  De bedrijfs-LED (3) keert naar de vorige toestand – UIT, AAN of langzaam knipperen – terug.
- Fysiek adres op het apparaat aanbrengen.
- Toepassingssoftware in het apparaat laden.
- Beletteringsveld weer monteren.

Bijlage

Technische gegevens

KNX medium	TP1
Ingebruiknamemodus	S-modus
Nominale spanning KNX	DC 21 V ... 32 V SELV
Opgenomen vermogen KNX	typ. 150 mW
Soort aansluiting KNX	Aansluitklem
Beschermingsgraad	IP 20
Beschermingsklasse	III
Omgevingstemperatuur	+5 ... +45 °C
Opslag-/transporttemperatuur	-20 ... +70 °C

Garantie

Wij behouden ons het recht voor om technische en formele wijzigingen aan het product aan te brengen, voor zover deze de technische vooruitgang dienen.

Onze garantie voldoet aan de desbetreffende wettelijke bepalingen.

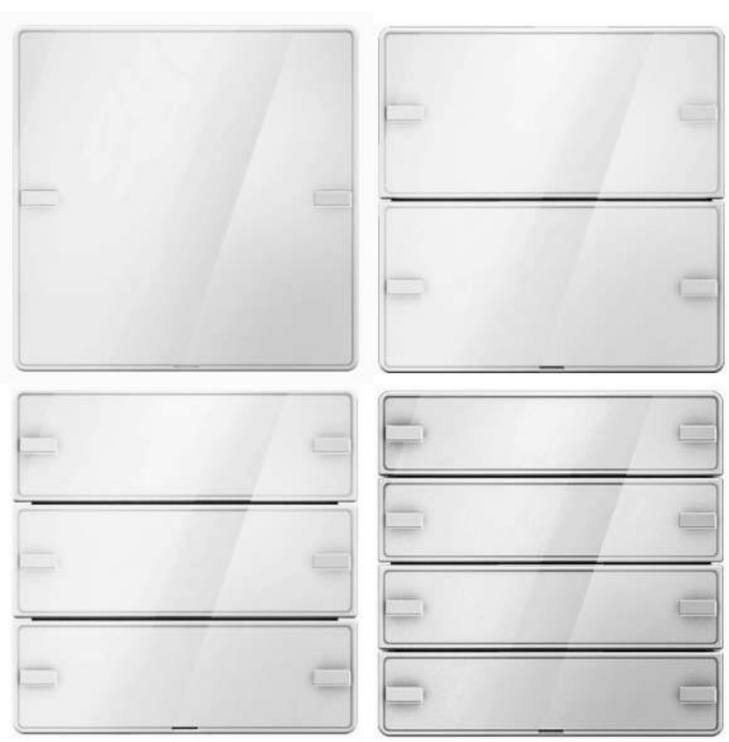
Neem bij garantiekwesties contact op met het verkooppunt of stuur het apparaat franco met beschrijving van de opgetreden defecten naar de desbetreffende regionale vertegenwoordiging.

Push button 1gang comfort with labeling field

Push button 2gang comfort with labeling field

Push button 3gang comfort with labeling field

Push button 4gang comfort with labeling field



Issue: 26.02.2009
656x0120

Content

1 Product definition

1.1 Product catalogue

Product name:	Push button 1gang comfort with labeling field / Push button 2gang comfort with labeling field / Push button 3gang comfort with labeling field / Push button 4gang comfort with labeling field
Use:	Sensor
Design:	UP (concealed)
Order-No.	7514 13 xx / 7514 23 xx / 7514 33 xx / 7514 43 xx

1.2 Function

When its buttons are pushed, the Comfort pushbutton sensor sends telegrams to the KNX / EIB, depending on the ETS parameter settings. These can be, for instance, telegrams for switching or momentary-contact control, for dimming or for shutter control. It is also possible to program value transmitter functions, such as dimming value transmitters, light scene extensions, temperature value transmitters or brightness value transmitters.

In conjunction with a room thermostat equipped with a 1-byte object for switching the modes of operation, the Comfort pushbutton sensor can be used as a full-featured controller extension. The device can also be used for presence detection or for setpoint shifting purposes.

The Comfort pushbutton sensor consists of one or more operating areas, depending on the variant. The operation concept of an operating area can be configured in the ETS either as a rocker function or alternatively as a pushbutton function. With the rocker function, one operating area is divided into two actuation pressure points (left / right) with the same basic function. In the pushbutton function either an operating area is divided into 2 neighbouring, functionally-separate actuation pressure points (2 buttons), or an operating area is evaluated as single-surface operation (only one button).

If an operating area is used as a single rocker function, then it is also possible to trigger special functions using full-surface operation.

The Comfort pushbutton sensor has two status LEDs per operating area. These status LEDs can either be switched on or off permanently, or can function as a status indicator for a button or rocker. As an alternative, the LEDs can also be activated via separate communication objects. The LEDs can either indicate the switching status of an object statically or by flashing, signal operating states of room thermostats, or indicate results of logical value comparison operations.

When used, an operation LED can either serve as an orientation light (also flashing), or can be activated via a separate communication object. When the pushbutton sensor is in the programming mode, the operation LED flashes with a frequency of about 8 Hz. The same flashing rate is also used for indicating that a rocker has been actuated by a press on the full surface; in this case, the LED switches back to its configured behaviour when actuation ends. If no or a wrong application has been loaded into the pushbutton sensor, the operation LED flashes with a frequency of approx. 0.75 Hz to indicate an error and the pushbutton sensor does not work.

A bus coupling unit is already permanently integrated in the Comfort pushbutton sensor, allowing the device to be connected directly to the bus cable during commissioning.

2 Fitting, electrical connection and operation

2.1 Safety instructions

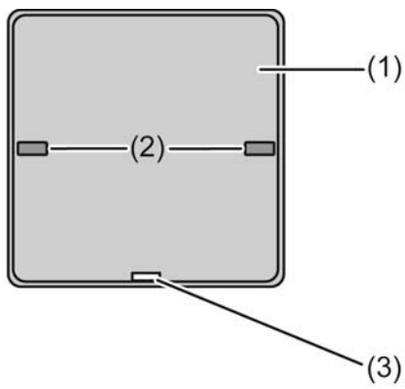
Electrical equipment must be installed and fitted by qualified electricians. Observe the current accident prevention regulations.

Failure to observe the instructions may cause damage to the device and result in fire and other hazards.

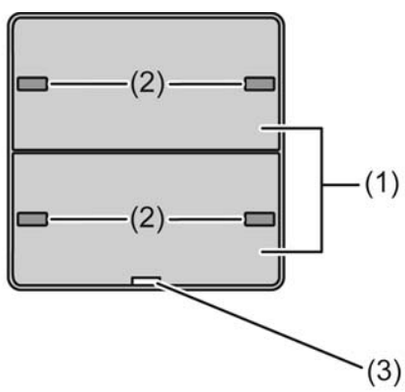
During installation, adequate insulation between the mains voltage and the bus must be ensured! A minimum distance of at least 4 mm must be maintained between bus conductors and mains voltage cores.

The device may not be opened or operated outside the technical specifications.

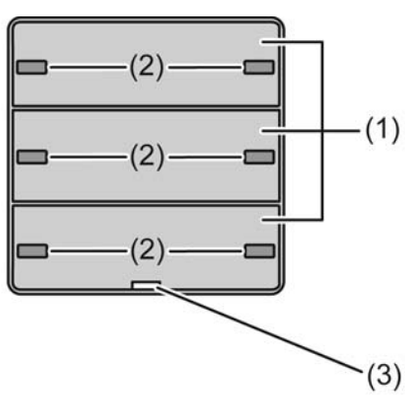
2.2 Device components



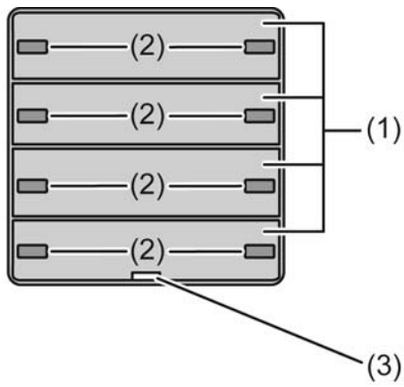
picture 1: Device components of the push button 1gang comfort



picture 2: Device components of the push button 2gang comfort



picture 3: Device components of the push button 3gang comfort



picture 4: Device components of the push button 4gang comfort

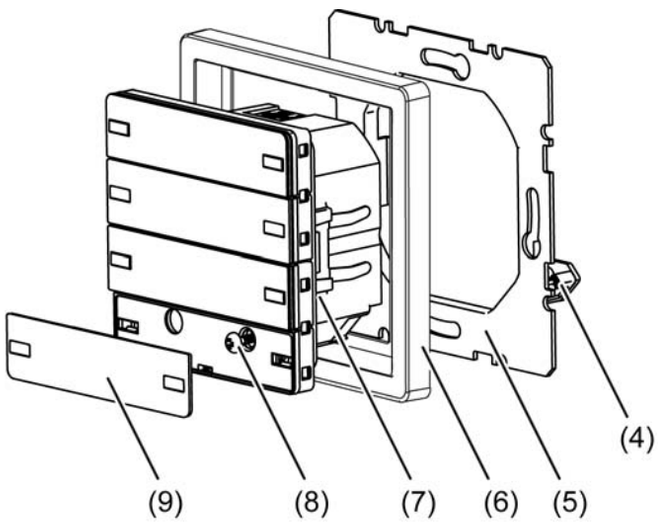
(1) Operating areas (depending on the ETS configuration, as rocker or pushbutton function)
(2) Status LED (orange)
(3) Operation LED (white)

Dimensions:
Width (W): 58 mm / Height (H): 58 mm / Depth (D): 34 mm

- Data including flush-mounted section, without decorative frame, without supporting frame.

2.3 Fitting and electrical connection

Fitting and connecting the device



picture 5: Device fitting using the example of a push button 4gang comfort

(4) Dismantling protection
(5) Supporting ring
(6) Frame
(7) Pushbutton sensor
(8) Retaining screw
(9) Cover with labelling panel

- Fit the supporting frame (5) in the right position on an appliance box. The dismantling protection (4) must be at the bottom right.
- Run the bus cable with the connection terminal through the supporting frame (5) and the frame (6) and connect to the pushbutton sensor (7).
- Push the pushbutton sensor (7) with the frame (6) onto the supporting frame until it locks into place.
- Detach the cable with labelling panel (9) from the bottom rocker.
- Screw the retaining screw (8) tight. This is prefitted in the round opening.
- Clip the labelling panel (9) back onto the pushbutton sensor.

- To program the physical address, a cover with a labelling panel must be removed from the pushbutton sensor (see chapter 2.4. Commissioning).

2.4 Commissioning

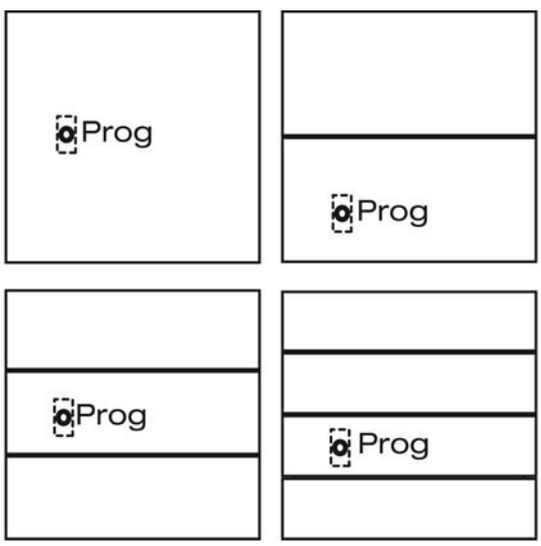
Loading the physical address and application software

The start-up procedure of the device is basically confined to programming of the physical address and the application data with the ETS.

Project planning and commissioning of the device preferably using the ETS 3.0d with Patch A or newer versions.

The device is connected and ready for operation.

An appropriate device must be set up and configured in the ETS project.



picture 6: Arrangement of the programming button dependent on the device variant

- The programming button is located behind a labelling panel. Refer to the image (picture 6) for the exact position - depending on the version.
- Release the labelling panel above the programming button.
- Activating Programming mode: press the programming button.
  The operation LED (3) flashes quickly.
- Program the physical address with the help of the ETS.
  The operation LED (3) switches back to the previous status - off, on or flashing slowly.
- Write the physical address on the device label.
- Load the application data into the device using the ETS.
- Reattach the labelling panel.
- If the device was programmed with incorrect application data, then operation LED flashes slowly. In this case, the device will not function after start-up.

2.5 Operation

Operating areas

The Comfort pushbutton sensor consists of one or more operating areas, depending on the variant. The operation concept of an operating area can be configured in the ETS either as a rocker function or alternatively as a pushbutton function. With the rocker function, one operating area is divided into two neighbouring actuation pressure points with the same basic function. In the pushbutton function either an operating area is divided into 2 functionally separate actuation pressure points (2 buttons), or an operating area is evaluated as single-surface operation (only one button). If an operating area is used as a single rocker function, then it is also possible to trigger special functions using full-surface operation.
The number of operating rockers depends on the device variant used.

Each operating area has two status LEDs (left & right), which, according to the function of the rocker or pushbuttons can be internally connected to the operating function. They may, however, also be used for signalling completely independent functions, flash or be permanently on or off.
The operation LED can also signal the switching state of its own object, flash or be permanently on or off. Besides functions that can be set using the ETS, the operation LED also indicates that the pushbutton sensor is in the programming mode for commissioning or diagnosis purposes.

Moreover, the pushbutton sensor has functions which are not immediately linked with the rockers or buttons and which must therefore be additionally enabled by the corresponding parameters. These include the thermostat extension function, pushbutton function disable, the internal scenes and the display of alarm signals.

- Configuration of the operating areas (button or rocker function and button arrangement) is described in detail in the chapter "Software description" (see page 29).

3 Technical data

General	
Protection rating	IP 20
Safety class	III
Mark of approval	KNX / EIB
Ambient temperature	+5 ... +45 °C
Storage/transport temperature	-20 ... +70 °C
KNX / EIB supply	
KNX medium	TP 1
Commissioning mode	S mode
Rated voltage KNX	DC 21 V ... 32 V SELV
Power consumption KNX	typical 150 mW
Connection mode KNX	Connection terminal

4 Software description

4.1 Software specification

ETS search paths:	- Push button / Push button 1gang / Push button 1gang comfort with labeling field - Push button / Push button 2gang / Push button 2gang comfort with labeling field - Push button / Push button 3gang / Push button 3gang comfort with labeling field - Push button / Push button 4gang / Push button 4gang comfort with labeling field
BAU used:	ASIC FZE 1065 + µC
KNX/EIB type class:	3b device with cert. Physical layer + stack
Configuration:	S-mode standard
PEI type:	"00"$_{Hex}$ / "0" $_{Dec}$
PEI connector:	No connector

Applications for Push button 1gang comfort:

No.	Short description	Name	Version	from screen version
1	Multifunctional pushbutton sensor application: 1 operating area (1 x rocker / 2 x buttons)	Push button 1gang comfort 10C101	0.1 for ETS 2 and ETS 3.0a…c	705
2		Push button 1gang comfort 10C111	1.1 for ETS3.0 Version d onwards	705

Applications for push button 2gang comfort:

No.	Short description	Name	Version	from screen version
1	Multifunctional pushbutton sensor application: 2 operating areas (2 x rockers / 4 x buttons)	Push button 2gang comfort 10C201	0.1 for ETS 2 and ETS 3.0a…c	705
2		Push button 2gang comfort 10C211	1.1 for ETS3.0 Version d onwards	705

Applications for push button 3gang comfort:

No.	Short description	Name	Version	from screen version
1	Multifunctional pushbutton sensor application: 3 operating areas (3 x rockers / 6 x buttons)	Push button 3gang comfort 10C301	0.1 for ETS 2 and ETS 3.0a…c	705
2		Push button 3gang comfort 10C311	1.1 for ETS3.0 Version don-wards	705

Applications for push button 4gang comfort:

No.	Short description	Name	Version	from screen version
1	Multifunctional pushbutton sensor application: 4 operating areas (4 x rockers / 8 x buttons)	Push button 4gang comfort 10C401	0.1 for ETS 2 and ETS 3.0a…c	705
2		Push button 4gang comfort 10C411	1.1 for ETS3.0 Version don-wards	705

4.2 Push button xgang comfort 10Cx01 / 10Cx11

4.2.1 Scope of functions

Scope of functions

- Each operating area can either be used as a single rocker or as two independent buttons.
- For pushbutton function either double-surface or single-surface principle.
- Each rocker can be used for the functions switching, dimming, shutter control, 1-byte value transmitter, 2-byte value transmitter and scene extension.
- Each button can be used for the functions switching, dimming, shutter control, 1-byte value transmitter, 2-byte value transmitter, scene extension and room thermostat extension value transmitter.
- 2-channel control is possible: each rocker or each button can be set for controlling two independent channels. This means that only one button-press is enough to transmit up to two telegrams to the bus. The channels can be configured independently of one another for the Switching, Value transmitter (1 byte) or Temperature value transmitter (2 bytes) functions.
- For the rocker functions Dimming, Venetian blind (operation concept "Long – Short or Short")' and 2-channel operation, full-surface rocker actuation can also be evaluated. With full-surface rocker operation, switching telegrams and scene recall requests can be triggered on the bus in addition to and independently of the configured rocker function.
- The switching function permits the following settings: reaction after pressing and/or releasing, switching on and off and toggling.
- The dimming function permits the following settings: times for short and long actuation, dimming in different levels, telegram repetition on long press, transmission of stop telegram after end of press.
- The shutter control permits the following settings: four different operation concepts with times for short and long press and slat adjustment.
- The 1-byte and 2-byte value transmitter function permits the following settings: selection of the value range (0 … 100 %, 0 … 255, 0 … 65535, 0 … 1500 lux, 0 … 40 °C), value on button-press, value change on sustained button-press with different level sizes, optional overflow on reaching the end of a value range.
- The scene control permits the following settings: Internal storage of eight scenes with eight output channels, recall of internal scenes by means of a presettable scene number, selection of object types for the output channels; for each scene, the storage of the individual output values and the transmission of the output values can be permitted or disabled; the individual channels can be delayed during scene recall; as scene extension 64 scenes can be recalled and stored.
- The controller extension function permits the following settings: operating mode selection with normal and high priority, defined selection of an operating mode, change between different operating modes, change of presence status, setpoint shift.
- Each operating area has two status LEDs.
- When a status LED is internally connected with the rocker or the button, it can signal a button-press or the current status of a communication object. The status can also be indicated in inverted form.
- When a status LED is not dependent on the rocker or button, it can be permanently on or off, indicate the status of an independent communication object, the operating state of a room thermostat or the result of a comparison between signed or unsigned 1 byte values.
- The operation LED can be permanently on or off or alternatively be switched via a communication object.

- The rockers or buttons can be disabled via a 1-bit object. The following settings are possible: polarity of the disabling object, behaviour at the beginning and at the end of disabling. During an active disable, all or some of the rockers / buttons can have no function, can perform the function of a selected button or execute one of two presettable disabling functions.
- All LEDs of the pushbutton sensor can flash simultaneously in the event of an alarm. The following settings are possible: Value of alarm signalling object for the states alarm / no alarm, alarm acknowledge by actuation of a button, transmission of the acknowledge signal to other devices.

4.2.2 Software information

ETS project design and start-up

For configuration and commissioning of this device, we recommended using ETS3.0d. Advantages with regard to downloading (significantly shorter loading times) and parameter programming can be expected only if this ETS patch version or later versions are used. The advantages are gained through the use of the new mask version 7.5 and the parameter presentation of ETS3.
The product database necessary for ETS3.0d is provided in *.VD4 format. The corresponding application program has the version number "1.1".
For the ETS2 and older versions of the ETS3 a separate product database in the *.VD2 format is available. The application program for these ETS versions is version number "0.1".
As far as the scope of functions of the parameters described in this documentation is concerned, there is no difference between the two application programs.
When older ETS versions are updated to the level of version ETS3.0d or to that of later versions, an additional tool in the form of an ETS3 add-in is available. This tool is able to convert older product databases with application version "0.1" – for example from existing ETS2 projects – into the new application format (version "1.1"). This way you can make use of the advantages of the ETS3.0d application easily and without changing the configuration. The ETS3 add-in can be obtained separately from the manufacturer and is free of charge.

4.2.3 Object table

Number of communication objects:	29 (1x variant) 35 (2x variant) 41 (3x variant) 47 (4x variant) (max. object number 74 - gaps in between)
Number of addresses (max):	120
Number of assignments (max):	120
Dynamic table management	Yes
Maximum table length	240

Objects for rocker or button function:

Function: Switching

Object	Function	Name	Type	DP type	Flag
h 0	Switching	Rocker/button 1 [1,2]	1-bit	1.xxx	C, W, T, (R) [3]

Description 1-bit object for the transmission of switching telegrams (ON, OFF).

Function: Dimming

Object	Function	Name	Type	DP type	Flag
h 0	Switching	Rocker/button 1 [1,2]	1-bit	1.xxx	C, W, T, (R) [3]

Description 1-bit object for the transmission of switching telegrams (ON, OFF).

Function: Dimming

Object	Function	Name	Type	DP type	Flag
h 18	Dimming	Rocker/button 1 [1,2]	4-bit	3,007	C, W, T, (R) [3]

Description 4-bit object for the transmission of relative dimming telegrams.

1: The number of rockers or buttons depends on the planned device variant.

2: The objects have been described for rocker 1 or button 1 as an example. The objects for the other rockers/buttons are defined in the same way by shifting the object number and changing the object name.

3: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Function: Venetian blind

Object	Function	Name	Type	DP type	Flag
0	Short time operation	Rocker/button 1 [1,2]	1-bit	1,007	C, -, T, (R) [3]

Description: 1-bit object for the transmission of telegrams with which a Venetian blind or shutter drive motor can be stopped or with which the blind slats can be adjusted by short time operation.

Function: Venetian blind

Object	Function	Name	Type	DP type	Flag
18	Long time operation	Rocker/button 1 [1,2]	1-bit	1,008	C, W, T, (R) [3]

Description: 1-bit object for the transmission of telegrams with which a Venetian blind or shutter drive motor can be can be moved up or down.

Function: 1-byte value transmitter

Object	Function	Name	Type	DP type	Flag
0	Value	Rocker/button 1 [1,2]	1-byte	5.xxx	C, W, T, (R) [3]

Description: 1-byte object for the transmission of values from 0 to 255 (corresponding to values from 0 % to 100 %). If the adjustment of the value is enabled, the object can transmit telegrams cyclically after long actuation with which the value can be reduced or increased by a presettable amount.

Function: 2-byte value transmitter

Object	Function	Name	Type	DP type	Flag
0	Value	Rocker/button 1 [1,2]	2-byte	7.xxx	C, W, T, (R) [3]

Description: 2-byte object for the transmission of values from 0 to 65535. If the adjustment of the value is enabled, the object can transmit cyclical telegrams after a long press with which the value can be reduced or increased by an adjustable amount.

1: The number of rockers or buttons depends on the planned device variant.

2: The objects have been described for rocker 1 or button 1 as an example. The objects for the other rockers/buttons are defined in the same way by shifting the object number and changing the object name.

3: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Function: 2-byte value transmitter

Object	Function	Name	Type	DP type	Flag
h 0	Temperature value	Rocker/button 1 [1,2]	2-byte	9,001	C, W, T, (R) [3]

Description: 2 -byte object for the transmission of a temperature value from 0 °C to 40 °C. If the adjustment of the value is enabled, the object can transmit telegrams cyclically after a long press with which the value can be reduced or increased by 1 K.

Function: 2-byte value transmitter

Object	Function	Name	Type	DP type	Flag
h 0	Brightness value	Rocker/button 1 [1,2]	2-byte	9,004	C, W, T, (R) [3]

Description: 2-byte object for the transmission of a brightness level value from 0 lux to 1500. If the adjustment of the value is enabled, the object can transmit cyclical telegrams after a long press with which the value can be reduced or increased by 50 lux.

Function: Scene extension

Object	Function	Name	Type	DP type	Flag
h 0	Scene extension	Rocker/button 1 [1,2]	1-byte	18,001	C, -, T, (R) [3]

Description: 1-byte object for recalling or for storing one of 64 scenes max. from a scene pushbutton sensor.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
h 0	Channel 1 switching	Rocker/button 1 [1,2]	1-bit	1.xxx	C, W, T, (R) [3]

Description: 1-bit object for the transmission of switching telegrams, if 2-channel operation is activated.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
h 0	Channel 1 value	Rocker/button 1 [1,2]	1-byte	5.xxx	C, -, T, (R) [3]

Description: 1-byte object for the transmission of value telegrams, if 2-channel operation is activated.

1: The number of rockers or buttons depends on the planned device variant.

2: The objects have been described for rocker 1 or button 1 as an example. The objects for the other rockers/buttons are defined in the same way by shifting the object number and changing the object name.

3: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
h 0	Channel 1 value	Rocker/button 1 [1,2]	2-byte	9,001	C, -, T, (R) [3]

Description 2-byte object for the transmission of value telegrams, if 2-channel operation is activated.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
h 18	Channel 2 switching	Rocker/button 1 [1,2]	1-bit	1.xxx	C, W, T, (R) [3]

Description 1-bit object for the transmission of switching telegrams, if 2-channel operation is activated.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
h 18	Channel 2 value	Rocker/button 1 [1,2]	1-byte	5.xxx	C, -, T, (R) [3]

Description 1-byte object for the transmission of value telegrams, if 2-channel operation is activated.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
h 18	Channel 2 value	Rocker/button 1 [1,2]	2-byte	9,001	C, -, T, (R) [3]

Description 2-byte object for the transmission of value telegrams, if 2-channel operation is activated.

1: The number of rockers or buttons depends on the planned device variant.

2: The objects have been described for rocker 1 or button 1 as an example. The objects for the other rockers/buttons are defined in the same way by shifting the object number and changing the object name.

3: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Objects for full-surface operation with rocker function (with dimming, Venetian blind and 2-channel operation):

Function:	Full-surface operation				
Object	Function	Name	Type	DP type	Flag
h [1]	Switching	Rocker 1 full-surface operation [1,2]	1-bit	1.xxx	C, W, T, (R) [3]
Description	1-bit object for the transmission of switching telegrams (ON, OFF) when there is full-surface operation of an operating area.				

Function:	Full-surface operation				
Object	Function	Name	Type	DP type	Flag
h [1]	Scene extension	Rocker 1 full-surface operation [1,2]	1-byte	18,001	C, -, T, (R) [3]
Description	1-byte object for recalling or for storing one of 64 scenes max. from a scene pushbutton sensor in case of full-surface operation of an operating area.				

Objects for status LED:

Function:	Status LED in case of rocker function				
Object	Function	Name	Type	DP type	Flag
h [36]	Status LED top	Rocker 1 [1,2]	1-bit	1.xxx	C, W, -, (R) [3]
Description	1-bit object for activation of the status LED.				

Function:	Status LED in case of rocker function				
Object	Function	Name	Type	DP type	Flag
h [36]	Status LED top	Rocker 1 [1,2]	1-byte	5.xxx, 6.xxx, 20.102	C, W, -, (R) [3]
Description	1-byte object for activation of the status LED.				

1: The number of rockers or buttons depends on the planned device variant.

2: The objects have been described for rocker 1 or button 1 as an example. The objects for the other rockers/buttons are defined in the same way by shifting the object number and changing the object name.

3: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Function:	Status LED in case of rocker function				
Object	Function	Name	Type	DP type	Flag
h 37	Status LED bottom	Rocker 1 [1,2]	1-bit	1.xxx	C, W, -, (R) [3]
Description	1-bit object for activation of the status LED.				

Function:	Status LED in case of rocker function				
Object	Function	Name	Type	DP type	Flag
h 37	Status LED bottom	Rocker 1 [1,2]	1-byte	5.xxx, 6.xxx, 20.102	C, W, -, (R) [3]
Description	1-byte object for activation of the status LED.				

Function:	Status LED in case of pushbutton function				
Object	Function	Name	Type	DP type	Flag
h 36	Status LED	Button 1[1,2]	1-bit	1.xxx	C, W, -, (R) [3]
Description	1-bit object for activation of the status LED.				

Function:	Status LED in case of pushbutton function				
Object	Function	Name	Type	DP type	Flag
h 36	Status LED	Button 1[1,2]	1-byte	5.xxx, 6.xxx, 20.102	C, W, -, (R) [3]
Description	1-byte object for activation of the status LED.				

Objects for disabling functions:

Function:	Switching				
Object	Function	Name	Type	DP type	Flag
h 16, 17	Switching	Disabling function 1 / 2	1-bit	1.xxx	C, W, T, (R) [3]
Description	1-bit object for the transmission of switching telegrams (ON, OFF).				

1: The number of rockers or buttons depends on the planned device variant.

2: The objects have been described for rocker 1 or button 1 as an example. The objects for the other rockers/buttons are defined in the same way by shifting the object number and changing the object name.

3: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Function: Dimming

Object	Function	Name	Type	DP type	Flag
h 16, 17	Switching	Disabling function 1 / 2	1-bit	1.xxx	C, W, T, (R) [1]

Description 1-bit object for the transmission of switching telegrams (ON, OFF).

Function: Dimming

Object	Function	Name	Type	DP type	Flag
h 34, 35	Dimming	Disabling function 1 / 2	4-bit	1,007	C, W, T, (R) [1]

Description 4-bit object for the transmission of relative dimming telegrams.

Function: Venetian blind

Object	Function	Name	Type	DP type	Flag
h 16, 17	Short time operation	Disabling function 1 / 2	1-bit	1,007	C, -, T, (R) [1]

Description 1-bit object for the transmission of telegrams with which a Venetian blind or shutter drive motor can be stopped or with which the blind slats can be adjusted by short time operation.

Function: Venetian blind

Object	Function	Name	Type	DP type	Flag
h 34, 35	Long time operation	Disabling function 1 / 2	1-bit	1,008	C, W, T, (R) [1]

Description 1-bit object for the transmission of telegrams with which a Venetian blind or shutter drive motor can be can be moved up or down.

Function: 1-byte value transmitter

Object	Function	Name	Type	DP type	Flag
h 16, 17	Value	Disabling function 1 / 2	1-byte	5.xxx	C, W, T, (R) [1]

Description 1-byte object for the transmission of values from 0 to 255 (corresponding to values from 0 % to 100 %). If the adjustment of the value is enabled, the object can transmit telegrams cyclically after long actuation with which the value can be reduced or increased by a presettable amount.

1: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Function: 2-byte value transmitter

Object	Function	Name	Type	DP type	Flag
16, 17	Value	Disabling function 1 / 2	2-byte	7.xxx	C, W, T, (R) [1]

Description: 2-byte object for the transmission of values from 0 to 65535. If the adjustment of the value is enabled, the object can transmit cyclical telegrams after a long press with which the value can be reduced or increased by an adjustable amount.

Function: 2-byte value transmitter

Object	Function	Name	Type	DP type	Flag
16, 17	Temperature value	Disabling function 1 / 2	2-byte	9,001	C, W, T, (R) [1]

Description: 2 -byte object for the transmission of a temperature value from 0 °C to 40 °C. If the adjustment of the value is enabled, the object can transmit telegrams cyclically after a long press with which the value can be reduced or increased by 1 K.

Function: 2-byte value transmitter

Object	Function	Name	Type	DP type	Flag
16, 17	Brightness value	Disabling function 1 / 2	2-byte	9,004	C, W, T, (R) [1]

Description: 2-byte object for the transmission of a brightness level value from 0 lux to 1500. If the adjustment of the value is enabled, the object can transmit cyclical telegrams after a long press with which the value can be reduced or increased by 50 lux.

Function: Scene extension

Object	Function	Name	Type	DP type	Flag
16, 17	Scene extension	Disabling function 1 / 2	1-byte	18,001	C, -, T, (R) [1]

Description: 1-byte object for recalling or for storing one of 64 scenes max. from a scene pushbutton sensor.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
16, 17	Channel 1 switching	Disabling function 1 / 2	1-bit	1.xxx	C, W, T, (R) [1]

Description: 1-bit object for the transmission of switching telegrams, if 2-channel operation is activated.

1: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
16, 17	Channel 1 value	Disabling function 1 / 2	1-byte	5.xxx	C, -, T, (R) [1]

Description 1-byte object for the transmission of value telegrams, if 2-channel operation is activated.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
16, 17	Channel 1 value	Disabling function 1 / 2	2-byte	9,001	C, -, T, (R) [1]

Description 2-byte object for the transmission of value telegrams, if 2-channel operation is activated.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
34, 35	Channel 2 switching	Disabling function 1 / 2	1-bit	1.xxx	C, W, T, (R) [1]

Description 1-bit object for the transmission of switching telegrams, if 2-channel operation is activated.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
34, 35	Channel 2 value	Disabling function 1 / 2	1-byte	5.xxx	C, -, T, (R) [1]

Description 1-byte object for the transmission of value telegrams, if 2-channel operation is activated.

Function: 2-channel operation

Object	Function	Name	Type	DP type	Flag
34, 35	Channel 2 value	Disabling function 1 / 2	2-byte	9,001	C, -, T, (R) [1]

Description 2-byte object for the transmission of value telegrams, if 2-channel operation is activated.

1: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Function: Disabling function

Object	Function	Name	Type	DP type	Flag
54	Disabling	Button disabling	1-bit	1,001	C, W, -, (R) [1]

Description 1-bit object by means of which the pushbutton sensor can be disabled and enabled again (polarity configurable).

Object for operation LED:

Function: Operation LED

Object	Function	Name	Type	DP type	Flag
52	Operation LED	Switching	1-bit	1,001	C, W, -, (R) [1]

Description 1-bit object for switching the operation LED on or off ("1" = switch on; "0" = switch off).

Objects for alarm signalling:

Function: Alarm signal

Object	Function	Name	Type	DP type	Flag
56	Switching	Alarm signal	1-bit	1.xxx	C, W, -, (R) [1]

Description 1-bit object for the reception of an alarm signalling (polarity configurable).

Function: Alarm signal

Object	Function	Name	Type	DP type	Flag
57	Switching	Alarm signalling acknowledge	1-bit	1.xxx	C, -, T, (R) [1]

Description 1-bit object for transmitting the acknowledgement of an alarm signalling (polarity configurable).

1: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Objects for the controller extension:

Function:	Controller extension				
Object	Function	Name	Type	DP type	Flag
h 58	Operating mode switchover	Controller extension	1-byte	20,102	C, W, T, (R) [1]
Description	1-byte object for switching over a room thermostat between the Comfort, Standby, Night and Frost / heat protection operating modes.				

Function:	Controller extension				
Object	Function	Name	Type	DP type	Flag
h 59	Forced oper. mode switchover	Controller extension	1-byte	20,102	C, W, T, (R) [1]
Description	1-byte object for switching over a room thermostat under forced control between the Comfort, Standby, Night and Frost / heat protection operating modes				

Function:	Controller extension				
Object	Function	Name	Type	DP type	Flag
h 60	Presence button	Controller extension	1-bit	1,001	C, W, T, (R) [1]
Description	1-bit object for switching over the presence status of a room thermostat (polarity configurable)				

Function:	Controller extension				
Object	Function	Name	Type	DP type	Flag
h 61	Setpoint shift specification	Controller extension	1-byte	6,010	C, -, T, (R) [1]
Description	1-byte object for presetting a basic setpoint shift for a controller. x ≤ 0 ≤ y (0 = no shift active); integral numbers Value object 62 + 1 (increase level value) Value object 62 – 1 (decrease level value) The possible range of values (x to y) is fixed by the setpoint adjusting range to the 'upper limit' or to the 'lower limit' (configurable) in combination with the level value on the room thermostat.				

1: For readout, the R flag must be set. The last value written to the object via the bus will be read.

Function:	Controller extension				
Object	Function	Name	Type	DP type	Flag
h 62	Current setpoint shift	Controller extension	1-byte	6,010	C, W, T, (R) [1]

Description: 1-byte object used by the extension unit for receiving the current setpoint shift of the room thermostat.
x ≤ 0 ≤ y (0 = no shift active); integral numbers
The possible range of values (x to y) is fixed by the setpoint adjusting range to the 'upper limit' or to the 'lower limit' (configurable) in combination with the level value on the room thermostat.

Function:	Controller extension				
Object	Function	Name	Type	DP type	Flag
h 63	Controller status	Controller extension	1-byte	Not defined	C, W, T, (R) [1]

Description: 1-byte object used by the extension unit for receiving the current state of operation of the controller. Status LEDs that can be used to indicate a status independently of a button function can display one of the various information units which are grouped in this byte (bit-oriented evaluation).

Objects for scene function:

Function:	Light scene function				
Object	Function	Name	Type	DP type	Flag
h 66...73	Switching	Scene output 1[2]	1-bit	1,001	C, W, T, (R) [1]

Description: 1-bit objects for controlling up to eight actuator groups (ON, OFF).

Function:	Light scene function				
Object	Function	Name	Type	DP type	Flag
h 66...73	Value	Scene output 1[2]	1-byte	5,001	C, W, T, (R) [1]

Description: 1-byte objects for controlling up to eight actuator groups (0…255).

1: For readout, the R flag must be set. The last value written to the object via the bus will be read.

2: Scene outputs 2 … 8 see scene output 1, shift of the object number (66 + number of scene output - 1).

Function: Light scene function

Object	Function	Name	Type	DP type	Flag
h 74	Extension unit input	Scene	1-byte	18,001	C, W, -, (R) [1]

Description 1-byte object with which one of the eight internally stored scenes can be recalled or stored again.

1: For readout, the R flag must be set. The last value written to the object via the bus will be read.

4.2.4 Functional description

4.2.4.1 Operation concept and button evaluation

Operating areas

The Comfort pushbutton sensor consists of one or more operating areas, depending on the variant. The operation concept of an operating area can be configured in the ETS either as a rocker function or alternatively as a pushbutton function. With the rocker function, one operating area is divided into two neighbouring actuation pressure points with the same basic function. In the pushbutton function either an operating area is divided into 2 functionally separate actuation pressure points (2 buttons), or an operating area is evaluated as single-surface operation (only one large button).
If an operating area is used as a single rocker function, then it is also possible to trigger special functions using full-surface operation.

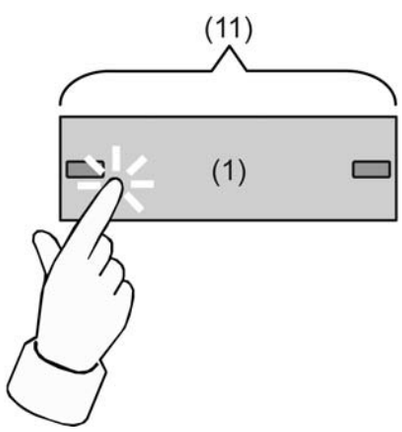
The number of operating areas depends on the device variant used.

Each operating area has two status LEDs, which, according to the function of the rocker or pushbuttons can be internally connected to the operating function. They may, however, also be used for signalling completely independent functions or be permanently on or off.
The operation LED can also signal the switching state of its own object, flash or be permanently on or off. Besides functions that can be set using the ETS, the operation LED also indicates that the pushbutton sensor is in the programming mode for commissioning or diagnosis purposes.

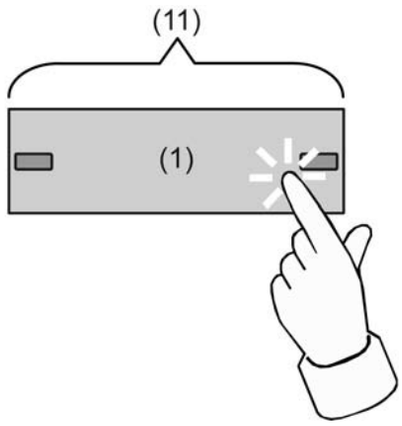
Moreover, the Comfort pushbutton sensor has functions which are not immediately linked with the rockers or buttons and which must therefore be additionally enabled by the corresponding parameters. These include the thermostat extension function, pushbutton function disable, the internal scenes and the display of alarm signals.

Operating area as rocker function

In the rocker operating concept, two adjacent actuation pressure points are used as a rocker. The two pressure points are then termed the left and right rocker buttons. Pressing the buttons affect the communication objects assigned to the rocker. Usually, pressing both sides of a socket can directly opposite reactions (e.g. switching: left ON - right OFF /
Venetian blind: left UP - right DOWN).



picture 7: Rocker operation, left

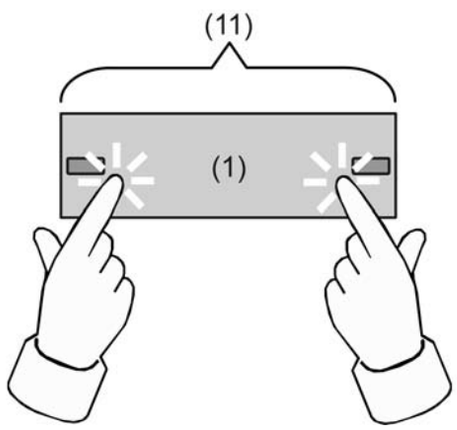


picture 8: Rocker operation, right

(1) Operating area
(11) Rocker

Full-surface operation

Depending on the function setting of a rocker, full-surface operation can also be optionally configured. This allows execution of additional functions, separate from the basic rocker function. Full-surface operation is simultaneous operation of both actuation pressure points (left / right) of a rocker.



picture 9: Full-surface rocker operation

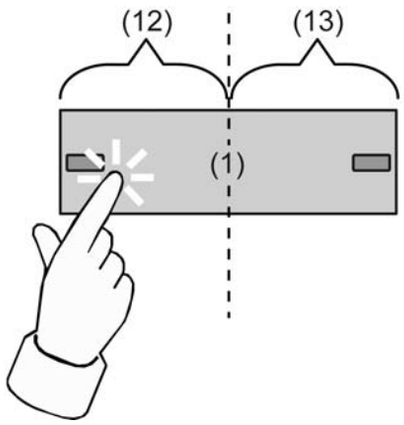
(1) Operating area
(11) Rocker

Operating area as button function

With the pushbutton function, a distinction is made whether the operating area is divided into two separate and functionally independent buttons (double-surface operation), or whether an operating area functions as a single "large" button (single-surface operation).
The parameter "Button evaluation" on the parameter page "Operation concept..." configures either double-surface or single-surface operation for each button pair.

In double-surface operation the buttons are configured independently of each other, and can fulfil completely different functions (e.g. switching: TOGGLE – thermostat operating mode: Comfort).

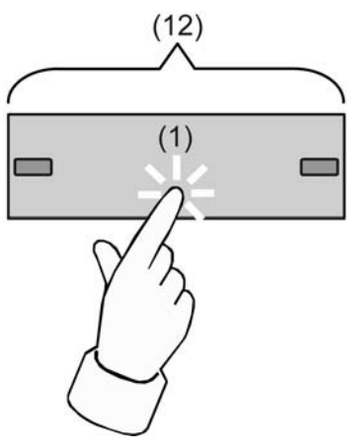
- Full-surface actuation of an operating area is not possible as a pushbutton function.



picture 10: Example for button actuation with configured double-surface operation

(1) Operating area
(12) Left button of the operating area
(13) Right button of the operating area

In single-surface operation, the entire operating area is evaluated only as a single "large" button. This button is configured independently of the other buttons or rockers of the pushbutton sensor and can fulfil various functions (e.g. Switching: TOGGLE).



picture 11: Example of button actuation in configured single-surface operation

(1) Operating area
(12) Button of the operating area

- With single-surface operation, the operating area can be actuated anywhere.

- An operating area is always created in the ETS as a button pair. However, because in single-surface operation only one button functionally exists, the second button of the button pair has no function and is physically not present. During configuration in the ETS it is shown as a "not present" button without any further button parameters. Only the status LED of this button which is physically not used can be configured separately and if needed also activated via its own communication object.
  The physically present button which is to be evaluated in single-surface operation is always created as a button with an uneven button number. If, for example, the first operating area of a pushbutton sensor is configured to single-surface operation, then button 1 can be configured in the ETS. Button 2 is then the physically not present button without parameters.

4.2.4.2 General settings

Operation LED

The operation LED (3) of the Comfort pushbutton sensor is used for different display functions which are in part fixed default functions...

- In a non-programmed device (delivery state) or after downloading of a wrong application program, the operating LED flashes at a slow rate of 0.75 Hz.
- When the pushbutton sensor is switched over into the programming mode for start-up or for ETS diagnosis purposes, the LED flashes at a fast rate of about 8 Hz (see page 8).
- To confirm the detection of a full-surface press with the rocker function, the LED flashes with 8 Hz, too.

The application software allows the setting of addition functions using the ETS parameter "Function of the Operating LED" on the "General" parameter page...

- The operating LED can flash together with all other status LEDs with a frequency of about 2 Hz, when the communication object for the alarm signalling is active.
- The LED can display the status of a separate communication object in inverted or non-inverted form. Here the operation LED can also be activated as flashing with a frequency of approx. 2 Hz.
- For orientation, the operation LED of the pushbutton sensor can be switched permanently on or off.
- It can flash continuously at a slow frequency of about 0.75 Hz.

If several of the above states occur at the same time, the following priority is taken into account:
1. Display of the programming mode.
2. Display of a valid full-surface actuation with the rocker function.
3. Display of an alarm.
4. Status display for the separate communication object or the states (flashing, ON, OFF).

Transmission delay

After a device reset (e.g. after the application program or the physical address is loaded or after the bus voltage is switched on), the pushbutton sensor for the room thermostat extension unit can transmit telegrams automatically. The pushbutton sensor then attempts to retrieve values from the room thermostat by means of read telegrams in order to update the object states.

If in addition to the pushbutton sensor there are still other devices installed in the bus which transmit telegrams immediately after a reset, it may be useful to activate the transmit delay for automatically transmitting objects on the "General" page in order to reduce the bus load.

When transmit delay is activated, the pushbutton sensor determines the value of its individual delay from the device number of its physical address (phys. address: area.line.device number). This value can be about 30 seconds maximum. Without setting a special delay, this principle prevents multiple pushbutton sensors from trying to transmit telegrams to the bus at the same time.

- The transmit delay is not active for the rocker and button functions of the pushbutton sensor.

4.2.4.3 Rockers and pushbutton functions

The following contains descriptions of the various functions that can be configured for each rocker or each button of the pushbutton sensor.

4.2.4.3.1 "Switching" function

For each rocker or each button with the function set to "Switching", the ETS indicates a 1-bit communication object. The parameters of the rocker or button permit fixing the value this object is to adopt on pressing and / or on releasing (ON, OFF, TOGGLE – toggling of the object value). No distinction is made between a brief or long press.

The status LEDs can be configured independently (see chapter 4.2.4.4. Status LED).

4.2.4.3.2 "Dimming" function

For each rocker or each button with the function set to "Dimming", the ETS indicates a 1-bit object and a 4-bit object. Generally, the pushbutton sensor transmits a switching telegram after a brief press and a dimming telegram after a long press. In the standard configuration, the pushbutton sensor transmits a telegram for stopping the dimming action after a long press. The time needed by the pushbutton sensor to detect an actuation as a long actuation can be set in the parameters.

The status LEDs can be configured independently (see chapter 4.2.4.4. Status LED).

Single-surface and double-surface operation in the dimming function
In the rocker function, the device is preprogrammed for double-surface operation for the dimming function. This means that the pushbutton sensor transmits a telegram for switching on after a brief press and a telegram for increasing the brightness after a long press ("Brighter"). Similarly, the pushbutton sensor transmits a telegram for switching off after a brief press and a telegram for reducing the brightness after a long press ("Darker").

In the separate buttons function, the device is preprogrammed for single-surface dimming function. In this mode, the pushbutton sensor transmits on each brief press ON and OFF telegrams in an alternating pattern ("TOGGLE"). After a long press, the pushbutton sensor transmits "brighter" and "darker" telegrams in an alternating pattern.

The parameter "Command on pressing the button" or Command on pressing the rocker" on the parameter pages of the buttons or rockers defines the single-surface or double-surface dimming function.
For the rocker and also for the button function, the command issued on pressing the button or rocker can basically be selected at the user's discretion.

If the actuator can be controlled from several sensors, a faultless single-surface operation requires that the addressed actuator reports its switching state back to the 1-bit object of the button or rocker and that the 4-bit objects of the pushbutton sensors are interlinked. The pushbutton sensor would otherwise not be able to detect that the actuator has been addressed from another sensor, in which case it would have to be actuated twice during the next use in order to produce the desired reaction.

Advanced parameters
For the dimming function, the pushbutton sensor can be programmed with advanced parameters which are hidden in the standard view for greater clarity. If necessary, these advanced parameters can be activated and thus be made visible.
The advanced parameters can be used to determine whether the pushbutton sensor is to cover the full adjusting range of the actuator with one dimming telegram continuously ("Increase brightness by 100 %", "Reduce brightness by 100 %) or whether the dimming range is to be divided into several small levels (50 %, 25 %, 12.5 %, 6 %, 3 %, 1.5%).

In the continuous dimming mode (100%), the pushbutton sensor transmits a telegram only at the beginning of the long press to start the dimming process and generally a stop telegram after the end of the press. For dimming in small levels it may be useful if the pushbutton sensor repeats the dimming telegram in case of a sustained press for a presettable time (parameter " Telegram repetition"). The stop telegram after the end of the press is then not needed.

When the parameters are hidden ("Advanced parameters = deactivated"), the dimming range is set to 100 %, the stop telegram is activated and the telegram repetition is deactivated.

Full-surface operation
When a rocker is used for dimming, the pushbutton sensor needs some time at the beginning of each operation in order to distinguish between a short and a long operation. When the full-surface operation is enabled, the pushbutton sensor can make use of this time span to evaluate

the otherwise invalid simultaneous actuation of both actuation points.

The pushbutton sensor detects a full-surface operation of a rocker, if an operating area is depressed over a large area so that both actuation points of the rocker are actuated. When the pushbutton sensor has detected a valid full-surface actuation, the operation LED flashes quickly at a rate of about 8 Hz for the duration of such actuation. Full-surface operation must have been detected before the first telegram has been transmitted by the dimming function (switching or dimming). If this is not so, even a full-surface operation will be interpreted as a wrong operation and not be executed.

Full-surface actuation is independent. It has a communication object of its own an can optionally be used for switching (ON, OFF, TOGGLE – toggling of the object value) or for scene recall without or with storage function. In the last case, the full-surface actuation causes a scene to be recalled in less than a second. If the pushbutton sensor is to send the telegram for storing a scene, full-surface actuation must be maintained for more than five seconds. If full-surface actuation ends between the first and the fifth second, the pushbutton sensor will not send any telegrams. If the status LEDs of the rocker are used as "button-press displays", they will light up for three seconds during transmission of the storage telegram.

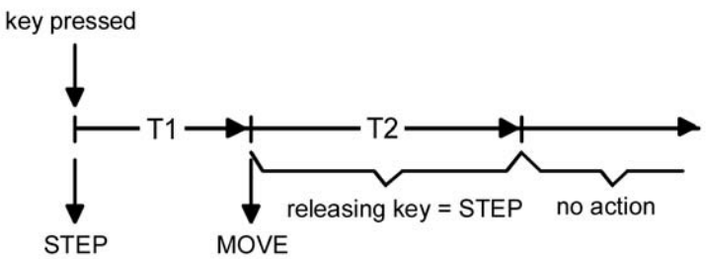
- Full-surface actuation cannot be configured in the button functions. There it is possible to configure the single-surface principle, which also allows an operating area to be depressed at the centre or over a large area.

4.2.4.3.3 "Blind" function

For each rocker or each button with the function set to "Venetian blind" the ETS indicates the two 1-bit objects "STEP operation" and "MOVE operation".

The status LEDs can be configured independently (see chapter 4.2.4.4. Status LED).

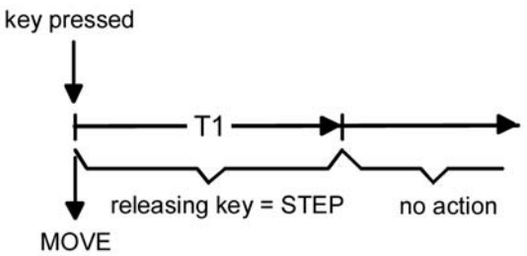
Operation concept for the Venetian blind function
For the control of Venetian blind, roller shutter, awning or similar drives, the pushbutton sensor supports four operation concepts in which the telegrams are transmitted in different time sequences. The pushbutton can therefore be used to operate a wide variety of drive configurations.
The different operation concepts are described in detail in the following chapters.



picture 12: Operation concept "short – long – short"

Operation concept "short – long – short":
In the operation concept "short – long – short", the pushbutton sensor shows the following behaviour:

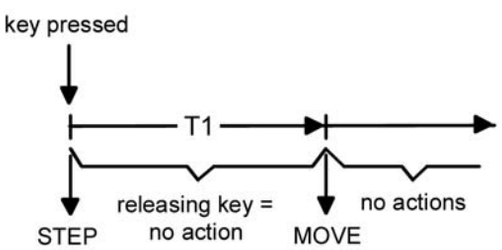
- Immediately on pressing the button, the pushbutton sensor transmits a short time telegram. Pressing the button stops a running drive and starts time T1 ("time between short time and long time command"). If the button is released within T1, no further telegram will be transmitted. This short time serves the purpose of stopping a continuous move.
  The "time between short time and long time command" in the pushbutton sensor should be selected shorter than the short time operation of the actuator to prevent a jerky movement of the Venetian blind.
- If the button is kept depressed longer than T1, the pushbutton sensor transmits a long time telegram after the end of T1 for starting up the drive and time T2 ("slat adjusting time") is started.
- If the button is released within the slat adjusting time, the pushbutton sensor sends another short time telegram. This function is used for adjusting the slats of a blind. The function permits stopping the slats in any position during their rotation.
  The "slat adjusting time" should be chosen as required by the drive for a complete rotation of the slats. If the "slat adjustment time" is selected longer than the complete running time of the drive, a pushbutton function is possible as well. This means that the drive is active only when the button is kept depressed.
- If the button is kept depressed longer than T2, the pushbutton sensor transmits no further telegram. The drive remains on until the end position is reached.



picture 13: Operation concept "long – short"

Operation concept "long – short":
If the operation concept "long – short" is selected, the pushbutton sensor shows the following behaviour:

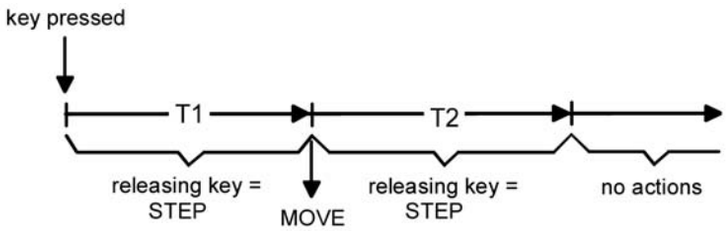
- Immediately on pressing the button, the pushbutton sensor transmits a long time telegram. The drive begins to move and time T1 ("slat adjusting time") is started.
- If the button is released within the slat adjusting time, the pushbutton sensor transmits a short time telegram. This function is used for adjusting the slats of a blind. The function permits stopping the slats in any position during their rotation.
  The "slat adjusting time" should be chosen as required by the drive for a complete rotation of the slats. If the "slat adjusting time" is selected longer than the complete running time of the drive, a pushbutton function is possible as well. This means that the drive is active only when the button is kept depressed.
- If the button is kept depressed longer than T1, the pushbutton sensor transmits no further telegram. The drive remains on until the end position is reached.



picture 14: Operation concept "short – long"

Operation concept "short – long"
In the operation concept "short – long", the pushbutton sensor shows the following behaviour:

- Immediately on pressing the button, the pushbutton sensor transmits a short time telegram. Pressing the button stops a running drive and starts time T1 ("time between short time and long time command"). If the button is released within T1, no further telegram will be transmitted. This short time serves the purpose of stopping a continuous movement.
  The "time between short time and long time command" in the pushbutton sensor should be selected shorter than the short time operation of the actuator to prevent a jerky movement of the blind.
- If the button is kept depressed longer than T1, the pushbutton sensor transmits a long time telegram after the end of T1 for starting the drive.
- No further telegram is transmitted when the button is released. The drive remains on until the end position is reached.



picture 15: Operation concept "long – short or short"

Operation concept "long – short or short":
In the operation concept "long – short or short", the pushbutton sensor shows the following behaviour:

- Immediately on pressing the button, the pushbutton sensor starts time T1 ("time between short time and long time command") and waits. If the button is released again before T1 has elapsed, the pushbutton sensor transmits a short time telegram. This telegram can be used to stop a running drive. A stationary drive rotates the slats by one level.
- If the button is kept depressed after T1 has elapsed, the pushbutton sensor transmits a long time telegram and starts time T2 ("slat adjusting time").
- If the button is released within T2, the pushbutton sensor sends another short time telegram. This function is used for adjusting the slats of a blind. The function permits stopping the slats in any position during their rotation.
  The "slat adjusting time" should be chosen as required by the drive for a complete rotation of the slats. If the "slat adjusting time" is selected longer than the complete running time of the drive, a pushbutton function is possible as well. This means that the drive is active only when the button is kept depressed.
- If the button is kept depressed longer than T2, the pushbutton sensor transmits no further telegram. The drive remains on until the end position is reached.

▪ In this operation concept, the pushbutton sensor will not transmit a telegram immediately after depressing one side of the rocker. This principle permits detecting a full-surface operation when the sensor is configured as a rocker.

Single and double-surface Venetian blind function
With an operating area as a rocker, the double-surface Venetian blind function is preset. This means that the pushbutton sensor transmits a telegram for a upward movement, fo example after an actuation of the left actuation point and a telegram for a downward movement after an actuation of the right actuation point.
In the separate buttons function, the device is preprogrammed for single-surface Venetian blind function. In this case, the pushbutton sensor alternates between the directions of the long time telegram (TOGGLE) on each long actuation of the sensor. Several short time telegrams in succession have the same direction.
The parameter "Command on pressing the button" or Command on pressing the rocker" on the parameter pages of the buttons or rockers defines the single-surface or double-surface Venetian blind principle. For the button function, the command issued on pressing the button can basically be selected at the user's discretion.

If the actuator can be controlled from several sensors, a faultless single-surface actuation requires that the long time objects of the pushbutton sensors are interlinked. The pushbutton sensor would otherwise not be able to detect that the actuator has been addressed from another sensor, in which case it would have to be actuated twice during the next use in order to produce the desired reaction.

Full-surface operation with Venetian blind function
When a rocker is configured for Venetian blind operation and if the operation concept "long – short or short" is used, the pushbutton sensor needs some time at the beginning of each operation in order to distinguish between a short and a long operation. When the full-surface operation is enabled, the pushbutton sensor can make use of this time span to evaluate the

otherwise invalid simultaneous actuation of both actuation points.

The pushbutton sensor detects a full-surface operation of a rocker, if an operating area is depressed over a large area so that both actuation points of the rocker are actuated.
When the pushbutton sensor has detected a valid full-surface actuation, the operation LED flashes quickly at a rate of about 8 Hz for the duration of such actuation. Full-surface operation must have been detected before the first telegram has been transmitted by the Venetian blind function (short time or long time). If this is not so, even a full-surface operation will be interpreted as a wrong operation and not be executed.

Full-surface actuation is independent. It has a communication object of its own an can optionally be used for switching (ON, OFF, TOGGLE – toggling of the object value) or for scene recall without or with storage function. In the last case, the full-surface actuation causes a scene to be recalled in less than a second. If the pushbutton sensor is to send the telegram for storing a scene, full-surface actuation must be maintained for more than five seconds. If full-surface actuation ends between the first and the fifth second, the pushbutton sensor will not send any telegrams. If the status LEDs of the rocker are used as "button-press displays", they will light up for three seconds during transmission of the storage telegram.

- Full-surface actuation cannot be configured in the button functions. There it is possible to configure the single-surface principle, which also allows an operating area to be depressed at the centre or over a large area.

4.2.4.3.4 "Value transmitter" function

For each rocker or each button with the function set to "1-byte value transmitter" or "2-byte value transmitter", the ETS indicates a corresponding object. On the press of a button, the configured value or the value last stored internally by a value change (see below) will be transmitted to the bus. In case of the rocker function, different values can be configured or varied for both actuation points.
The status LEDs can be configured independently (see chapter 4.2.4.4. Status LED).

Value ranges
The "Function" parameter determines the value range used by the pushbutton.
As a 1-byte value transmitter, the pushbutton sensor can optionally transmit integers from 0 … 255 or relative values within a range of 0 … 100 % (e.g. as dimming value transmitter).
As a 2-byte value transmitter, the pushbutton sensor can optionally transmit integers from 0 … 65535, temperature values within a range of 0 … 40 °C or brightness values from 0 … 1500 lux.
For each of these ranges, the value that can be transmitted to the bus for each actuation of a rocker or button is configurable.

Adjustment by means of long button-press
If the value adjustment feature has been enabled in the ETS, the button must be kept depressed for more than 5 seconds in order to vary the current value of the value transmitter. The value adjustment function continues to be active until the button is released again. In a value adjustment, the pushbutton sensor distinguishes between the following options...

- The "Starting value in case of value adjustment" parameter defines the original starting value for the adjustment. Adjustment can begin from the value configured in the ETS, from the final value of the last adjustment cycle or from the current value of the communication object, with the last option not being available for the temperature and brightness value transmitter.
- The parameter "Direction of value adjustment" defines whether the values will always be increased ("upwards"), always reduced ("downwards") or alternately increased and reduced ("toggling").
- For the value transmitters 0 … 255, 0 … 100 % and 0 … 65535, the "level size" by which the current value is to be changed during the value adjustment can be specified. In case of the temperature and the brightness value transmitter, the level size specifications (1 °C and 50 lux) are fixed.
- The parameter "Time between two telegrams" can be used in conjunction with the level size to define the time required to cycle through the full respective value range. This value defines the time span between two value transmissions.
- If, during the value adjustment, the pushbutton sensor detects that the preset level size would result in the limits being exceeded with the next telegram, it adapts the level size once in such a way that the respective limit value is transmitted together with last telegram. Depending on the setting of the parameter "Value adjustment with overflow", the pushbutton sensor stops the adjustment at this instance or inserts a pause consisting of two levels and then continues the adjustment beginning with the other limit value.

	Function	Lower numerical limit	Upper numerical limit
1-byte value transmitter	0...255	0	255
1-byte value transmitter	0...100 %	0 % (value = 0)	100 % (value = 255)
2-byte value transmitter	0...65535	0	65535
2-byte value transmitter	Temperature value	0 °C	40 °C
2-byte value transmitter	Brightness value	0 Lux	1,500 lux

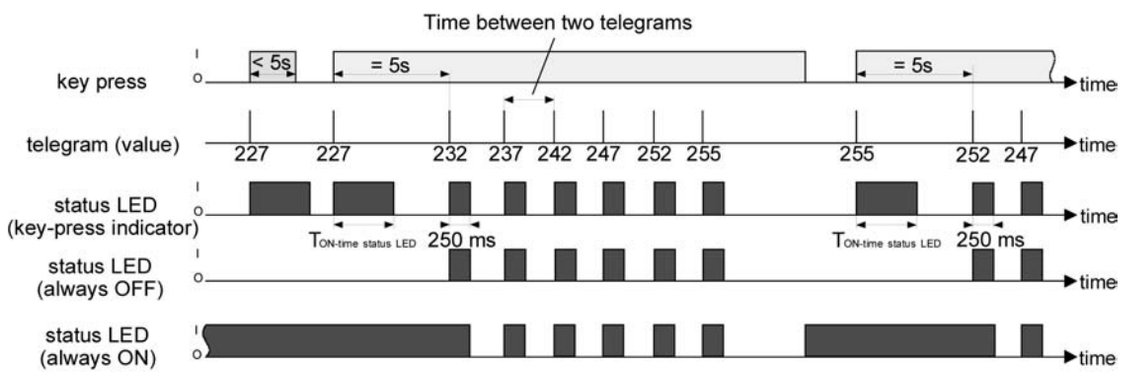
Table 1: Value range limits for the different value transmitters

- During a value adjustment, the newly adjusted values are only in the volatile RAM memory of the pushbutton sensor. Therefore, the stored values are replaced by the preset values programmed in the ETS when a reset of the pushbutton sensor occurs (bus voltage failure or ETS programming).
- With the 1-byte value transmitter in the "Value transmitter 0…100 %" function, the level size of the adjustment will also be indicated in "%". If the starting value of the communication object is used, it may happen in this case during value adjustment that the value last received via the object must be rounded and adapted before a new value can be calculated on the basis of the level size and transmitted. Due to the computation procedure used, the new calculation of the value may be slightly inaccurate.

Value adjustment examples

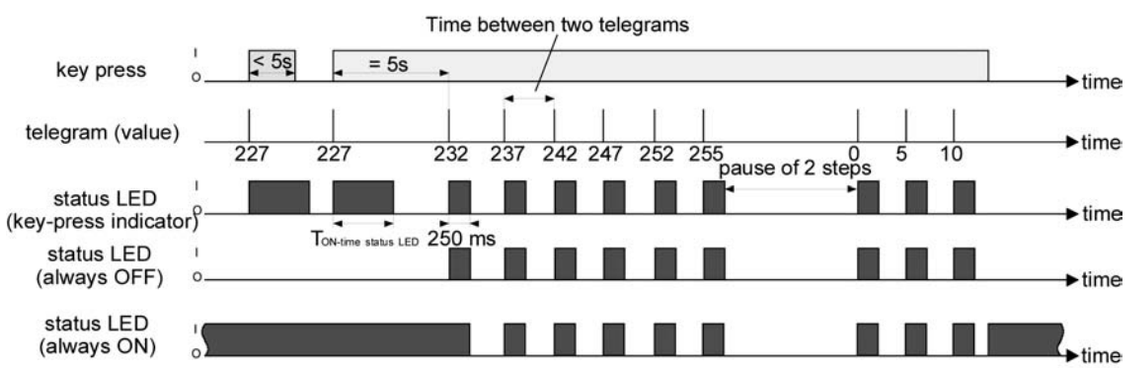
Configuration example:
- Value transmitter 1-byte (all other value transmitters identical)
- Function = value transmitter 0…255
- Value configured in the ETS (0...255) = 227
- Level size (1...10) = 5
- Start on value adjustment = same as configured value
- Direction of value adjustment = switchover (alternating)
- Time between two telegrams = 0.5 s

Example 1: Value adjustment with overflow? = No



picture 16: Example of value adjustment without value range overflow

Example 2: Value adjustment with overflow? = Yes



picture 17: Example of value adjustment with value range overflow

4.2.4.3.5 "Scene extension" function

For each rocker or each button with the function set to "scene extension" the ETS indicates the "Function" parameter which distinguishes between the settings...
- "Scene extension without storage function",
- "Scene extension with storage function",
- "Recall of internal scene without storage function",
- "Recall of internal scene extension with storage function".

In the scene extension function, the pushbutton sensor transmits a preset scene number (1…64) via a separate communication object to the bus after a button-press. This feature permits recalling scenes stored in other devices and also storing them, if the storage function is used.

The recall of an internal scene does not result in a telegram being transmitted to the bus. For this reason, the corresponding communication object is missing. This function can rather be used to recall – and with the storage function also to store – the up to 8 scenes stored internally in the pushbutton sensor.

In the setting "... without storage function", a button-press triggers the simple recall of a scene. If the status LED is configured as button-press display, it will be switched on for the configured ON time. A long button-press has no further or additional effect.

In the setting "... with storage function", the pushbutton sensor monitors the length of the actuation. A button-press of less than a second results in a simple recall of the scene as mentioned above. If the status LED is configured as button-press display, it will be switched on for the configured ON time.
After a button-press of more than five seconds, the pushbutton sensor generates a storage instruction. In the scene extension function, a storage telegram is in this case transmitted to the bus. If configured for the recall of an internal scene, the sensor will store the internal scene. The internal scene control module of the Universal TSM pushbutton sensor will then request the current scene values for the actuator groups used from the bus (see chapter 4.2.4.5. Scene control).
An actuation lasting between one and five seconds will be discarded as invalid.

The parameter "Scene number" specifies which of the maximum of 8 internal or 64 external scenes is to be used after a button-press. In case of the rocker function, two different scene numbers can be assigned.

The status LEDs can be configured independently (see chapter 4.2.4.4. Status LED).

4.2.4.3.6 "2-channel operation" function

In some situations it is desirable to control two different functions with a single button-press and to transmit different telegrams, i.e. to operate two function channels at a time. This is possible with the "2-channel operation" function.

For both channels, the parameters "Function channel 1" and "Function channel 2" can be used to determine the communication object types to be used. The following types are available for selection…

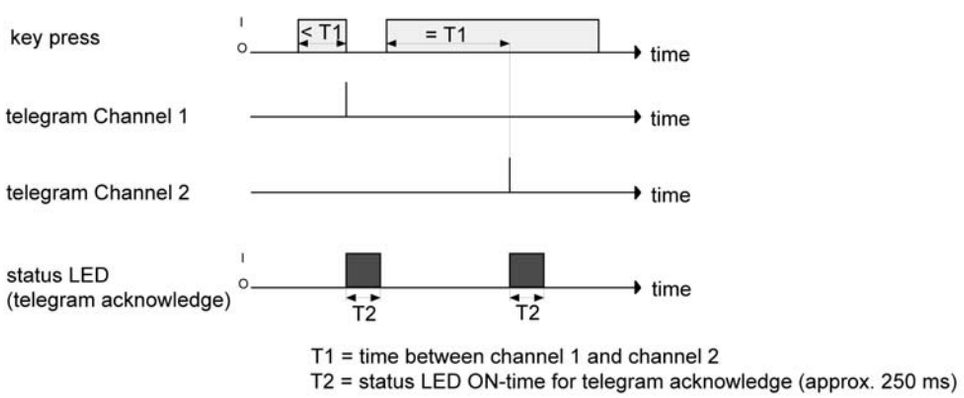
- Switching (1 bit)
- Value transmitter 0 … 255 (1-byte)
- Value transmitter 0 … 100 % (1-byte)
- Temperature value transmitter (2 bytes)

The object value the pushbutton sensor is to transmit on a button-press can be selected depending on the selected object type. The "Switching (1 bit)" type permits selecting whether an ON or an OFF telegram is to be transmitted or whether the object value is be switched over (TOGGLE) and transmitted on the press of a button.
The configuration as "Value transmitter 0 … 255 (1 byte)" or as "Value transmitter 0 … 100 % (1 byte)" permits entering the object value freely within a range from 0 to 255 or from 0% to 100%. The "Temperature value transmitter (2 bytes)" permits selecting a temperature value between 0°C and 40°C.

In this case, the adjustment of the object value on a long button-press is not possible as the determination of the actuation length is needed for the adjustable operation concepts.
Unlike in the other rocker and button functions, the application software assigns the "Telegram acknowledge" function instead of the "Button-press display" function to the status LED. In this mode, the status LED lights up for approx. 250 ms with each telegram transmitted. Alternatively, the status LEDs can be configured independently (see chapter 4.2.4.4. Status LED).

Operation concept channel 1 or channel 2
In this operation concept, exactly one telegram will be transmitted on each press of a button.

- On a brief press the pushbutton sensor transmits the telegram for channel 1.
- On a long press the pushbutton sensor transmits the telegram for channel 2.



picture 18: Example of operation concept "Channel 1 or Channel 2"

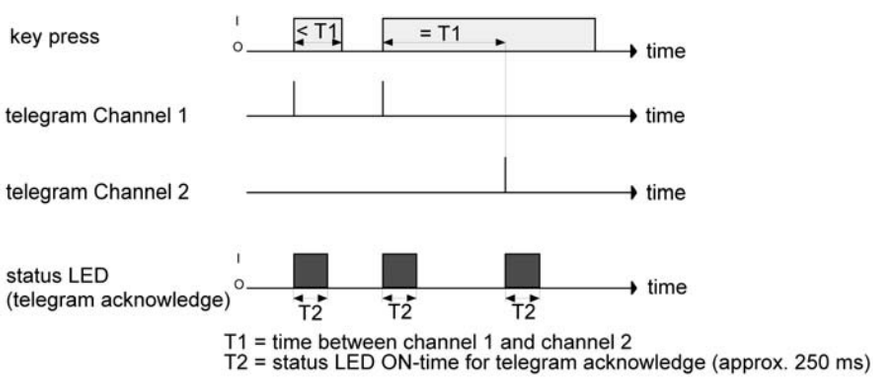
The time required for distinguishing between a short and a long actuation is defined by the parameter "Time between channel 1 and channel 2". If the button is pressed for less than the configured time, only the telegram to channel 1 is transmitted. If the length of the button-press exceeds the time between channel 1 and channel 2, only the telegram to channel 2 will be transmitted. This concept provides the transmission of only one channel. To indicate that a

telegram has been transmitted, the status LED lights up for approx. 250 ms in the "Telegram acknowledge" setting.
In this operation concept, the pushbutton sensor will not transmit a telegram immediately after the rocker has been depressed. This principle also permits the detection of full-surface operation. The settings that are possible with full-surface operation are described below.

Operation concept channel 1 and channel 2

With this operation concept, one or alternatively two telegrams can be transmitted on each button-press.

- On a brief press the pushbutton sensor transmits the telegram for channel 1.
- A long press causes the pushbutton sensor to transmit first the telegram for channel 1 and then the telegram for channel 2.



picture 19: Example of operation concept "Channel 1 or Channel 2"

The time required for distinguishing between a short and a long actuation is defined by the parameter "Time between channel 1 and channel 2". In this operation concept, a button-press sends this telegram is immediately to channel 1. If the button is held depressed for the configured time, the telegram for the second channel is transmitted as well. If the button is released before the time has elapsed, no further telegram will be transmitted. This operation concept, too, offers the configurable possibility of having the transmission of a telegram signalled by the status LED (setting "Telegram acknowledge").

Full-surface operation with 2-channel operation

When a rocker is programmed for 2-channel operation and if the operation concept "channel 1 or channel 2" is used, the pushbutton sensor needs some time at the beginning of each operation in order to distinguish between a short and a long operation. When full-surface operation is enabled, the pushbutton sensor can make use of this time span to evaluate the otherwise invalid simultaneous actuation of both actuation points.

The pushbutton sensor detects a full-surface operation of a rocker, if an operating area is depressed over a large area so that both actuation points of the rocker are actuated.
When the pushbutton sensor has detected a valid full-surface actuation, the operation LED flashes quickly at a rate of about 8 Hz for the duration of such actuation. The full-surface operation must have been detected before the first telegram has been transmitted by the 2-channel function. If this is not so, even a full-surface operation will be interpreted as a wrong operation and not be executed.

4.2.4.4 Status LED

Status LED

Each operating area on the pushbutton sensor has two status LEDs. The functions available differ slightly depending on the configuration of the rockers or buttons.

Each status LED distinguishes the following options...

- Always OFF,
- Always ON,
- Activation via separate LED object,
- Operating mode display (KNX controller),
- Controller status indicator (activate controller extension!),
- Comparator without sign (1 byte),
- Comparator with sign (1 byte).

These options are always available even if the buttons have no function assigned.

If a function has been assigned to the rocker or button, the ETS displays moreover the option…

- Button-press display

...which in the function "2-channel operation" is replaced by…

- Telegram acknowledgment

If the rocker or the button is used for switching or dimming, the following options can be selected in addition…

- Status display (switching object)
- Inverted status display (switching object)

...can be set.

If a button is used for the operation of a controller extension, the following options can be selected in addition…

- button function active / inactive indicator (only with presence button),
- setpoint value shift indicator (only with setpoint shift).

...can be set.

- Besides the functions that can be set separately for each status LED, all status LEDs are also used together with the operation LED for alarm signalling. If this is active, all LEDs of the pushbutton sensor flash simultaneously. After deactivation of the alarm signalling, all LEDs will immediately return to the state corresponding to their configuration and communication objects.

Status LED function "always OFF" or "always ON"

A status LED used as button-press display is switched on by the sensor each time the corresponding rocker or button is pressed. The parameter "ON time of status LEDs as actuation indicators" on the parameter page "General" specifies for how long the LED is switched on in common for all status LEDs. The status LED lights up when the rocker or button is pressed even if the telegram is transmitted by the sensor only when the button or rocker is released. With the function "2-channel operation" the option "Button-press display" is replaced by "Telegram acknowledge". In this case the status LED is illuminated when both channels are transmitted for about 250 ms each.

Function of the status LED "Activation via separate LED object", "Status display", and "Inverted status display"
Each status LED can indicate the status of a separate LED communication object independently of the rocker or pushbutton configuration. Here the LED can be switched on or off statically via the received 1-bit object value, or also activated by flashing. Each status LED can indicate the state of a separate LED communication object independently of the rocker or pushbutton configuration. Here the LED can be switched on or off statically via the 1-bit object value received, or also activated as flashing.
Additionally, the status LEDs can be linked in the rocker or button functions "switching" and "dimming" also with the object used for switching and thus signal the current switching state of the actuator group.
Both for the status indication of the LED object and also for the status indication of the switching object it is possible to indicate or evaluate the inverted object value.
After a bus reset or after ETS programming, the value of the LED object is always "OFF".

Function of status LED as "operating mode display (KNX controller)"
For switching over between different modes of operation, new room thermostats can make use of two communication objects of the 20.102 "HVAC-Mode" data type. One of these objects can switch over with normal priority between the "Comfort", "Standby", "Night", "Frost/heat protection" operating modes. The second object has a higher priority. It permits switching over between "Automatic", "Comfort", "Standby", "Night", "Frost/heat protection". Automatic means in this case that the object with the lower priority is active.
If a status LED is to indicate the operating mode, the communication object of the status LED must be linked with the matching object of the room thermostat. The desired mode which the LED is to indicate can then be selected with the parameter "Status LED on with". The LED is then lit up when the corresponding mode of operation has been activated at the controller.
After a bus reset or after ETS programming, the value of the LED object is always "0" (Automatic).

Function of status LED as "controller status display"
If a status LED is to indicate the status of a room thermostat, the thermostat extension must have been activated on parameter page "General". The status LED is then internally linked directly with the 1-byte object "Controller status" of the controller extension. This object must then be linked via a group address with the corresponding communication object of the controller.
The object "Controller status" groups eight different information units in a bit-oriented way in a byte. For this reason it is important to select in the "Status LED on with" parameter which information is to be indicated, i.e. which bit is to be evaluated.

The following can be selected...
- Bit 0: Comfort mode
- Bit 1: Standby mode
- Bit 2: Night mode
- Bit 3: Frost/heat protection
- Bit 4: Controller disabled
- Bit 5: Heating / cooling (heating = 1 / cooling = 0)
- Bit 6: Controller inactive (dead zone operation)
- Bit 7: Frost alarm

Description of bit-oriented status messages of the room thermostat (active = ON)

Comfort mode: Active if operating mode "Comfort" or a comfort extension is activated.

Standby mode: Active if the "Standby" operating mode is activated.

Night mode: Active if the "Night" operating mode is activated.

Frost/heat protection: Active if the "Frost/heat protection" operating mode is activated.

Controller disabled: Active if controller disable is activated (dew point mode).

Heating/cooling: Active if heating is activated and inactive if cooling is activated. (As a rule inactive with controller disabled.)

Controller inactive: Active with the "heating and cooling" operating mode when the measured room temperature lies within the dead zone. This status information is as a rule always "0" for the individual operating modes "heating" or "cooling"! (Inactive if controller is disabled.)

Frost alarm: Active if the measured room temperature reaches or drops below + 5 °C.

The communication object "Controller status" of the controller extension updates itself automatically after a reset of the pushbutton sensor or after ETS programming, if the parameter "Value request from controller extension?" on parameter page "General" is set to "Yes". Updating is effected by means of a value read telegram to the room thermostat. The thermostat must answer the request with a value return telegram. If the pushbutton sensor does not receive the answer, the status LED remains off (object value "0"). In this case, the object must first be actively rewritten by the bus after a reset before a status information can be indicated by the LED.
This is also the case, when the "Value request from controller extension?" is set to "No".

Function of status LED as "comparator"
The status LED can indicate whether a configured comparison value is greater than, equal to or less than the 1-byte object value of the status object. This comparator can be used for unsigned (0 … 255) or for signed integers (-128 … 127). The data format of the comparison is defined by the function of the status LED.
The status LED lights up only if the comparison is "true".

- After a bus reset or after ETS programming, the value of the LED object is always "0".

4.2.4.5 Scene control

Introduction

The pushbutton sensor can be used in two different ways as part of a scene control system...

- Each rocker or button can work as a scene extension. This feature makes it possible to recall or to store scenes which may be stored in other devices (see chapter 4.2.4.3.5. "Scene extension" function).
- The pushbutton can independently store up to eight scenes with eight actuator groups. These internal scenes can be recalled or stored by the rockers or buttons (internal scene recall) and also by the communication object "scene extension".
  In the following subsections the internal scene function will be dealt with in greater detail.

4.2.4.5.1 Scene definition and scene recall

If the internal scenes are to be used, the parameter "Scene function" on parameter page "Scenes" must be set to "Yes". When the scene function is activated, the ETS automatically renames the "Scenes" page "Scene data types".
The matching data types for the eight scene outputs must then be selected and adapted to the actuator groups used. The types "Switching", "Value (0 … 255)" or "Value / blind position (0 … 100 %)" can be selected. As a rule, Venetian blinds are controlled via two scene outputs. One output controls the blind height and the other one adjusts the slat position.

The ETS sets the corresponding communication objects and the parameters of the scene commands on the following parameter pages "Scene 1" to "Scene 8".

It is possible that the values for the individual scenes preset by the parameters are modified later on with the storage function (see chapter 4.2.4.5.2. Storing scenes) when the system is in operation. If the application program is then loaded again with the ETS, these locally adapted values will normally be overwritten by the parameters. Due to the fact that it may take considerable efforts to readjust the values for all scenes in the system, the parameter "Overwrite scene values during ETS download ?" offers the possibility of retaining the scene values stored in operation without overwriting them.

The scene parameters can be set on the parameter page of each individual scene ("Scene 1 ... 8"). The setting options are the same for all 8 scenes.

These internal scenes can be recalled directly via the rockers or buttons (function "recall internal scene") and also by another bus device via the "Extension input" communication object. This 1 byte communication object supports the evaluation of up to 64 scene numbers. For this reason, it must be specified in ETS which of the external scene numbers (1 … 64) is to recall the internal scene (1 … 8). If the same scene number is listed for several internal scenes, it is always only the first of these scenes that will be activated (scene with the lowest scene number).

In some situations there may be the requirement that a group of actuators is not controlled by all, but only by certain scenes. A classroom, for instance, may require open blinds for the "Welcome" and "Break" scenes, closed blinds in the "PC presentation" scene and no change in the "Discussion" scene. In this example, the parameter "Permit transmission ?" can be set to "No" for the "Discussion" scene. The scene output is then deactivated during the corresponding scene.

The parameter "Transmit delay" permits entering an individual waiting time for each scene output. This transmit delay can be used in different situations...

- When the actuators participating in a scene transmit status messages automatically or when several scene buttons are used to increase the number of channels within the scenes, the recall of a scene may result for a short time in high bus loading. The transmit delay helps to reduce the bus load at the time of scene recall.
- Sometimes, it is desirable that an action is started only after another action has ended. This can be for instance the lighting which is to shut off only after the blinds/shutters have been raised.

The transmit delay can be set separately for each scene output. The transmit delay defines the time between the individual telegrams during a scene recall. The setting specifies how much time must pass after the first scene telegram before the second is transmitted. After transmission of the second scene telegram, the configured time must again pass before the third is transmitted. The delay continues as follows for each additional scene telegram. The transmit delay for the first scene telegram starts immediately after the scene has been recalled. The transmit delay between telegrams can also be deactivated (setting "0"). The telegrams are then transmitted at the shortest possible time interval. In this case, however, the order of the telegrams transmitted can deviate from the numbering of the scene outputs.

- When a new scene recall (also with the same scene number) occurs during a current scene recall - even in consideration of the pertaining transmit delays - the scene processing started first will be aborted and the newly received scene number will be processed. A running scene is also aborted when a scene is being stored!
- During a scene recall - even if delayed - the operating areas of the push button sensor are normally operational.

4.2.4.5.2 Storing scenes

For each output of a scene, the user can define a corresponding scene value in the ETS which is then transmitted to the bus during a scene recall. During the regular operation of the system it may be required to adapt these preset values and to store the adapted values in the pushbutton sensor. This can be ensured by the storage function of the scene control.

The value storage function for the corresponding scene number is enabled with the parameter "Permit storing ?" ("Yes") or disabled ("No"). When the storage function is disabled, the object value of the corresponding output is not sampled during storage.

A scene storage process can be initiated in two different ways...

- by a long press on a rocker or button of an operating area configured as "scene extension"
- by a storage telegram to the extension object.

During a storage process, the pushbutton sensor reads the current object values of the connected actuators. This is carried out by means of eight read telegrams (ValueRead) addressed to the devices in the scene which return their own value (ValueResponse) as a reaction to the request. The returned values are received by the pushbutton sensor and taken over permanently into the scene memory. Per scene output, the pushbutton sensor waits one second for a response. If no answer is received during this time, the value for this scene output remains unchanged and the pushbutton sensor scans the next output.

In order to enable the pushbutton sensor to read the object value of the actuator addressed when a scene is stored, the read flag of the corresponding actuator object must be set. This should be done only for one actuator out of an actuator group so that the value response is unequivocal.
The stored values overwrite those programmed into the pushbutton sensor with the ETS.

The storage process will always be executed completely by the pushbutton sensor and cannot not be aborted before it has ended. Recalling scenes in the course of a storage process is not possible, the operating areas of the pushbutton sensor remaining nevertheless normally operational.

4.2.4.6 Disabling function

Configuration

With the 1-bit communication object "Key disabling", the operating areas of the pushbutton sensor can be partly or completely disabled. During a disable, the rockers or buttons can also temporarily execute other functions.
An active disable applies only to the functions of the rockers or buttons. The functions of the status LED, scene function and the alarm signalling are not affected by the disabling function.
The disabling function and the pertaining parameters and communication objects are enabled if the parameter "Disabling function ?" is set to "Yes" on the "Disabling" parameter page.

The polarity of the disabling object can be configured. In case of polarity inversion (disabled = 0 / enabled = 1), the disabling function is not activated immediately after a bus reset or after ETS programming (object value = "0"). There must first be an object update "0" until the disabling function will be activated.
Telegram updates from "0" to "0" or from "1" to "1" on the "button disabling" object remain without effect.

Configuring the reaction at the beginning and end of a disable

If the disabling function is used, the reaction of the pushbutton sensor on activation and deactivation of the disabling function can be preset separately in the parameters of the pushbutton sensor (parameter "Reaction of pushbutton sensor at the beginning / end of disabling"). In this connection it is irrelevant which of the operating areas is influenced and possibly also locked by disabling. The pushbutton sensor always shows the configured behaviour.

The disabling function must have been enabled in advance.

- Set the parameter "Reaction of pushbutton sensor at the beginning / end of disabling" to "No reaction".

  The pushbutton sensor shows no reaction at the beginning and at the end of disabling. The sensor only adopts the state as provided for by the "Behaviour during active disabling".

- Set the parameter "Reaction of pushbutton sensor at the beginning / end of disabling" to "Internal scene recall scene 1 …8".

  The pushbutton sensor recalls one of the up to 8 internal scenes. Scene storage is not possible.

- Set the parameter "Reaction of pushbutton sensor at the beginning / end of disabling" to "Reaction as button >> X << / >> Y << when pressed / released".

  The pushbutton sensor executes the function assigned to any "target button" in non-disabled state. Target buttons are operating buttons of the pushbutton sensor which may be configured for rocker or for button operation. The target buttons are configured separately for the beginning (X) of for the end (Y) of disabling. Both buttons of a rocker are treated as two separate buttons.
  The action configured for the respective target button is executed. If the target button is configured in such a way that it has no function or does not transmit a telegram on pressing or releasing of the button, then there is also no reaction to disabling or to re-enabling. If the selected target button is part of a configured rocker, the behaviour preset for the respective rocker side (rocker X.1 or X.2) will be used. The telegrams are transmitted to the bus via the required communication object of the target button.
  The following table shows all possible telegram reactions of the pushbutton sensor with respect to the target button function.

Function of >>target button<<	Reaction "as >>target button<< on pressing"	Reaction "as >>target button<< on releasing"
Switching / switchover	Switching telegram	Switching telegram
Dimming	Switching telegram	No telegram
Venetian blind	Move telegram	No telegram
Scene extension	Scene recall telegram	No telegram
1-byte value transmitter	Value telegram	No telegram
2-byte value transmitter	Value telegram	No telegram
Temperature value transmitter	Temperature value telegram	No telegram
Brightness value transmitter	Brightness value telegram	No telegram
2-channel operation Channel 1: 1-bit object type	Switching telegram	No telegram
2-channel operation Channel 1: 1-byte object type	Value telegram	No telegram
2-channel operation Channel 1: 2-byte object type	Temperature value telegram	No telegram
Controller extension Operating mode switchover	Operating mode telegram	No telegram
Controller extension Motion detection	Presence telegram	No telegram
Controller extension Setpoint shift	Level value telegram	No telegram
No function	No telegram	No telegram

Table 2: Telegram reactions of the pushbutton sensor with respect to the target button function

- Set the parameter "Reaction of pushbutton sensor at the beginning / end of disabling" to "Reaction as disabling function 1 / 2 when pressed / released".

  The pushbutton sensor executes the function assigned to either of the two "virtual" disabling functions. The disabling functions are internal button functions with independent communication objects and independent parameters. Except for the status LED, the setting possibilities available for disabling function 1 and disabling function 2 are the same as for the buttons.
  The respective configuration of the predefined disabling function will be executed. If no function or no telegram is configuration in the disabling function on pressing or releasing of a button, then there is also no reaction to disabling or to re-enabling.
  Also, for this setting, Table 2 shows all possible telegram reactions of the pushbutton sensor depending on the configuration of the disabling function.
  The telegrams are transmitted to the bus via the required communication object of the disabling function.

Configuring the reaction during a disable

Irrespective of the behaviour shown by the pushbutton sensor at the beginning or at the end of disabling, the control buttons can be separately influenced during disabling.

The disabling function must have been enabled in advance.

- Set the parameter "Behaviour during active disabling" to "All buttons without function".

In this case, the pushbutton sensor is completely disabled during disabling. Pressing a button has no effect. The status LEDs of the disabled buttons are without function (no button-press display either). Only the "Always ON" or "Always OFF" state remains unaffected by the disabling function.

- Set the parameter "Behaviour during active disabling" to "all buttons behave like". Continue to configure the parameters "During disable, all left / right buttons behave like" to the required button number or disabling function.

  All buttons behave as defined in the parameters for the two specified reference buttons of the pushbutton sensor. Different or identical reference buttons can be configured separately for all the left and right operating buttons. The two "virtual" disabling functions of the pushbutton sensor can also be configured as a reference button.
  The telegrams are transmitted to the bus via the communication objects of the specified reference buttons. The status LEDs of the reference buttons are controlled according to their function. The status LEDs of the disabled buttons are without function (no button-press display either). Only the "Always ON" or "Always OFF" state remains unaffected by the disabling function.

- Set the parameter "Behaviour during active disabling" to "Individual buttons without function". The buttons that will be disabled are defined on the parameter page "Disable - Button selection" page.

  Only the individually specified buttons are locked during disabling. The other control buttons remain unaffected by disabling. The status LEDs of the disabled buttons are without function (no button-press display either). Only the "Always ON" or "Always OFF" state remains unaffected by the disabling function.

- Set the parameter "Behaviour during active disabling" to "Individual buttons behave like". The buttons that will be disabled are defined on the parameter page "Disable - Button selection" page. Also set the parameters "All buttons with even / odd numbers behave during disabling like" to the desired button number or disabling function.

  Only the individually specified buttons behave as defined in the parameters of the two specified reference buttons of the pushbutton sensor. Different or identical reference buttons can be configured separately for all the left and right operating buttons. The two "virtual" disabling functions of the pushbutton sensor can also be configured as a reference button. The buttons that will be disabled are defined in the parameters on the "Disable - buttons selection" page.
  The telegrams are transmitted to the bus via the communication objects of the specified reference buttons. The status LEDs of the reference buttons are controlled according to their function. The status LEDs of the disabled buttons are without function (no button-press display either). Only the "Always ON" or "Always OFF" state remains unaffected by the disabling function.

- If a button evaluation is taking place at the time of activation / deactivation of a disabling function, this function is aborted immediately and with it also the pertaining button function. It is first necessary to release all buttons before a new button function can be executed if so permitted by the state of disabling.

4.2.4.7 Controller extension

4.2.4.7.1 Connection to room thermostat

Function

The controller extension can be used to control a KNX/EIB room thermostat. The controller extension function is enabled with the parameter "Controller extension" on the "General" page

The controller extension itself is not involved in the regulating process. With it, the user can operate the single-room regulation from different places in the room. It can also be used to adjust central heating control units which are located, for instance, in a distribution box.

Typical KNX/EIB room thermostats generally offer different ways of influencing or visualising the room temperature control...

- Switching over between different modes of operation (e.g. "Comfort", "Night" ...) with different setpoint temperatures assigned to each mode by the thermostat.
- Signalling the presence of a person in a room. The signalling may also be combined with a configured switchover in the mode of operation.
- Readjustment of the setpoint temperature in steps which are referred in each case to the configured setpoint temperature of the current mode of operation (basic setpoint shift).

The pushbutton sensor permits, by means of its control keys, the complete control of a room thermostat by changing the operating mode, by predefining the presence situation or by readjusting the setpoint shift. For this purpose, the buttons of the pushbutton sensor selected as extension operation buttons must be configured for the "Controller extension" function.

- It should be noted that an extension operation is possible only if one control surface is configured as a button and if the controller extension function has been enabled on the "General" page. In all other cases, controller extension operating does not function.

In addition, the pushbutton sensor can – independent of the controller extension function – indicate the state of one or more room thermostats with the status LEDs of the rockers or buttons. This feature permits the indication of modes of operation or the bit-oriented evaluation of different status objects of controllers (see chapter 4.2.4.4. Status LED).
In case of the controller extension functions "Setpoint shift" or "Presence function", the status LEDs can also signal the state of the corresponding functions directly.

Communication objects

The controller extension can work properly only if all extension objects are linked with the objects of the same function in the room thermostat. The controller extension with the objects exists only once in the pushbutton sensor (indication in the object name "Controller extension"). All button functions configured for the controller extension act on the objects belonging to the extension.
Objects with the same function can be linked together using identical group addresses, meaning that multiple controller extensions can affect one main controller.

The communication objects "Operating mode selection", "Forced operating mode switchover", "Presence button", "Current setpoint shift" and "Controller status" of the controller extension update themselves automatically after a reset of the pushbutton sensor or after ETS programming, if the parameter "Value request from controller extension?" on the "General"

parameter page is set to "Yes". Updating is effected by means of a ValueRead telegram to the room thermostat. This must answer the request with a ValueResponse telegram. If the pushbutton sensor does not receive all or some of the answers, the affected objects are initialised with "0". In this case, the objects must first be actively rewritten by the bus after a reset. This is also the case, when the "Value request from controller extension?" is set to "No".

4.2.4.7.2 Button function "Operating mode switchover"

Switchover of the controller operating mode can be effected in accordance with the standard function block for room thermostats defined in the KNX handbook with two 1-byte communication objects. The operating mode can be switched over with the normal and with the forced objects. The "Operating mode selection" object offers a selection between the following operating modes...

- Comfort mode
- Standby mode
- Night mode
- Frost / heat protection

The "Forced operating mode switch over" communication object has a higher priority. It permits forced switching between the following modes of operation...

- Auto (normal operating mode switchover)
- Comfort mode
- Standby mode
- Night mode
- Frost / heat protection

The operating mode transmitted to the bus on a button press of the controller extension is defined by the parameter "Operating mode on pressing the button". Depending on the configured functionality, it is possible that ...
- Either one of the above-mentioned modes is activated (single selection) on the press of the button,
- Or the device is switched over between two or three modes (multiple selection).

- Notes on multiple selection:
  In order to ensure that a switchover from one mode into another works properly even from different locations, the operating mode objects of the controller and those of all controller extension pushbutton sensors must be interlinked and have their "Write" flag set. In the objects concerned, this flag is set by default
  By checking the linked operating mode switchover object, the controller extension knows which of the possible operating modes is active. Based on this information, the device switches over into the next operating mode in sequence when a button is pressed. In the event that none of the possible operating modes is active, the next operating mode in the sequence is set to "'Comfort" mode (in case of "Standby - >Night" to "Standby" mode). As far as switching over between the forced operating modes and "Auto" is concerned, the device switches into the "Auto" operating mode when none of the configured operating modes is active.
- It is not possible to program a reaction on release of the button. A long button-press is evaluated in the same way as short one and switches into the corresponding mode of operation in so far as this is acceptable for the controller.
- If a status LED is to indicate the current operating mode, the status LED function must be programmed for "Operating mode indication" and its status object be linked with the corresponding group address for operating mode switchover with normal or high priority (see chapter 4.2.4.4. Status LED).

4.2.4.7.3 Button function "Presence button"

All buttons with their function set to "Presence button" are internally linked with the "Presence button" object of the controller extension. The parameter "Presence function on pressing the button" defines the object value transmitted to the bus on pressing a button.
In order to ensure that the object value transmitted in the "Presence TOGGLE" setting is always the correct one, the presence object of the room thermostat and the "Presence button" objects of the controller extension pushbutton sensors must be interlinked and have their "Write" flag set. In the extension objects concerned, this flag is set by default.

It is not possible to program a reaction on release of the button. A long button-press is evaluated in the same way as short one and switches into the corresponding mode of operation in so far as this is acceptable for the controller.

The status LED of the presence button can indicate both the presence status (setting "Button function indication active / inactive") and also the actuation of the button. In addition, the usual setting possibilities of the status LED are configurable as well.(see chapter 4.2.4.4. Status LED)

4.2.4.7.4 Button function "Setpoint shift"

The setpoint shift is another available function of the controller extension. It makes use of two 1-byte communication objects with data point type 6,010 (integer with sign). This extension function allows shifting of the basic setpoint for the temperature on a room thermostat by pressing a button. Operation of the extension is generally the same as the operation of the main controller.
A button configured as a setpoint shifting button reduces or increases the setpoint shift value on each press by one step respectively. The direction of the value adjustment is defined by the parameter "Setpoint shift on pressing the button". Releasing the button and a long press have no other functions.

Communication with main controller:
In order to enable the pushbutton sensor to effect a setpoint shift in a room thermostat, the controller must have input and output objects for setpoint shifting. In this case, the output object of the controller must be linked with the input object of the extension unit and the input object of the controller must be linked with the output object of the extension via an independent group address (see page 55).
All objects are of the same data point type and have the same value range. A setpoint shift is interpreted by count values: a shift in positive direction is expressed by positive values whereas a shift in negative direction is represented by negative object values. An object value of "0" means that no setpoint shift has been activated.
Via the "Current setpoint shift" object of the controller extensions, which is linked with the room thermostat, the extensions are enabled to determine the current setpoint shift position. Starting from the value of the communication object, each button-press on an extension will adjust the setpoint in the corresponding direction by one count value level. Each time the setpoint is adjusted, the new shift is transmitted to the room thermostat via the "Controller extension setpoint value specification" object of the controller extension. The controller itself checks the received value for the minimum and maximum temperature limits (see controller documentation) and adjusts the new setpoint shift if the values are valid. When the new count value is accepted as valid, the controller transfers this value to its output object for the setpoint shift and retransmits the value to the extension as positive feedback.
Due to the standard data point type used as the output and input object of the controller extension and the weighting of the individual level by the controller itself, each extension unit is able to determine whether a shift took place, in which direction it took place and by how many levels the setpoint was shifted. This requires that the communication objects are connected on all controller extensions and the controller.
The information for the level value as feedback from the controller enables the extension to continue the adjustment anytime at the right point. The extension units can likewise react to a reset of the setpoint shifting function by the controller.

The status LED of a setpoint shifting button can indicate both the setpoint shifting status (setting "Setpoint value shift indicator") and also the actuation of the button. In addition, the usual setting possibilities of the status LED are configurable as well (see chapter 4.2.4.4. Status LED).
For setpoint shifting status indication, the controller makes use of the step count value which is transmitted to the extension and evaluated for switching of the status LED. The "Status LED" parameter defines the switching behaviour: The LED can be permanently off and light up only after a shift has been detected (setting "ON, ..."). As an alternative, the LED can be permanently on and go out only after a shift has been detected (setting "OFF, ..."). It can also be distinguished whether the LED is ON or OFF only if...
- there has been shifting at all,
- only a positive shift has been detected,
- only a negative shift has been detected.

4.2.4.8 Alarm signal

The Comfort pushbutton sensor permits signalling of a alarm which might be, for instance, a burglar or a fire alarm of a KNX/EIB central alarm unit. An alarm is signalled by all status LEDs and of the operation LED of the pushbutton sensor flashing synchronously. The alarm can be separately enabled with the parameter "Alarm signal display" on parameter page "Alarm signalling" so that it can be used.

When alarm signalling is enabled, the ETS displays the communication object "Alarm signalling" and further alarm function parameters.
The alarm signalling object is used as an input for activating or deactivating alarm signal displaying. The polarity of the object can be selected. When the object value corresponds to the "Alarm" condition, all status LEDs and the operation LED are always flashing with a frequency of approx. 2 Hz. If there is an alarm, the behaviour of the operating LED as configured in the ETS and the status LED for normal operation have no significance. The LEDs adopt their originally configured behaviour only after the alarm signalling function has been deactivated. Changes of the state of the LEDs during an alarm - if they are controlled by separate LED objects or if they signal button functions - are internally stored and recovered at the end of the alarm.

Apart from the possibility of deactivating an alarm signal via the alarm object, it can also be deactivated locally by a button-press on the pushbutton sensor itself. The "Reset alarm signalling by a button-press?" parameter defines the button response during an alarm…

- If this parameter is set to "Yes", active alarm signal displaying can be deactivated by a button-press on the pushbutton sensor. This button-press does not cause the configured function of the pressed button to be executed. Only after then next button-press will the configuration of the button be evaluated and a telegram be transmitted to the bus, if applicable.
- If "No" has been selected, alarm signalling can only be deactivated via the alarm signalling object. A button-press will always directly execute the configured button function.

If alarm signalling can be deactivated by a button-press, the parameter "Acknowledge alarm signalling by" defines whether an additional alarm acknowledge telegram is to be transmitted to the bus via the separate object "Alarm signalling acknowledge" after triggering by this button-press.
Such an acknowledge telegram can, for instance, be sent via a 'listening' group address to the "Alarm signalling" objects of other pushbutton sensors in order to reset the alarm status there as well. Attention must be paid during resetting of an alarm to the selectable polarity of the acknowledge object.

- Notes on the alarm signalling function: If the setting is "Alarm when OFF and alarm reset when ON", the alarm object must be actively written by the bus with "0" to activate the alarm after a reset or after programming with the ETS.
- An active alarm signal is not stored so that the alarm signalling is generally deactivated after a device reset or after programming with the ETS.

4.2.5 Delivery state

Delivery state and non runable application

As long as pushbutton sensor has not yet been programmed with application data by means of the ETS, the operation LED flashes at a slow rate (approx. 0.75 Hz). When any of the buttons or rockers is pressed, the appropriate status LED lights up briefly (button-press display). This condition persists until the application is programmed into the device.

By slow flashing of its operation LED (approx. 0.75 Hz), the pushbutton sensor can also indicate that a wrong application has been programmed into its memory. Applications are non run-capable if they are not intended for use with the pushbutton sensor in the ETS product database. Attention must also be paid to the fact that the pushbutton sensor variant is compatible with the one in the project (e.g. 4x version created in the ETS project and also installed).

The operation LED flashes slowly also if the application program of the touch sensor has been removed from the device by the ETS.
In both cases, the pushbutton sensor is not operational.

4.2.6 Parameters

Description	Values	Comment
h General		
Transmit delay after reset or bus voltage return	Yes **No**	After a reset (e.g. after loading of an application program or the physical address or after return of bus voltage), the pushbutton sensor can automatically transmit telegrams for the room thermostat extension functions. In case of the controller extension, the pushbutton sensor attempts to retrieve values from the room thermostat by means of read telegrams in order to update the object states. In case of the room temperature measurement, the pushbutton sensor transmits the current room temperature after a reset to the bus. If there are still other bus devices besides the pushbutton sensor transmitting telegrams immediately after a reset, it may be useful to activate the transmit delay for automatically transmitting objects in order to reduce the bus load. When transmit delay is activated (setting: "Yes"), the pushbutton sensor computes the delay from its device ID in the physical address. The sensor then waits 30 seconds maximum before transmitting telegrams.
Light period of status LED for button-press display	1 s 2 s **3 s** 4 s 5 s	This parameter defines the time the status LED is lit up to indicate actuation. The setting concerns all status LEDs whose function is set to "Button-press display".
Function of operation LED		This parameter defines the function of the operation LED.
	Always OFF	The operation LED is always off.
	Always ON	The operation LED is always on, for instance, as orientation lighting.
	Control via object	The operation LED is controlled by a separate communication object.
	Flashing	The operation LED flashes permanently with a frequency of about 0.75 Hz. Besides the function set here, the operation LED can display different states by means of other flashing rates.

		These comprise Programming mode, the confirmation of full-surface actuation or the message that an application has not been loaded.
Control of the operation LED via the object value	**1 = LED static ON / 0 = LED static OFF** 1 = LED static OFF / 0 = LED static ON 1 = LED flashes / 0 = LED static OFF 1 = LED static OFF / 0 = LED flashes	If the "Function of the operation LED" is set to "Control via object", then the telegram polarity of the 1-bit object "Operation LED" can be specified at this point. The LED can be switched on or off statically. In addition, the received switching telegram can be evaluated in such a way that the LED flashes.
Controller extension	Enabled **Disabled**	This parameter enables the communication objects and the parameter page for the room thermostat extension. In addition, at least one rocker must be divided into two buttons to permit full use of the controller extension features.
Value request from controller extension?	Yes **No**	In order to enable the pushbutton sensor to transmit the correct values after a press on the buttons representing the controller extension, the "Operating mode selection", "Forced operating mode switchover", "Active setpoint shift" and "Presence button" communication objects can transmit read requests after a reset. This parameter is only visible, if the parameter "Controller extension" is set to "enabled".

h Operation concept

Operation concept of buttons 1 and 2 (The same parameters are available for the other operating areas / button pairs.)	**Rocker function (rocker 1)** Button function	For each operating area, the user can independently specify whether it is to be used as a rocker with a common basic function or as two different buttons with completely independent functions. Depending on this setting, the ETS displays different communication objects and parameter pages.
Button evaluation (The same parameters are available for the		If the operation concept of an operating area is configured as "pushbutton function", this parameter can be used to specify whether single-surface or

other operating areas / button pairs.)		double-surface operation should be implemented.
	Single area operation (only as button 1)	In single-surface operation, the entire operating area is evaluated only as a single "large" button. The surface can be depressed at any desired point in order to execute the underlying pushbutton function. In this setting, the button with the even button number of the button pair (e.g. button 2) is inactive and physically not present.
	Double-area operation (as buttons 1 + 2)	In double-surface operation, the operating area is divided into two mutually independent buttons.

h Rocker 1 (buttons 1/2) (only if "Function of buttons 1 and 2 = as one rocker (rocker 1)"!)

Function	**Switching** Dimming Venetian blind 1-byte value transmitter 2-byte value transmitter Scene extension 2-channel operation	This parameter is used to define the basic function of the rocker. Depending on this choice, the ETS displays different communication objects and parameters for this rocker.

The following parameters are only valid for the rocker function "Switching"...

Command on pressing left rocker	No reaction **ON** OFF TOGGLE	These parameters specify the reaction when the left rocker is pressed or released.
Command on releasing left rocker	**No reaction** ON OFF TOGGLE	
Command on pressing right rocker	No reaction ON **OFF** TOGGLE	These parameters specify the reaction when the right rocker is pressed or released.
Command on releasing right rocker	**No reaction** ON OFF TOGGLE	

The following parameters are only valid for the rocker function "Dimming"...

Command on pressing left rocker	No reaction **Brighter (ON)** Darker (OFF) Brighter / darker (TOGGLE) Brighter (TOGGLE) Darker (TOGGLE)	This parameter defines the reaction when the left rocker is pressed. If the pushbutton sensor is to toggle on a brief press, the corresponding switching objects of other sensors with the same function must be linked with one another. In the "Brighter/darker (TOGGLE)" setting, the dimming objects

		must be interlinked as well so that the pushbutton sensor can send the correct telegram on the next button-press.
Command on pressing right rocker	No reaction Brighter (ON) **Darker (OFF)** Brighter / darker (TOGGLE) Brighter (TOGGLE) Darker (TOGGLE)	This parameter defines the reaction when the right rocker is pressed. If the pushbutton sensor is to toggle on a brief press, the corresponding switching objects of other sensors with the same function must be linked with one another. In the "Brighter/darker (TOGGLE)" setting, the dimming objects must be interlinked as well so that the pushbutton sensor can send the correct telegram on the next button-press.
Time between switching and dimming, left rocker (100 … 50000 x 1 ms)	100 … **400** … 50000	This parameter defines how long the left rocker must be pressed for the pushbutton sensor to send a dimming telegram.
Time between switching and dimming, right rocker (100 … 50000 x 1 ms)	100 … **400** … 50000	This parameter defines how long the right rocker must be pressed for the pushbutton sensor to send a dimming telegram.
Advanced parameters	Activated **Deactivated**	When the advanced parameters are activated, the ETS shows the following parameters.
Advanced parameters activated...		
Increase brightness by	1.5 % 3 % 6 % 12.5 % 25 % 50 % **100 %**	This parameter sets the relative dimming level when the brightness is increased. On each button-press, the brightness is changed at maximum by the configured level. Especially with smaller dimming levels it is advisable for the pushbutton sensor to repeat the dimming telegrams automatically (see "telegram repetition").
Reduce brightness by	1.5 % 3 % 6 % 12.5 % 25 %	This parameter sets the relative dimming level when the brightness is reduced. On each button-press, the brightness is changed at maximum by the configured level. Especially with smaller dimming levels it

	50 % **100 %**	is advisable for the pushbutton sensor to repeat the dimming telegrams automatically (see "telegram repetition").
Transmit stop telegram?	**Yes** No	On "Yes" the pushbutton sensor transmits a telegram for stopping the dimming process when the rocker is released. When the pushbutton sensor transmits telegrams for dimming in smaller levels, the stop telegram is generally not needed.
Telegram repeat?	Yes **No**	This parameter can be used to activate telegram repetition for dimming. With the button held down, the pushbutton sensor will then transmit the relative dimming telegrams (in the programmed level width) until the button is released.
Time between two telegrams	**200 ms** 300 ms 400 ms 500 ms 750 ms 1 s 2 s	This parameter defines the interval at which the dimming telegrams are automatically repeated in the telegram repetition mode. This parameter is visible only if "Telegram repetition = Yes"!
Full-surface operation	Enabled **Disabled**	When the full-surface operation is enabled, the ETS shows the following parameters.
Function for full-surface operation	**Switching** Scene recall without storage function Scene recall with storage function	In case of full-surface operation, this parameter defines the function that is to be used. The ETS shows the corresponding communication object and the other parameters. If the pushbutton sensor is to recall a scene with storage function by full-surface actuation, it will make a distinction between a brief press (less than 1 s), a sustained press (longer than 5 s) and an invalid button-press (between 1 s and 5 s). A brief press recalls the scene, a sustained press stores a scene and an invalid full-surface operation is ignored. This parameter is visible only if "Full-surface actuation = enabled"!
Command for full-surface operation	ON OFF **TOGGLE**	This parameter defines the value of the transmitted telegram when a full-surface operation has been sensed. "TOGGLE"

		switches over the current object value. This parameter is visible only if "Full-surface actuation = enabled"!
Scene number (1 … 64)	**1**, 2, …, 64	This parameter defines the scene number which is to be transmitted to the bus after a scene recall or during storage of a scene. This parameter is visible only if "Full-surface actuation = enabled"!

The following parameters are only valid for the rocker function "Venetian blind"...

Command on pressing rocker	**Left rocker: UP / Right rocker: DOWN** Left rocker: DOWN / Right rocker: UP Left rocker: TOGGLE / Right rocker: TOGGLE	This parameter defines the running direction of a drive after a button-press. If the setting is "TOGGLE", the direction is changed after each long time command. If several pushbuttons are to control the same drive, the long time objects of the pushbuttons must be interlinked for a correct change of the running direction.
Operation concept	**short – long – short** long – short short – long long – short or short	For Venetian blind control, four different operation concepts can be selected. For these concepts, the ETS shows further parameters.
Time between short time and long time command, left rocker (1 … 3000 x 100 ms)	1 … **4** … 3000	This parameter sets the time after which the long time operation will be evaluated on pressing the top (or left-hand) button of the rocker. This parameter is not visible with "Operation concept = long – short"!
Time between short time and long time command, right rocker (1 … 3000 x 100 ms)	1 … **4** … 3000	This parameter sets the time after which the long time operation will be evaluated on pressing the bottom (or right-hand) button of the rocker. This parameter is not visible with "Operation concept = long – short"!
Slat adjusting time, left rocker (0 … 3000 x 100 ms)	0 … **5** … 3000	Time during which a transmitted long time telegram can be terminated by releasing the left button of the rocker (short time). This function serves to adjust the slats of a blind. This parameter is not visible with "Operation concept = long – short"!

Slat adjusting time, right rocker (0 … 3000 x 100 ms)	0 … **5** … 3000	Time during which a transmitted long time telegram can be terminated by releasing the right button of the rocker (short time). This function serves to adjust the slats of a blind. This parameter is not visible with "Operation concept = long – short"!
Full-surface operation	Enabled **Disabled**	When the full-surface operation is enabled, the ETS shows the following parameters. Full-surface operation can only be programmed if "Operation concept = long – short or short"!
Function for full-surface operation	**Switching** Scene recall without storage function Scene recall with storage function	In case of full-surface operation, this parameter defines the function that is to be used. The ETS shows the corresponding communication object and the other parameters. If the pushbutton sensor is to recall a scene with storage function by full-surface actuation, it will make a distinction between a brief press (less than 1 s), a sustained press (longer than 5 s) and an invalid button-press (between 1 s and 5 s). A brief press recalls the scene, a sustained press stores a scene and an invalid full-surface operation is ignored. This parameter is visible only if "Full-surface actuation = enabled"!
Command for full-surface operation	ON OFF **TOGGLE**	This parameter defines the value of the transmitted telegram when a full-surface operation has been sensed. "TOGGLE" switches over the current object value. This parameter is visible only if "Full-surface actuation = enabled"!
Scene number (1 … 64)	**1**, 2, …, 64	This parameter defines the scene number which is to be transmitted to the bus after a scene recall or during storage of a scene. This parameter is visible only if "Full-surface actuation = enabled"!

The following parameters are only valid for the rocker function "Value transmitter 1-byte"...

Function

	Left rocker / right, no function **Left rocker: 0 … 255 / Right rocker: 0 … 255** Left rocker: 0 … 100 % / Right rocker: 0 … 100 % Left rocker: 0 … 255 / Right rocker: No function Left rocker: 0 … 100 % / Right rocker: No function Left rocker: No function / right rocker: 0 … 255 Left rocker: No function / right rocker: 0 … 100 %	A rocker configured as "Value transmitter 1 byte" permits selecting whether the values to be transmitted are interpreted as integers from 0 to 255 or as a percentage from 0 % to 100 %. The following parameters and their settings depend on this distinction.
Value, left rocker (0 … 255)	**0**...255	This parameter defines the object value when the left rocker is pressed. Visible only if "Function = … 0…255"!
Value, right rocker (0 … 255)	**0**...255	This parameter defines the object value when the right rocker is pressed. Visible only if "Function = … 0…255"!
Value, left rocker (0 … 100 %)	**0**...100	This parameter defines the object value when the left rocker is pressed. Visible only if "Function = … 0…100 %"!
Value, right rocker (0 … 100 %)	**0**...100	This parameter defines the object value when the right rocker is pressed. Visible only if "Function = … 0…100 %"!
Value adjustment by long button-press	Enabled **Disabled**	If value adjustment by long button-press is enabled, the ETS shows further parameters. Value adjustment begins, when the button is held down for more than 5 s. In this case, the respective status LED flashes as a sign that a new telegram has been transmitted.
Starting value in case of value adjustment	Same as configured value	Value adjustment can begin with different starting values.

		After each long press, the pushbutton sensor always starts with the value configured in the ETS.
	Same as value after last adjustment	After a long press, the pushbutton sensor starts with the value transmitted by itself or by another device with this group address as the last value.
	Same as value from communication object	After a long press, the pushbutton sensor starts with the value transmitted by itself or by another device with this group address as the last value. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Direction of value adjustment	Upwards Downwards **Toggling (alternating)**	With a long press, the pushbutton sensor can either vary the values always in the same direction or it stores the direction of the last adjustment and reverses it on the next button-press. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Level size (1 … 15)	**1**...15	In a value adjustment, the pushbutton sensor determines the new telegram value from the previous value and the preset level size. If the value falls below the lower limit of the adjustment range (0 or 0 %) or if it exceeds the upper limit (255 or 100%), the sensor adapts the level size of the last level automatically. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Time between two telegrams	**0.5 s** 1 s 2 s 3 s	In a value adjustment, the pushbutton sensor determines the new telegram value from the previous value and the preset level size. If the value falls below the lower limit of the adjustment range (0 or 0 %) or if it exceeds the upper limit (255 or 100%), the sensor adapts the level size of the last level automatically. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Value adjustment with overflow	Yes **No**	If value adjustment is to be effected without overflow (setting "No") and if the pushbutton sensor reaches the lower limit of the adjustment range (0 or 0 %) or the upper limit (255 or 100 %) during

		value adjustment, the adjustment will be stopped automatically by the sensor. If the value adjustment with overflow is programmed (setting "Yes") and if the pushbutton sensor reaches the lower or the upper limit, it will transmit the value of this range limit and then add a pause the duration of which corresponds to two levels. Thereafter, the pushbutton sensor transmits a telegram with the value of the other range limits and continues the value adjustment in the same direction.

The following parameters are only valid for the rocker function "Value transmitter 2-byte"...

Function	**Temperature value transmitter** Brightness value transmitter Value transmitter (0 … 65535)	A rocker configured as "Value transmitter 1 byte" permits selecting whether the values to be transmitted are to be interpreted as temperature values (0 °C to 40 °C), as brightness values (0 lux to 1500 lux) or as integers (0 to 65535). The following parameters and their settings depend on this selection.
Temperature value (0 … 40 °C) Left rocker	0...**20**...40	This parameter defines the object value when the left rocker is pressed. This is only visible if "Function = Temperature value transmitter"!
Temperature value (0 … 40 °C) Right rocker	0...**20**...40	This parameter defines the object value when the right rocker is pressed. This is only visible if "Function = Temperature value transmitter"!
Brightness value Left rocker	0, 50, … **300** … 1450, 1500 lux	This parameter defines the object value when the left rocker is pressed. This is only visible if "Function = Brightness value transmitter"!
Brightness value Right rocker	0, 50, … **300** … 1450, 1500 lux	This parameter defines the object value when the right rocker is pressed. This is only visible if "Function = Brightness value transmitter"!
Value (0 … 65535) Left rocker	**0** … 65535	This parameter defines the object value when the left rocker is pressed. This is only visible if "Function = Value transmitter (0 … 65535)"!

Value (0 … 65535) Right rocker	**0** … 65535	This parameter defines the object value when the right rocker is pressed. This is only visible if "Function = Value transmitter (0 … 65535)"!
Value adjustment by long button-press	Enabled **Disabled**	If value adjustment by long button-press is enabled, the ETS shows further parameters. Value adjustment begins, when the button is held down for more than 5 s. In this case, the respective status LED flashes as a sign that a new telegram has been transmitted.
Starting value in case of value adjustment		Value adjustment can begin with different starting values.
	Same as configured value	After each long press, the pushbutton sensor always starts with the value configured in the ETS.
	Same as value after last adjustment	After a long press, the pushbutton sensor starts with the value transmitted by itself or by another device with this group address as the last value.
	Same as value from communication object	After a long press, the pushbutton sensor starts with the value transmitted by itself or by another device with this group address as the last value. This setting selectable only if "Functionality = Value transmitter (0…65535)! This parameter is only visible if "Value adjustment by long key-press = enabled "!
Direction of value adjustment	Upwards Downwards **Toggling (alternating)**	With a long press, the pushbutton sensor can either vary the values always in the same direction or it stores the direction of the last adjustment and reverses it on the next button-press. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Level size	**1 °C**	For temperature values the level size of the adjustment is permanently set to 1 ° C. This parameter is only visible if "Function = Temperature value transmitter" and "Value adjustment by long button-press = enabled"!

Level size	**50 lux**	For brightness values, the level size of the adjustment is fixed to 50 lux. This parameter is only visible if "Function = Brightness value transmitter" and "Value adjustment by long button-press = enabled"!
Level size	1 2 5 10 20 50 75 100 200 500 750 **1000**	This parameter sets the level size of the value adjustment for the 2-byte value transmitter. This parameter is only visible if "Function = Value transmitter (0 ... 65535)" and "Value adjustment by long button-press = enabled"!
Time between two telegrams	0.5 s **1 s** 2 s 3 s	This parameter defines the interval at which the pushbutton sensor transmits new telegrams during a value adjustment. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Value adjustment with overflow	Yes **No**	If value adjustment is to be effected without overflow (setting "No") and if the pushbutton sensor reaches the lower limit of the adjustment range (0°C, 0 lux, 1) or the upper limit (40°C, 1500 lux, 65535) during value adjustment, the adjustment will be stopped automatically by the sensor. If the value adjustment with overflow is programmed (setting "Yes") and if the pushbutton sensor reaches the lower or the upper limit, it will transmit the value of this range limit and then add a pause the duration of which corresponds to two levels. Thereafter, the pushbutton sensor transmits a telegram with the value of the other range limits and continues the value adjustment in the same direction.

The following parameters are only valid for the rocker function "Scene extension"...

Function	**Scene extension without storage function**	This parameter defines the functionality of the extension.

	Scene extension with storage function Recall of internal scene extension without storage function Recall of internal scene with storage function	If the pushbutton sensor is used as a scene extension, the scenes can either be stored in one or in several other KNX/EIB devices (e.g. light scene pushbutton sensor). During a scene recall or in a storage function, the pushbutton sensor transmits a telegram with the respective scene number via the extension object of the rocker. During the recall of an internal scene, a scene stored internally in the pushbutton sensor is recalled or stored again. In this case, the sensor transmits no telegram to the bus via a scene extension object. For this setting, the internal scene function must be enabled.
Scene number (1 … 64) Left rocker	**1**...64	In accordance with the KNX standard, objects with data type 18.001 "Scene Control" can recall or store up to 64 scenes by their numbers. The parameter defines the scene number to be transmitted when a left button is pressed.
Scene number (1 … 64) Right rocker	**1**...64	In accordance with the KNX standard, objects with data type 18.001 "Scene Control" can recall or store up to 64 scenes by their numbers. The parameter defines the scene number to be transmitted when a right button is pressed.
Scene number (1 … 8) Left rocker	**1**...8	This parameter defines the number of the internal scene which is recalled or stored when a left button is pressed.
Scene number (1 … 8) Right rocker	**1**...8	This parameter defines the number of the internal scene which is recalled or stored when a right button is pressed.

The following parameters are only valid for the rocker function "2-channel operation"...

Operation concept	**Channel 1 or channel 2** Channel 1 and channel 2	This parameter defines the 2-channel operation concept. If the setting "Channel 1 or channel 2" is selected, the pushbutton sensor decides dependent on the button-press duration which of the channels will be used. If the setting "Channel 1 and channel 2" is selected, the pushbutton sensor transmits only the telegram of channel 1

		on a short button-press and both telegrams on a sustained button-press.
Function channel 1 (2)	No function **Switching (1 bit)** Value transmitter 0 … 255 (1-byte) Value transmitter 0 … 100 % (1-byte) Temperature value transmitter (2 bytes)	This parameter defines the channel function and specifies which other parameters and which communication object are to be displayed for channel 1 (2).
Command of the button for channel 1 (2) Left rocker	**ON** OFF TOGGLE	This parameter defines the object value transmitted to the bus, when the left-hand rocker is pressed. This is only visible if "Function channel 1 (2) = Switching (1 bit)"!
Command of the button for channel 1 (2) Right rocker	ON **OFF** TOGGLE	This parameter defines the object value transmitted to the bus, when the right-hand rocker is pressed. This is only visible if "Function channel 1 (2) = Switching (1 bit)"!
Value of the button for Channel 1 (2) Left rocker (0...255)	**0**...255	This parameter defines the object value transmitted to the bus, when the left-hand rocker is pressed. It is only visible if "Function channel 1 (2) = Value transmitter 0…255 (1 byte)"!
Value of the button for Channel 1 (2) Right rocker (0...255)	**0**...255	This parameter defines the object value transmitted to the bus, when the right-hand rocker is pressed. It is only visible if "Function channel 1 (2) = Value transmitter 0…255 (1 byte)"!
Value of the button for Channel 1 (2) Left rocker (0 … 100 %)	**0**...100	This parameter defines the object value transmitted to the bus, when the left-hand rocker is pressed. It is only visible if "Function channel 1 (2) = Value transmitter 0…100 % (1-byte)"!
Value of the button for Channel 1 (2) Right rocker (0 … 100 %)	**0**...100	This parameter defines the object value transmitted to the bus, when the right-hand rocker is pressed. It is only visible if "Function channel 1 (2) = Value transmitter 0…100 % (1-byte)"!

Temperature value of the button for channel 1 (2) Left rocker (0 … 40 °C)	**0**...40	This parameter defines the temperature value transmitted to the bus when the left-hand rocker is pressed. It is only visible if "Function channel 1 (2) = Temperature value transmitter (2 bytes)"!
Temperature value of the button for channel 1 (2) Right rocker (0 … 40 °C)	**0**...40	This parameter defines the temperature value transmitted to the bus when the right-hand rocker is pressed. It is only visible if "Function channel 1 (2) = Temperature value transmitter (2 bytes)"!
Time between channel 1 and channel 2 Left rocker (1 … 255 x 100 ms)	0...**30**...255	Depending on the selected operation concept, this parameter defines the interval at which the sensor transmits the telegram for channel 1 and the telegram for channel 2 when the left side of the rocker is pressed.
Time between channel 1 and channel 2 Right rocker (1 … 255 x 100 ms)	0...**30**...255	Depending on the selected operation concept, this parameter defines the interval at which the sensor transmits the telegram for channel 1 and the telegram for channel 2 when the right side of the rocker is pressed.
Full-surface operation	Enabled **Disabled**	When the full-surface operation is enabled, the ETS shows the following parameters. Full-surface operation can only be programmed if "Operation concept = Channel 1 or channel 2"!
Function for full-surface operation	**Switching** Scene recall without storage function Scene recall with storage function	In case of full-surface operation, this parameter defines the function that is to be used. The ETS shows the corresponding communication object and the other parameters. If the pushbutton sensor is to recall a scene with storage function by full-surface actuation, it will make a distinction between a brief press (less than 1 s), a sustained press (longer than 5 s) and an invalid button-press (between 1 s and 5 s). A brief press recalls the scene, a sustained press stores a scene and an invalid full-surface operation is ignored. This parameter is visible only if "Full-surface actuation = enabled"!

Command for full-surface operation	ON OFF **TOGGLE**	This parameter defines the value of the transmitted telegram when a full-surface operation has been sensed. "TOGGLE" switches over the current object value. This parameter is visible only if "Full-surface actuation = enabled"!
Scene number (1 … 64)	**1**, 2, …, 64	This parameter defines the scene number which is to be transmitted to the bus after a scene recall or during storage of a scene. This parameter is visible only if "Full-surface actuation = enabled"!

h Rocker 2 (Buttons 3/4) … Rocker n, see Rocker 1!

h Button 1 (only if "Function of buttons 1 and 2 = as separate buttons"!)

Function	No function **Switching** Dimming Venetian blind 1-byte value transmitter 2-byte value transmitter Scene extension 2-channel operation Controller extension * *: Must have been enabled under "General"!	This parameter defines the basic function of the button. Depending on this setting, the ETS displays different communication objects and parameters for this button.

The following parameters are only valid for the pushbutton function "Switching"...

Command on pressing the button	No reaction **ON** OFF TOGGLE	These parameters specify the reaction when the button is pressed or released.
Command on releasing the button	**No reaction** ON OFF TOGGLE	

The following parameters are only valid for the pushbutton function "Dimming"...

Command on pressing the button	No reaction **Brighter (ON)** Darker (OFF) Brighter / darker (TOGGLE) Brighter (TOGGLE) Darker (TOGGLE)	This parameter defines the reaction when the button is pressed. If the pushbutton sensor is to toggle on a brief press, the corresponding switching objects of other sensors with the same function must be linked with one another. In the "Brighter/darker (TOGGLE)" setting, the dimming objects must be interlinked as well so that the pushbutton sensor can send the correct telegram on the next button-press.

Time between switching and dimming (100 … 50000 x 1 ms)	100 … **400** … 50000	This parameter defines how long the button must be pressed for the pushbutton sensor to transmit a dimming telegram.
Advanced parameters	Activated **Deactivated**	When the advanced parameters are activated, the ETS shows the following parameters.
Advanced parameters activated...		
Increase brightness by	1.5 % 3 % 6 % 12.5 % 25 % 50 % **100 %**	This parameter sets the relative dimming level when the brightness is increased. On each button-press, the brightness is changed at maximum by the configured level. Especially with smaller dimming levels it is advisable for the pushbutton sensor to repeat the dimming telegrams automatically (see "telegram repetition").
Reduce brightness by	1.5 % 3 % 6 % 12.5 % 25 % 50 % **100 %**	This parameter sets the relative dimming level when the brightness is reduced. On each button-press, the brightness is changed at maximum by the configured level. Especially with smaller dimming levels it is advisable for the pushbutton sensor to repeat the dimming telegrams automatically (see "telegram repetition").
Transmit stop telegram?	**Yes** No	On "Yes" the pushbutton sensor transmits a telegram for stopping the dimming process when the rocker is released. When the pushbutton sensor transmits telegrams for dimming in smaller levels, the stop telegram is generally not needed.
Telegram repeat?	Yes **No**	This parameter can be used to activate telegram repetition for dimming. With the button held down, the pushbutton sensor will then transmit the relative dimming telegrams (in the programmed level width) until the button is released.
Time between two telegrams	**200 ms** 300 ms	This parameter defines the interval at which the dimming telegrams are

	400 ms 500 ms 750 ms 1 s 2 s	automatically repeated in the telegram repetition mode. This parameter is visible only if "Telegram repetition = Yes"!

The following parameters are only valid for the pushbutton function "Venetian blind"...

Command on pressing the button	DOWN UP **TOGGLE**	This parameter defines the running direction of a drive after a button-press. If the setting is "TOGGLE", the direction is changed after each long time command. If several pushbuttons are to control the same drive, the long time objects of the pushbuttons must be interlinked for a correct change of the running direction.
Operation concept	**short – long – short** long – short short – long long – short or short	For Venetian blind control, four different operation concepts can be selected. For these concepts, the ETS shows further parameters.
Time between short-time and long-time command (1 … 3000 x 100 ms)	1 … **4** … 3000	This parameter sets the time after which the long time operation will be evaluated on pressing the top (or left-hand) button of the rocker. This parameter is not visible with "Operation concept = long – short"!
Slat moving time (0 … 3000 x 100 ms)	0 … **5** … 3000	Time during which a transmitted long time telegram can be terminated by releasing the top (or left-hand) button of the rocker (short time). This function serves to adjust the slats of a blind. This parameter is not visible with "Operation concept = long – short"!

The following parameters are only valid for the push button function "Value transmitter 1 byte"...

Function	**Value transmitter 0 … 255** Value transmitter 0 … 100 %	A button configured as "Value transmitter 1 byte" permits selecting whether the values to be transmitted are interpreted as integers from 0 to 255 or as a percentage from 0 % to 100 %. The following parameters and their settings depend on this distinction.
Value (0 … 255)	**0**...255	This parameter defines the object value when the button is pressed. Visible only if "Function = … 0…255"!

Value (0 … 100 %)	**0**...100	This parameter defines the object value when the button is pressed. Visible only if "Function = … 0…100 %"!
Value adjustment by long button-press	Enabled **Disabled**	If value adjustment by long button-press is enabled, the ETS shows further parameters. Value adjustment begins, when the button is held down for more than 5 s. In this case, the respective status LED flashes as a sign that a new telegram has been transmitted.
Starting value in case of value adjustment		Value adjustment can begin with different starting values.
	Same as configured value	After each long press, the pushbutton sensor always starts with the value configured in the ETS.
	Same as value after last adjustment	After a long press, the pushbutton sensor starts with the value transmitted by itself or by another device with this group address as the last value.
	Same as value from communication object	After a long press, the pushbutton sensor starts with the value transmitted by itself or by another device with this group address as the last value. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Direction of value adjustment	Upwards Downwards **Toggling (alternating)**	With a long press, the pushbutton sensor can either vary the values always in the same direction or it stores the direction of the last adjustment and reverses it on the next button-press. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Level size (1 … 15)	**1**...15	In a value adjustment, the pushbutton sensor determines the new telegram value from the previous value and the preset level size. If the value falls below the lower limit of the adjustment range (0 or 0 %) or if it exceeds the upper limit (255 or 100%), the sensor adapts the level size of the last level automatically. This parameter is only visible if "Value adjustment by long key-press = enabled"!

Time between two telegrams	**0.5 s** 1 s 2 s 3 s	In a value adjustment, the pushbutton sensor determines the new telegram value from the previous value and the preset level size. If the value falls below the lower limit of the adjustment range (0 or 0 %) or if it exceeds the upper limit (255 or 100%), the sensor adapts the level size of the last level automatically. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Value adjustment with overflow	Yes **No**	If value adjustment is to be effected without overflow (setting "No") and if the pushbutton sensor reaches the lower limit of the adjustment range (0 or 0 %) or the upper limit (255 or 100 %) during value adjustment, the adjustment will be stopped automatically by the sensor. If the value adjustment with overflow is programmed (setting "Yes") and if the pushbutton sensor reaches the lower or the upper limit, it will transmit the value of this range limit and then add a pause the duration of which corresponds to two levels. Thereafter, the pushbutton sensor transmits a telegram with the value of the other range limits and continues the value adjustment in the same direction.

The following parameters are only valid for the push button function "Value transmitter 2 byte"...

Function	**Temperature value transmitter** Brightness value transmitter Value transmitter (0 … 65535)	A button configured as "Value transmitter 1 byte" permits selecting whether the values to be transmitted are to be interpreted as temperature values (0 °C to 40 °C), as brightness values (0 lux to 1500 lux) or as integers (0 to 65535). The following parameters and their settings depend on this selection.
Temperature value (0 … 40 °C)	0...**20**...40	This parameter defines the object value when the button is pressed. This is only visible if "Function = Temperature value transmitter"!
Brightness value	0, 50, … **300** … 1450, 1500 lux	This parameter defines the object value when the button is pressed. This is only visible if "Function = Brightness value transmitter"!

Value (0 … 65535)	**0** … 65535	This parameter defines the object value when the button is pressed. This is only visible if "Function = Value transmitter (0 … 65535)"!
Value adjustment by long button-press	Enabled **Disabled**	If value adjustment by long button-press is enabled, the ETS shows further parameters. Value adjustment begins, when the button is held down for more than 5 s. In this case, the respective status LED flashes as a sign that a new telegram has been transmitted.
Starting value in case of value adjustment		Value adjustment can begin with different starting values.
	Same as configured value	After each long press, the pushbutton sensor always starts with the value configured in the ETS.
	Same as value after last adjustment	After a long press, the pushbutton sensor starts with the value transmitted by itself or by another device with this group address as the last value.
	Same as value from communication object	After a long press, the pushbutton sensor starts with the value transmitted by itself or by another device with this group address as the last value. This setting selectable only if "Function = Value transmitter (0…65535)"! This parameter is only visible if "Value adjustment by long key-press = enabled"!
Direction of value adjustment	Upwards Downwards **Toggling (alternating)**	With a long press, the pushbutton sensor can either vary the values always in the same direction or it stores the direction of the last adjustment and reverses it on the next button-press. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Level size	**1 °C**	For temperature values the level size of the adjustment is permanently set to 1 ° C. This parameter is only visible if "Function = Temperature value transmitter" and "Value adjustment by long button-press = enabled"!

Level size	**50 lux**	For brightness values, the level size of the adjustment is fixed to 50 lux. This parameter is only visible if "Function = Brightness value transmitter" and "Value adjustment by long button-press = enabled"!
Level size	1 2 5 10 20 50 75 100 200 500 750 **1000**	This parameter sets the level size of the value adjustment for the 2-byte value transmitter. This parameter is only visible if "Function = Temperature value transmitter" and "Value adjustment by long button-press = enabled"!
Time between two telegrams	0.5 s **1 s** 2 s 3 s	This parameter defines the interval at which the pushbutton sensor transmits new telegrams during a value adjustment. This parameter is only visible if "Value adjustment by long key-press = enabled"!
Value adjustment with overflow	Yes **No**	If value adjustment is to be effected without overflow (setting "No") and if the pushbutton sensor reaches the lower limit of the adjustment range (0°C, 0 lux, 1) or the upper limit (40°C, 1500 lux, 65535) during value adjustment, the adjustment will be stopped automatically by the sensor. If the value adjustment with overflow is programmed (setting "Yes") and if the pushbutton sensor reaches the lower or the upper limit, it will transmit the value of this range limit and then add a pause the duration of which corresponds to two levels. Thereafter, the pushbutton sensor transmits a telegram with the value of the other range limits and continues the value adjustment in the same direction.

The following parameters are only valid for the pushbutton function "scene extension"...

Function	**Scene extension without storage function**	This parameter defines the functionality of the extension.

	Scene extension with storage function Recall of internal scene extension without storage function Recall of internal scene with storage function	If the pushbutton sensor is used as a scene extension, the scenes can either be stored in one or in several other KNX/EIB devices (e.g. light scene pushbutton sensor). During a scene recall or in a storage function, the pushbutton sensor transmits a telegram with the respective scene number via the extension object of the rocker. During the recall of an internal scene, a scene stored internally in the pushbutton sensor is recalled or stored again. In this case, the sensor transmits no telegram to the bus via a scene extension object. For this setting, the internal scene function must be enabled.
Scene number (1 … 64)	**1**...64	In accordance with the KNX standard, objects with data type 18.001 "Scene Control" can recall or store up to 64 scenes by their numbers. The parameter defines the scene number to be transmitted when the button is pressed.
Scene number (1 … 8)	**1**...8	This parameter defines the number of the internal scene which is recalled or stored when a button is pressed.

The following parameters are only valid for the pushbutton function "2-channel operation"...

Operation concept	**Channel 1 or channel 2** Channel 1 and channel 2	This parameter defines the 2-channel operation concept. If the setting "Channel 1 or channel 2" is selected, the pushbutton sensor decides dependent on the button-press duration which of the channels will be used. If the setting "Channel 1 and channel 2" is selected, the pushbutton sensor transmits only the telegram of channel 1 on a short button-press and both telegrams on a sustained button-press.
Function channel 1 (2)	No function **Switching (1 bit)** Value transmitter 0 … 255 (1-byte) Value transmitter 0 … 100 % (1-byte) Temperature value transmitter (2 bytes)	This parameter defines the channel function and specifies which other parameters and which communication object are to be displayed for channel 1 (2).
Command of the button for channel 1 (2)	**ON** OFF TOGGLE	This parameter defines the object value transmitted to the bus when the button is pressed.

		This is only visible if "Function channel 1 (2) = Switching (1 bit)"!
Value of the button for Channel 1 (2) (0 … 255)	**0**...255	This parameter defines the object value transmitted to the bus when the button is pressed. It is only visible if "Function channel 1 (2) = Value transmitter 0…255 (1 byte)"!
Value of the button for Channel 1 (2) (0 … 100 %)	**0**...100	This parameter defines the object value transmitted to the bus when the button is pressed. It is only visible if "Function channel 1 (2) = Value transmitter 0…100 % (1 byte)"!
Temperature value of the button for channel 1 (2) (0 … 40 °C)	**0**...40	This parameter defines the temperature value transmitted to the bus when the button is pressed. It is only visible if "Function channel 1 (2) = Temperature value transmitter (2 bytes)"!
Time between channel 1 and channel 2 (1 … 255 x 100 ms)	0...**30**...255	Depending on the selected operation concept, this parameter defines the interval at which the pushbutton transmits the telegram for channel 1 and the telegram for channel 2 when the button is pressed.

The following parameters are only valid for the pushbutton function "Controller extension"...

Function	**Operating mode switchover** Forced oper. mode switchover Presence button Setpoint shift	A controller extension can optionally switch over the operating mode with normal or high priority, change the presence state or change the current room temperature value. With regard to the setting of this parameter, the ETS shows further parameters.
Operating mode when the following button is pressed	**Comfort mode** Standby mode Night mode Frost/heat protection mode Comfort mode ->	If the controller extension is to switch over the operating mode of the room thermostat with normal priority, the extension can – when actuated – either activate a defined mode of operation or change over between different modes of operation. In order for this change to work properly,

	Standby mode -> Comfort mode -> Night mode -> Standby mode -> Night mode -> Comfort mode -> Standby mode -> Night mode ->	the controller extension should request the current state of the extension objects after a reset or after reprogramming (set parameter under "General" to "Value request from controller extension? = Yes"). This parameter is only visible if "Function = operating mode switchover"!
Forced operating mode when the following button is pressed	Auto (Normal operating mode switchover) **Comfort mode** Standby mode Night mode Frost/heat protection mode Comfort mode -> Standby mode -> Comfort mode -> Night mode -> Standby mode -> Night mode -> Comfort mode -> Standby mode -> Night mode -> Auto -> Comfort mode -> Auto -> Standby mode ->	If the controller extension is to switch over the operating mode of the room thermostat with high priority, the extension can – when actuated – either enable the switchover with normal priority (auto), switch on a defined mode of operation with a high priority or change over between different operating modes. In order for this change to work properly, the controller extension should request the current state of the extension objects after a reset or after reprogramming (set parameter under "General" to "Value request from controller extension? = Yes"). This parameter is only visible if "Function = forced operating mode switchover"!
Presence function when the following button is pressed	Presence OFF **Presence ON** Presence TOGGLE	On pressing a key, the controller extension can switch the presence state of the room thermostat either on or off in a defined way or change over between both states ("Presence TOGGLE"). In order for this change to work properly, the controller extension should request the current state of the extension objects after a reset or after reprogramming (set parameter under "General" to "Value request from controller extension? = Yes"). This parameter is only visible if "Function = presence button"!

Setpoint shift on pressing the button	Reduce setpoint value (level size) **Increase setpoint value (level size)**	This parameter defines the direction of the setpoint shift on the extension. For a setpoint value shift, the controller extension makes use of the two communication objects "Setpoint shift specification" and "Current setpoint shift". The "Current setpoint shift" communication object informs the extension about the current state of the room temperature controller. Based on this value and the respective parameter, the controller extension determines the new level size which it transmits via the "Setpoint shift specification" communication object to the room temperature controller. This parameter is only visible if "Function = Setpoint shift"!

h Button 2 ... Button n, see Button 1!

The following parameters are valid for the status LED of the buttons or rockers...

Function of the status LED * *: For the rocker function separate parameters are present and configurable for the upper and lower status LEDs.	Always OFF	Irrespective of the pushbutton or rocker function, the status LED is switched off permanently.
	Always ON	Irrespective of the pushbutton or rocker function, the status LED is switched on permanently.
	Button-press display	The status LED indicates a button actuation. The ON time is set on the parameter page "General" in common for all status LEDs that are configured as actuation displays.
	Telegram acknowledgment	The status LED indicates the transmission of a telegram in 2-channel operation. This setting can only be configured for the pushbutton or rocker function "2-channel operation".

Status display (switching object)	The status LED indicates the state of the communication object "Switching". If the object value is "ON", the status LED is illuminated. If the object value is "OFF" the status LED is switched off. This setting can only be configured for the pushbutton or rocker function "Switching" or "Dimming.
Inverted status display (switching object)	The status LED indicates the state of the communication object "Switching". If the object value is "OFF", the status LED is illuminated. If the object value is "ON" the status LED is switched off. This setting can only be configured for the pushbutton or rocker function "Switching" or "Dimming.
Activation via separate LED object	The status LED indicates the state of its own, separate 1-bit LED object. This setting causes the additional parameter "Activation of the status LED via object value" to be shown.
Button function active display	The status LED indicates the state of the presence button in case of controller extension operation. The LED lights up if the presence function is activated. The LED is off if the presence function is inactive. This setting can only be configured in the pushbutton function "Controller extension" and with the button function "Presence button".
Button function inactive display	The status LED indicates the state of the presence button in case of controller extension operation. The LED lights up if the presence function is inactive. The LED is off if the presence function is activated. This setting can only be configured in the pushbutton function "Controller extension" and with the button function "Presence button".
Setpoint value shift display	The status LED indicates the state of a setpoint shift in case of controller extension operation. This setting causes the additional parameter "Status LED" to be shown. This setting can only be configured in the pushbutton function "Controller extension" and with the button function "Setpoint shift".

	Operating mode display (KNX controller)	The status LED indicates the state of a KNX room thermostat via a separate 1-byte communication object. This setting causes the additional parameter "Status LED ON with" to be shown.
	Controller status display (activate controller extension!)	The status LED indicates the state of the controller extension. This setting causes the additional parameter "Status LED ON with" to be shown.
	Comparator without sign (1-byte)	The status LED is activated depending on a comparison. In this configuration there is a separate 1-byte communication object available via which the unsigned reference value (0...255) is received. This setting causes the additional parameter "Status LED ON with" to be shown.
	Comparator with sign (1-byte)	The status LED is activated depending on a comparison. In this configuration there is a separate 1-byte communication object available via which the positive or negative reference value (-128...127) is received. This setting causes the additional parameter "Status LED ON with" to be shown.
		The presettings of the parameter "Function of status LED" depend on the configured pushbutton or rocker function.
The function of the status LED = "Display via separate LED object"...		
Activation of the status LED via object value	**1 = LED static ON / 0 = LED static OFF** 1 = LED static OFF / 0 = LED static ON 1 = LED flashes / 0 = LED static OFF 1 = LED static OFF / 0 = LED flashes	If the "Function of status LED ..." is set to "Control via separate LED object", then the telegram polarity of the 1-bit object "Status LED" can be specified at this point. The LED can be switched on or off statically. In addition, the received switching telegram can be evaluated in such a way that the LED flashes.
If the function of status LED = "Operating mode display (KNX controller)"...		

Status LED ON with	Automatic mode **Comfort mode** Standby mode Night mode Frost/heat protection mode	The values of a communication object with data type 20.102 "HVAC Mode" are defined as follows: 0 = Automatic 1 = Comfort 2 = Standby 3 = Night 4 = Frost/heat protection The value "Automatic" is used only by the "forced operating mode switchover" objects. The status LED is illuminated when the object receives the value configured here.
The function of the status LED = "Controller status display"...		
Status LED ON with	**Comfort mode** Standby mode Night mode Frost/heat protection mode Controller disabled Heating / cooling Controller inactive (deadband operation) Frost alarm	The "Controller status" communication object of the controller extension function includes eight bits of information in one byte. This parameter defines which bit is to be indicated by the LED. The controller status can be displayed only if the controller extension is enabled (parameter page "General")!
If the function of status LED = "Comparator without sign"...		
Status LED ON with	**Reference value greater than received value** Reference value less than received value Reference value equal to received value	The status LED indicates whether the configured reference value is greater or less than or equal to the value of the "Status LED" object".
Reference value (0 … 255)	**0**...255	This parameter defines the reference value to which the value of the "Status LED" object is compared.
If the function of status LED = "Comparator with sign"...		
Status LED ON with	**Reference value greater than received value** Reference value less than received value	The status LED indicates whether the configured reference value is greater or less than or equal to the value of the "Status LED" object".

	Reference value equal to received value	
Reference value (-128 … 127)	-128...**0**...127	This parameter defines the reference value to which the value of the "Status LED" object is compared.

h Disabling

Disabling function?	Yes **No**	With this parameter, the disabling function of the pushbutton sensor can be activated centrally. If "Yes", the ETS shows further communication object and parameters.
Polarity of disabling object	**Disable = 1 / Enable = 0** Disable = 0 / Enable = 1	This parameter defines the value of the disabling object at which the disabling function is active.
Reaction of pushbutton sensor at the beginning of the disabling function	**No reaction** Reaction as button >>X<< when pressed Reaction as button >>X<< when released Reaction as disabling function 1 when pressed Reaction as disabling function 1 when released Reaction as disabling function 2 when pressed Reaction as disabling function 2 when released Internal scene recall scene 1 Internal scene recall scene 2 Internal scene recall scene 3 Internal scene recall scene 4 Internal scene recall scene 5 Internal scene recall scene 6	Besides disabling of rocker and button functions, the pushbutton sensor can also and in addition trigger a specific function at the time of activation of the disabling state. This function can... correspond to the function assigned to any of the buttons in the non-disabled state ("Reaction as button >>X<< …"), be defined on the following parameter pages ("Reaction as disabling function …"), recall a scene stored internally in the pushbutton sensor ("Internal scene recall …").

	Internal scene recall scene 7 Internal scene recall scene 8	
Button >>X<<	**Button 1** Button 2 … (Selection depends on device variant!)	If the pushbutton sensor is to perform the function of a specific button at the beginning of the disabling state, this button will be selected here. Visible only if "Reaction of pushbutton sensor at the beginning of the disabling function = Reaction as button >>X<< on pressing / releasing"!
Behaviour during active disabling	**All buttons without function** All buttons behave as Individual buttons without function Individual buttons behave as	While disabling is active... all buttons or only individually selected buttons can be disabled ("… no function"), all buttons or only individually selected buttons can be restricted to a specific function ("… behave as"). In this case, the ETS shows further parameters.
All left buttons with even numbers behave during disabling as	**Button 1** Button 2 … (Selection depends on device variant!) Disabling function 1 Disabling function 2	If a specific button function is to be assigned during disabling to all or to individual buttons, this parameter can be used to select the desired button the function of which will then be executed. During disabling, all the left buttons behave like the one configured here. The desired functions can either correspond to the function of an existing button or they can be configured as special disabling functions. This parameter is only visible if "Behaviour during active disabling = all buttons behave as" or "Behaviour during active disabling = individual buttons behave as"!
All right buttons with even numbers behave during disabling as	**Button 1** Button 2 … (Selection depends on device variant!) Disabling function 1 Disabling function 2	If a specific button function is to be assigned during disabling to all or to individual buttons, this parameter can be used to select the desired button the function of which will then be executed. During disabling, all the right buttons behave like the one configured here. The desired functions can either correspond to the function of an existing button or they can be configured as special disabling functions.

		This parameter is only visible if "Behaviour during active disabling = all buttons behave as" or "Behaviour during active disabling = individual buttons behave as"!
Reaction of pushbutton sensor at the end of disabling	**No reaction** Reaction as button >>Y<< when pressed Reaction as button >>Y<< when released Reaction as disabling function 1 when pressed Reaction as disabling function 1 when released Reaction as disabling function 2 when pressed Reaction as disabling function 2 when released Internal scene recall scene 1 Internal scene recall scene 2 Internal scene recall scene 3 Internal scene recall scene 4 Internal scene recall scene 5 Internal scene recall scene 6 Internal scene recall scene 7 Internal scene recall scene 8	Besides disabling of rocker and button functions, the pushbutton sensor can also trigger a special function immediately at the end of disabling. This function can... correspond to the function assigned to any of the buttons in the non-disabled state ("Reaction as button >>X<< …"), be defined on the following parameter pages ("Reaction as disabling function …"), recall a scene stored internally in the pushbutton sensor ("Internal scene recall …").
Button >>Y<<	**Button 1** Button 2 … (Selection depends on device variant!)	If the pushbutton sensor is to perform the function of a specific button at the end of the disabling state, this button will be selected here. Visible only if "Reaction of pushbutton sensor at the end of disabling = Reaction as button >>Y<< on pressing /

releasing"!

h Disable - Button selection (Visible only if "Behaviour during active disabling = individual buttons without function" or "Behaviour during active disabling = individual buttons behave as"!)

Selection of the buttons for behaviour during disabling		
Button 1 ?	Yes **No**	The user can specify for each button separately whether it will be affected by the disabling function during the disabling state.
Button 2?	Yes **No**	
…		
(Selection depends on device variant!)		

h Disabling function 1 disable / Disabling function 2 disable. With the exception of the status LED control, the parameters available for the two disabling functions are the same as those for the button functions.

h Scenes / scene data types (name of parameter page changes with scene function activated).

Scene function ?	Yes **No**	The pushbutton sensor can handle internally eight scenes with eight actuator groups. This parameter activates the scene function and the other parameters and communication objects, if needed.
Overwrite scene values during ETS download	**Yes** No	If the values of the actuator groups that have been changed on site by the customer are to be reset to the values preset in the ETS during an application download by the ETS, the setting "Yes" must be chosen. If "No" is selected, the ETS values will not overwrite the scene values stored in the pushbutton sensor, if any.
Data types Scene output 1	**Switching** Value (0 … 255) Value / position of Venetian blind (0 … 100 %)	The pushbutton sensor has an independent communication object for each of the eight actuator groups. With these parameters, the object type can be set separately for each output.
... Scene output 8	**Switching** Value (0 … 255) Value / position of Venetian blind (0 … 100 %)	

Scene 1

Recall via extension object with scene number	**1**...64	If the internal scenes are to be recalled via the extension object, a definite number is required for each of them. This parameter serves to specify the extension number of the first scene. If several internal scenes have the same scene number, only the first scene with this number can be called up.
Scene output 1 Switching command	**ON** OFF	This parameter can be used to predefine the switching command of the first scene output. This parameter is only visible if "Data types scene output 1 = switching"!
Scene output 1 Value (0 … 255)	**0**...255	This parameter can be used to predefine the value of the first scene output. This parameter is only visible if "Data types scene output 1 = switching"!
Scene output 1 Value / position of Venetian blind (0 … 100 %)	**0**...100	This parameter can be used to predefine the value of the first scene output. This parameter is only visible if "Data types scene output 1 = switching"!
Scene output 1 Allow save?	**Yes** No	If the user is to be given the possibility of changing the value of the actuator group (scene output) within this scene and of storing it during regular operation, this parameter must be set to "Yes".
Scene output 1 Allow transmission?	**Yes** No	If the state of an actuator group is to remain unchanged during the recall of a scene, this parameter can be set to "No". In this case, the pushbutton sensor does not transmit a telegram via the scene output concerned during the recall of the scene. The scene output is deactivated for this scene.
Scene output 1 Transmit delay (1 … 1200 * 100 ms) (0 = deactivated)	**0**...1200	When the pushbutton sensor sends the telegrams to the various scene outputs, it can insert a presettable waiting time of 2 min. max. before each telegram. This can be used to reduce bus loading, but also to have certain lamps switched on only after the shutters are really

		closed. If no delay is selected, the pushbutton sensor sends the output telegrams with maximum speed. With this setting it may happen in some cases that the telegram sequence is not compatible with output numbering.

Scene outputs 2 … 8
see scene output 1!

h Scenes 2 … 8 see scene 1!

h Alarm signalling

Alarm signal display	Activated **Deactivated**	This parameter can be used to enable alarm signal displaying. When alarm signalling is enabled, the ETS displays further parameters and up to two further communication objects.
Polarity of the alarm signalling object	**Alarm when ON and alarm reset when OFF** Alarm when OFF and alarm reset when ON	The alarm signalling object is used as an input for activating or deactivating alarm signal displaying. If the object value corresponds to the "Alarm" state, all status LEDs and the operation LEDs flash with a frequency of approx. 2 Hz. If the setting is "Alarm when OFF and alarm reset when ON", the object must first be actively written by the bus with "0" to activate the alarm after a reset. An alarm signal is not stored so that the alarm signalling is generally deactivated after a reset or after programming with the ETS.
Reset alarm signalling by a button-press?	**Yes** No	If this parameter is set to "Yes", active alarm signal displaying can be deactivated by a button-press on the pushbutton sensor. This button-press does not cause the configured function of the pressed button to be executed. Only after then next button-press will the configuration of the button be evaluated and a telegram be transmitted to the bus, if applicable. If "No" has been selected, alarm signalling can only be deactivated via the alarm signalling object. A button-press will always execute the configured button function.

Use the alarm acknowledge object?	Yes **No**	If alarm signalling can be deactivated by a button-press, this parameter defines whether an additional alarm acknowledge telegram is to be transmitted to the bus via the separate object "Alarm signalling acknowledge" after triggering by this button-press. A telegram can, for instance, be sent via this object to the "Alarm signalling" objects of other pushbutton sensors in order to reset the alarm status there as well (observe the polarity of the acknowledge object!).
Acknowledge alarm signalling by	**OFF telegram** **ON telegram**	This parameter sets the polarity of the "Alarm signalling acknowledge" object. This parameter presetting depends on the selected polarity of the alarm signalling object.

5 Appendix

5.1 Index

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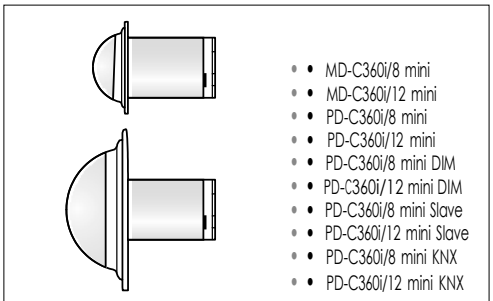

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- PD-C360i/8 mini DIM
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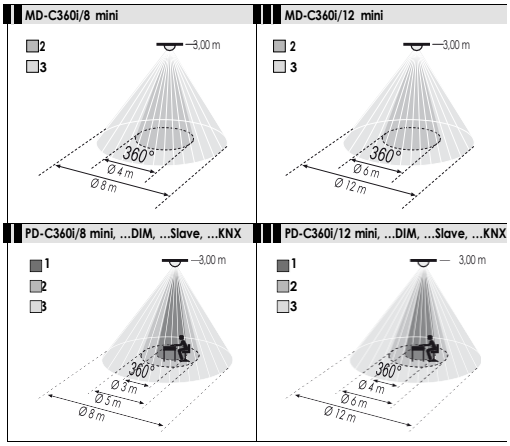

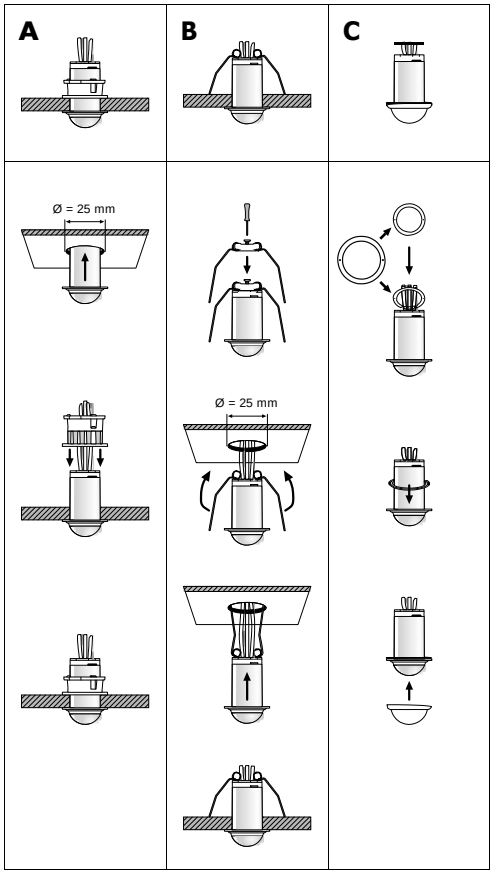

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ESYLUX

www.esylux.com

D MONTAGEANLEITUNG

ACHTUNG: Arbeiten am 230 V-Netz dürfen nur von autorisiertem Fachpersonal unter Berücksichtigung der landesüblichen Installationsvorschriften/-normen ausgeführt werden. Vor der Montage des Produktes ist die Netzspannung freizuschalten.

- Die empfohlene Montagehöhe beträgt 3 m. Mit steigender Montagehöhe wird die Reichweite größer, die Empfindlichkeit wird jedoch kleiner. Die Bewegung quer zum Melder ist optimal für eine Auslösung. Bei einem direkten und frontalen Zugehen ist es für den Melder schwieriger, eine Bewegung zu erkennen, somit ist die Reichweite deutlich geringer.
- Die Platzierung des Melders sollte entsprechend den räumlichen Gegebenheiten und Anforderungen erfolgen **(siehe Abbildungen)**:

1 = Arbeitsbereich
2 = Frontal zum Melder
3 = Quer zum Melder

Je nach Type den Melder gemäß Anschlussplan anschließen **(siehe Rückseite)**:

Einbaumöglichkeiten
A Einbau in abgehängte Decken, Einbauschränke, Aufputz- und Unterputzdosen
B Einbau in geschlossene, abgehängte Decken
C Ausblendung von Erfassungsbereichen mittels Linsenmaske (beiliegend)

GB INSTALLATION INSTRUCTIONS

CAUTION: Work on the 230 V power system must be carried out by authorised personnel only, with due regard to the applicable installation regulations. Before installing the product, switch off the power supply.

- The recommended mounting height is 3 m. The greater the mounting height, the bigger the range, but the lower the sensitivity. Movements diagonal to the detector are optimal for triggering the detector. In the case of a direct and head-on approach, it is more difficult for the detector to detect movement; the range is thus significantly reduced.
- The detector should be positioned according to spatial conditions and requirements **(see illustrations)**:

1 = Working area
2 = Head-on to detector
3 = Diagonally to detector

Connect the detector in accordance with the wiring diagram for the particular type of device **(see reverse)**:

Installation options
A Installation in suspended ceilings, fitted cupboards, surface- and recessed-mounted boxes
B Installation in closed, suspended ceilings
C Masking out of fields of detection using lens mask (included)

F INSTRUCTIONS DE MONTAGE

ATTENTION : seules des personnes autorisées et qualifiées pour effectuer une installation conforme aux normes et prescriptions en vigueur peuvent intervenir sur le réseau 230 V. Avant d'installer le produit, coupez le courant.

- Il est recommandé de monter le détecteur à une hauteur de 3 m. En effet, plus il est placé haut, plus sa portée est importante, mais plus sa sensibilité diminue. Le détecteur est plus réactif lorsque le mouvement traversant son champ d'action est transversal par rapport à son rayonnement. En effet, lorsque l'élément s'approche en faisant face au dispositif, le détecteur capte moins facilement ses mouvements, ce qui réduit considérablement son efficacité.
- Le détecteur doit être positionné en tenant compte des particularités et des contraintes de l'espace **(voir illustrations)** :

1 = Espace de travail
2 = Face au détecteur
3 = De côté par rapport au détecteur

Raccorder le détecteur conformément au schéma électrique **(voir au dos)** :

Solutions d'intégration
A Montage sous des plafonds suspendus, dans des placards encastrés ou dans des boîtiers apparents ou encastrés
B Montage sous des plafonds suspendus fermés
C Capuchon de lentille (fourni) permettant de masquer certaines zones de détection

NL MONTAGEHANDLEIDING

LET OP: Werkzaamheden aan het 230V-net mogen uitsluitend door gekwalificeerd vakpersoneel uitgevoerd worden conform de geldende installatievoorschriften/-normen. Voor montage van het product de netspanning uitschakelen.

- De aanbevolen montagehoogte bedraagt 3 m. Hoe groter de montagehoogte des te groter het bereik, maar des te minder ook de gevoeligheid. Beweging dwars op het apparaat is optimaal voor de detectie. Bij een directe en frontale benadering is het voor de sensor moeilijk om beweging te herkennen, waardoor het bereik aanzienlijk kleiner is.
- De plaatsing van de apparaat moet zijn afgestemd op de specifieke omstandigheden en eisen van de ruimte **(zie afbeeldingen)**:

1 = Werkplek
2 = Recht voor de melder
3 = Schuin voor de melder

Sluit de melder aan volgens het bijbehorende aansluitschema **(zie achterzijde)**:

Inbouwmogelijkheden
A Inbouw in verlaagde plafonds, inbouwkasten, opbouw- en inbouwdozen
B Inbouw in gesloten verlaagde plafonds
C Afscherming van detectiezones met behulp van lensmasker (meegeleverd)

DK MONTERINGSVEJLEDNING

ADVARSEL: Arbejder på 230 V-nettet må kun udføres af autoriserede fagfolk under overholdelse af nationale installationsforskrifter/-standarder. Før montering af produktet skal netspændingen slås fra.

- Den anbefalede monteringshøjde er 3 m. Jo højere udstyret monteres, desto mere øges rækkevidden, men følsomheden aftager. En bevægelse på tværs af sensoren er optimal for en udløsning. Når man går direkte og frontalt ind mod sensoren, er det sværere for den at registrere en bevægelse, hvorfor rækkevidden bliver væsentlig kortere.
- Sensoren bør placeres svarende til rumforholdene og kravene **(se billederne)**:

1 = Arbejdsområde
2 = Frontalt på sensoren
3 = På tværs af sensoren

Tilslut sensoren i henhold til tilslutningsplanen alt efter type **(se bagsiden)**:

Indbygningsmuligheder
A Indbygning i nedsænkede lofter, indbyggede skabe, udvendige underlag og PL-dåser
B Indbygning i lukkede, nedsænkede lofter
C Afblænding af områder af detekteringsvinklen ved hjælp af linsemaske (medfølger)

S MONTERINGSANVISNING

VARNING! Allt arbete på 230 volts nätspänning får endast utföras av behörig elektriker under iakttagande av nationella föreskrifter och installationsstandarder. Innan produkten monteras ska nätspänningen kopplas från.

- Den rekommenderade monteringshöjden är 3 meter. Ökad monteringshöjd ger större räckvidd medan känsligheten minskar. Vinkelräta rörelser är optimala för att aktivera detektorn. När en person går rakt fram mot detektorn har systemet svårare att detektera rörelsen, vilket gör att räckvidden minskar betydligt.
- Detektorn ska placeras med hänsyn till de lokala förhållandena och ställda krav **(se bilderna)**:

1 = Arbetsområde
2 = Frontalt mot detektorn
3 = Vinkelrätt mot detektorn

Anslut detektorn enligt kopplingsschemat, beroende på vilken typ det rör sig om **(se baksidan)**:

Monteringsmöjligheter
A Inbyggnad i upphängda tak, inbyggda skåp, utanpåliggande och infällda dosor
B Inbyggnad i slutna, upphängda tak
C Avskärmning av bevakningsområden med linsmask (medföljer)

FIN ASENNUSOHJE

HUOMIO: 230 V:n verkossa tehtävien töiden suorittaminen on jätettävä ainoastaan valtuutettujen ammattihenkilöiden tehtäväksi maassa voimassa olevia asennusmääräyksiä/-normeja noudattaen. Ennen tuotteen asentamista on verkkojännite kytkettävä pois päältä.

- Suositeltava asennuskorkeus on 3 m. Suurempi asennuskorkeus lisää kantomatkaa, mutta herkkyys laskee. Poikittain ilmaisimeen suuntautuva liike on ihanteellinen laukaisua varten. Ilmaisin havaitsee suoraan ja edestä tulevan liikkeen vaikeammin ja siten kantomatka on huomattavasti pienempi.
- Ilmaisin on sijoitettava tilallisia olosuhteita ja vaatimuksia vastaavasti **(katso kuvat)**:

1 = Työskentelyalue
2 = Suoraan ilmaisinta kohti tuleva liike
3 = Poikittain ilmaisimeen suuntautuva liike

Liitä liitäntäkaavion mukaan ilmaisimen tyypin mukaisesti **(katso taustapuoli)**:

Asennusmahdollisuudet
A Asennus alaslaskettuihin sisäkattoihin, kiintokaappeihin, rappauksen päällä ja alla oleviin rasioihin
B Asennus suljettuihin, alaslaskettuihin sisäkattoihin
C Tunnistusalueiden valmentaminen linssimaskeilla (pakkauksessa)

N MONTERINGSVEILEDNING

ADVARSEL: Arbeid i 230 V-nett skal kun utføres av autorisert personell, og nasjonale forskrifter og normer for installasjoner skal følges. Nettspenningen skal kobles fra før produktet monteres.

- Anbefalt monteringshøyde er tre meter. Jo større monteringshøyden er, jo større blir rekkevidden. Følsomheten blir imidlertid redusert. Bevegelse på tvers av detektoren er optimalt for en aktivering. Ved direkte og frontal tilnærming er det vanskelig for detektoren å registrere en tilstedeværelse, dermed er rekkevidden merkbart redusert.
- Detektoren bør plasseres i samsvar med forholdene og behovet i rommet **(se figurene)**:

1 = Arbeidsområde
2 = Rett foran detektor
3 = Diagonalt til detektor

Avhengig av detektortypen kobles den til i samsvar med koplingsskjemaet **(se baksiden)**:

Installasjonsmuligheter
A Installasjon i hengende tak, i innbygde skap og i påveggsbokser og innfelte bokser
B Installasjon i lukkede, hengende tak
C Avskjerming av detekteringsområder ved hjelp av linsemaske (følger med)

I ISTRUZIONI DI MONTAGGIO

ATTENZIONE: le operazioni su rete elettrica a 230 V devono essere eseguite esclusivamente da personale autorizzato nel rispetto delle disposizioni e delle norme di installazione locali. Prima dell'installazione del prodotto, togliere l'alimentazione.

- L'altezza di montaggio consigliata è 3 m. La portata aumenta con l'aumentare dell'altezza, mentre la sensibilità diminuisce. Il movimento ottimale per l'azionamento è trasversale rispetto al segnalatore. In caso di movimento diretto e frontale, il rilevatore capta i movimenti con maggiore difficoltà e con una portata inferiore.
- Il rilevatore deve essere posizionato in base alle condizioni e alle esigenze ambientali **(vedere figure)**:

1 = Campo di lavoro
2 = Frontale rispetto al rilevatore
3 = Trasversale rispetto al rilevatore

Collegare il rilevatore in base al tipo, rispettando lo schema dei collegamenti **(vedere parte posteriore)**:

Possibilità di installazione
A Installazione in controsoffitti, armadi a muro, scatole sporgenti e da incasso
B Installazione in controsoffitti chiusi
C Esclusione di zone di copertura mediante maschera per lenti (fornita)

E INSTRUCCIONES DE MONTAJE

ATENCIÓN: Los trabajos en la red de 230 V solo pueden ser realizados por personal técnico autorizado de conformidad con las normas y los reglamentos de instalación específicos de cada país. Antes de montar el producto, desconecte la tensión de alimentación.

- La altura de montaje recomendada es 3 m. Con una altura de montaje superior, el alcance se amplía, pero la sensibilidad se reduce. El movimiento a los lados del detector es óptimo para la activación. Con un desplazamiento directo y frontal, el movimiento se detecta peor, con lo que el alcance se reduce considerablemente.
- El detector debe colocarse teniendo en cuenta las circunstancias especiales y las necesidades **(ver ilustraciones)**:

1 = Zona de trabajo
2 = Frente al detector
3 = A los lados del detector

Conecte el detector siguiendo el diagrama de conexión y considerando el tipo de detector **(ver dorso)**:

Posibilidades de montaje
A Montaje en falsos techos, armarios empotrados, cajas superficiales y empotradas
B Montaje en falsos techos cerrados
C Supresión de áreas de cobertura mediante máscara lenticular (adjunta)

P INSTRUÇÕES PARA MONTAGEM

ATENÇÃO! As operações na rede de 230 V devem ser executadas apenas por pessoal técnico autorizado, considerando as normas/disposições nacionais sobre instalações. A montagem e ligação do equipamento deve ser efectuada sem tensão ligada.

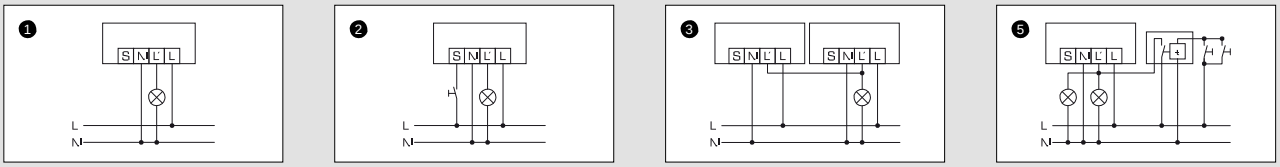
- A altura de montagem recomendada é de 3 m. Com uma altura de montagem maior o alcance aumenta, mas a sensibilidade diminui. Um movimento transversal ao detector é ideal para um alcance sensibilidade de detecção maior. No caso do movimento for no sentido do detector (frontal), o seu alcance e sensibilidade de detecção, diminuem.
- A colocação do detector deve ter em conta as condições e requisitos de espaço **(v. figuras)**:

1 = Área de trabalho
2 = De frente para o detector
3 = Transversal ao detector

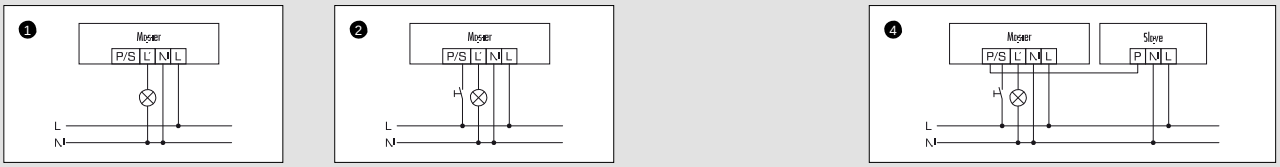
Consoante o tipo, conectar o detector de acordo com esquema de ligações **(v. verso)**:

Opções de montagem
A Montagem em tectos falsos, armários embutidos, caixas de montagem saliente e embutida
B Montagem em tectos falsos fechados
C Ocultação de campos de detecção através de máscara lenticular (fornecida em conjunto)

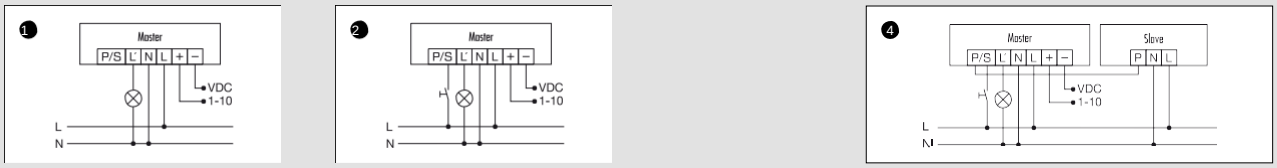
MD-C360i/8 mini, MD-C360i/12 mini



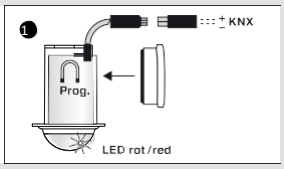
PD-C360i/8 mini, PD-C360i/12 mini



PD-C360i/8 mini DIM, PD-C360i/12 mini DIM



PD-C360i/8 mini KNX, PD-C360i/12 mini KNX



D ERKLÄRUNG SCHALTPLÄNE

1. Standardbetrieb
2. Standardbetrieb mit zusätzlicher Ansteuerung durch Taster
3. Parallelschaltung von max. 8 Bewegungsmeldern.
   Parallelschaltung von Präsenzmeldern ist nicht zulässig
4. Master-Slave-Schaltung für Präsenzmelder: Es können max. 10 Slavegeräte an ein Mastergerät angeschlossen werden
5. Parallelschaltung mit Treppenlichtautomat

Master = MD	Master = PD	Master = PD - DIM	Slave
L = braun	L = braun	L = braun	L = braun
N = blau	N = blau	N = blau	N = blau
L'⊗ = grau	L'⊗ = grau	L'⊗ = grau	P = schwarz
S = schwarz	S/P = schwarz	S/P = schwarz	
		+ = braun	
		– = weiß	

GB EXPLANATION OF CIRCUIT DIAGRAMS

1. Standard operation
2. Standard operation with additional control by means of a button
3. Parallel connection of max. 8 motion detectors.
   Parallel connection of two or more presence detectors is not possible
4. Master/slave connection for presence detectors: a maximum of 10 slave devices can be connected to the master device.
5. Parallel connection with automatic stairwell light

Master = MD	Master = PD	Master = PD - DIM	Slave
L = brown	L = brown	L = brown	L = brown
N = blue	N = blue	N = blue	N = blue
L'⊗ = grey	L'⊗ = grey	L'⊗ = grey	P = black
S = black	S/P = black	S/P = black	
		+ = brown	
		– = white	

F LEGENDE DES SCHEMAS ELECTRIQUES

1. Installation standard
2. Installation standard + bouton
3. Montage en parallèle de 8 détecteurs de mouvement max.
   Les détecteurs de présence ne doivent en aucun cas être branchés en parallèle
4. Raccordement maître/esclave de détecteurs de présence : un appareil maître peut être relié à 10 esclaves maximum
5. Montage en parallèle avec minuterie d'escalier

Maître = MD	Maître = PD	Maître = PD - DIM	Esclave
L = marron	L = marron	L = marron	L = marron
N = bleu	N = bleu	N = bleu	N = bleu
L'⊗ = gris	L'⊗ = gris	L'⊗ = gris	P = noir
S = noir	S/P = noir	S/P = noir	
		+ = marron	
		– = blanc	

NL TOELICHTING BIJ SCHAKELSCHEMA'S

1. Standaardschema
2. Standaardschema met extra aansturing via drukknop
3. Parallelschakeling van max. 8 bewegingsmelders.
   Parallelschakeling van aanwezigheidssensoren is niet toegestaan
4. Master-slave-schakeling van aanwezigheidsensoren: Er kunnen max. 10 slave-apparaten op een master-apparaat worden aangesloten
5. Parallelschakeling met trappenhuisautomaat

Master = MD	Master = PD	Master = PD - DIM	Slave
L = bruin	L = bruin	L = bruin	L = bruin
N = blauw	N = blauw	N = blauw	N = blauw
L'⊗ = grijs	L'⊗ = grijs	L'⊗ = grijs	P = zwart
S = zwart	S/P = zwart	S/P = zwart	
		+ = bruin	
		= wit	

DK FORKLARING TIL LEDNINGSDIAGRAMMER

1. Standarddrift
2. Standarddrift med ekstra styring med afbrydere
3. Parallelkobling af maksimalt 8 bevægelsessensorer.
   Parallelkobling af tilstedeværelsessensorer er ikke tilladt
4. Master-slave-kobling af tilstedeværelsessensorer: Der kan maks. tilsluttes 10 slaveenheder til en masterenhed
5. Parallelkobling med trappetysautomat

Master = MD	Master = PD	Master = PD - DIM	Slave
L = brun	L = brun	L = brun	L = brun
N = blå	N = blå	N = blå	N = blå
L'⊗ = grå	L'⊗ = grå	L'⊗ = grå	P = sort
S = sort	S/P = sort	S/P = sort	
		+ = brun	
		= hvid	

S FÖRKLARING TILL KOPPLINGSSCHEMANA

1. Standarddrift
2. Standarddrift med extra aktivering via en knapp
3. Parallelldrift med max. 8 rörelsedetektorer.
   Parallelldrift med närvarodetektorer är ej tillåtet.
4. Master-slavdrift för närvarodetektorer: Högst 10 slavenheter kan anslutas till varje masterenhet.
5. Parallellkoppling med automatisk trappströmbrytare

Master = MD	Master = PD	Master = PD - DIM	Slav
L = brun	L = brun	L = brun	L = brun
N = blå	N = blå	N = blå	N = blå
L'⊗ = grå	L'⊗ = grå	L'⊗ = grå	P = svart
S = svart	S/P = svart	S/P = svart	
		+ = brun	
		= vit	

FIN KYTKENTÄKAAVIOIDEN SELITYS

1. Vakiokäyttö
2. Vakiokäyttö ja lisäohjaus tuntoelimellä
3. Kork. 8 liikeilmaisimen rinnankytkentä.
   Läsnäoloilmaisinten rinnankytkentä ei ole sallittua
4. Läsnäoloilmaisimen Master-Slave-kytkentä: Korkeintaan 10 Slave-laitetta voidaan liittää yhteen Master-laitteeseen
5. Rinnankytkentä porrasvalaistusautomaatin kanssa

Master = MD	Master = PD	Master = PD - DIM	Slave
L = ruskea	L = ruskea	L = ruskea	L = ruskea
N = sininen	N = sininen	N = sininen	N = sininen
L'⊗ = harmaa	L'⊗ = harmaa	L'⊗ = harmaa	P = musta
S = musta	S/P = musta	S/P = musta	
		+ = ruskea	
		= valkoinen	

N FORKLARING KOPLINGSSKJEMAER

1. Standarddrift
2. Standarddrift med ekstra regulering ved hjelp av kontakt
3. Parallellkopling av maks. åtte bevegelsesdetektorer.
   Parallellkopling av tilstedeværelsesdetektorer er ikke tillatt.
4. Master/slave-kopling for tilstedeværelsesdetektorer: Det kan kobles maks. ti slavedetektorer til en masterdetektor
5. Parallellkopling med automatisk trappebelysning

Master = MD	Master = PD	Master = PD - DIM	Slave
L = brun	L = brun	L = brun	L = brun
N = blå	N = blå	N = blå	N = blå
L'⊗ = grå	L'⊗ = grå	L'⊗ = grå	P = svart
S = svart	S/P = svart	S/P = svart	
		+ = brun	
		= hvit	

I DESCRIZIONE DELLO SCHEMA ELETTRICO

1. Installazione standard
2. Installazione standard con comando supplementare mediante tasto
3. Collegamento in parallelo fino a un massimo di 8 rilevatori di movimento.
   Non è possibile un collegamento in parallelo di rilevatori di presenza
4. Commutazione master-slave per rilevatore di presenza: ad ogni master possono essere collegati max. 10 apparecchi slave
5. Collegamento in parallelo tramite temporizzatore luce scale

Master = MD	Master = PD	Master = PD - DIM	Slave
L = marrone	L = marrone	L = marrone	L = marrone
N = blu	N = blu	N = blu	N = blu
L'⊗ = grigio	L'⊗ = grigio	L'⊗ = grigio	P = nero
S = nero	S/P = nero	S/P = nero	
		+ = marrone	
		– = bianco	

E EXPLICACIÓN DE ESQUEMAS DE CONEXIONES

1. Funcionamiento estándar
2. Funcionamiento estándar con accionamiento adicional mediante palpador
3. Conexión en paralelo de máx. 8 detectores de movimiento.
   No se permite la conexión en paralelo de detectores de presencia
4. Conexión maestro-esclavo para detectores de presencia: Es posible conectar un máximo de 10 esclavos a un equipo maestro
5. Conexión en paralelo con automatismo luminoso de escalera

Maestro = MD	Maestro = PD	Maestro = PD - DIM	Esclavo
L = marrón	L = marrón	L = marrón	L = marrón
N = azul	N = azul	N = azul	N = azul
L'⊗ = gris	L'⊗ = gris	L'⊗ = gris	P = negro
S = negro	S/P = negro	S/P = negro	
		+ = marrón	
		= blanco	

P EXPLICAÇÃO ESQUEMAS ELÉCTRICOS

1. Modo de operação normal
2. Modo de operação normal com controlo adicional por meio de um botão de pressão
3. Ligação em paralelo de no máx. 8 detectores de movimento.
   Uma ligação em paralelo de detectores de presença não é admissível
4. Ligação master-slave para detectores de presença: pode ser conectado um máx. de 10 equipamentos slave a um equipamento master
5. Ligação em paralelo com automático de escada

Master = MD	Master = PD	Master = PD - DIM	Slave
L = castanho	L = castanho	L = castanho	L = castanho
N = azul	N = azul	N = azul	N = azul
L'⊗ = cinzento	L'⊗ = cinzento	L'⊗ = cinzento	P = preto
S = preto	S/P = preto	S/P = preto	
		+ = castanho	
		= branco	

AUK 10/2010

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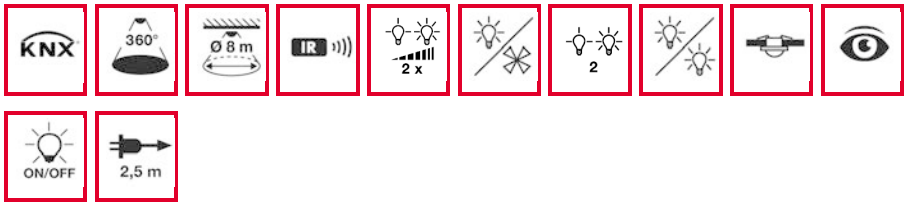
e-mail: info@esylux.com

Beställningskod	Beställningsnummer	E.nr
PD-C360i/8 mini KNX	EP10426155	17 401 63



Kort beskrivning:

- **KNX** mini-närvarodetektor med **360° bevakningsområde** för infälld takmontering
- **Räckvidd på upp till 8 m** i diameter vid en rekommenderad monteringshöjd på 3 m
- Kan användas i bussystem KNX (EIB), TP (2-ledare) i kombination med andra KNX-komponenter
- Parameter- och funktionsinställningar via ETS (Engineering-Tool-Software)

Tekniska uppgifter:

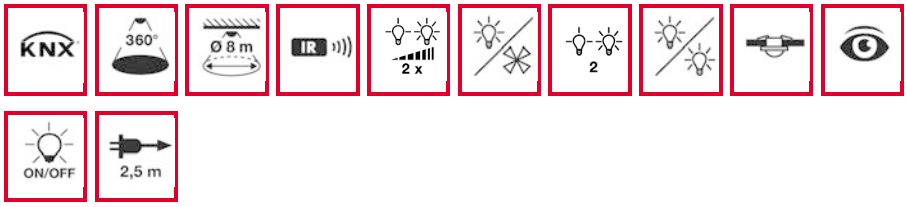
Busspänning	24 V DC via KNX systemapparat
Strömstyrka	10 mA
Bevakningsområde	360°
Räckvidd	ca 8 m i Ø, vid en monteringshöjd på 3 m
Inställningsmöjligheter	fjärrparametrering med ETS-programvara, temporärt elektroniskt via IR-fjärrkontrollen Mobil-PDi/User (beställs separat)
Ljuskanal	c1 + c2 till-/frånkoppling/ dimmerfunktion, c2 som offset till c1 (-50 % till +50 %)
Efterlystid	avaktiverad/30 sek. - 30 min.
Ljusmätning	blandljus
Ljusvärde	avaktiverad/ca 1 - 2000 lux
Orienteringsljus	avaktiverad/10 - 50 %, 2 värden kan väljas
Efterlystid för orienteringsljus	enbart vid reglering av permanent ljus/1 - 250 min.
Utgång	**närvaro**
Tillkopplingsfördröjning	avaktiverad/2 - 30 min.
Efterlystid	avaktiverad/10 sek./1 - 60 min.
KNX-ingång	manuell belysningsstyrning, spärrobjekt, återställning, Slav
KNX-utgång	närvaro, status, ljusvärde, VVK
Tillåten omgivningstemperatur	5 °C...+35 °C
Kapslingsklass	IP 55
Medföljande delar	inklusive linsmask, fjäderklamrar för inbyggnad, klämring för inbyggnad
Monteringssätt	infälld takmontering
Material i kåpan	UV-stabiliserad polykarbonat
Ung. mått	höjd 60 mm, Ø 33 mm
Einbaumaß	Inbyggnadsdjup 45 mm, Monteringshål Ø 25 mm
Färg	opalmatt

Tillbehör

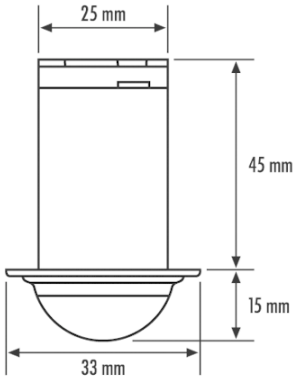
- EM10425547 - Mobil-PDi/User silver/grönmetallic
- EP10426391 - Adapter för spotlights 51/25 opalmatt
- EP10426995 - X-REMOTE-fjärrkontroll svart

OBS: du kan ladda ned hela vårt produktutbud plus applikationer kostnadsfritt på www.esylux.com.

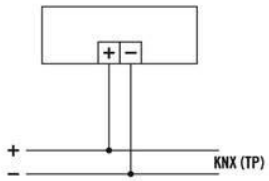
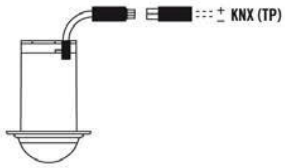
Beställningskod	Beställningsnummer	E.nr
PD-C360i/8 mini KNX	EP10426155	17 401 63



Mått i mm



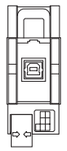
Närvarodetektorer KNX

Närvarodetektorer KNX	PD-C360i/8 mini KNX, PD-C360i/12 mini KNX
	

Schneider Electric

USB-gränssnitt DIN-K

Driftsinstruktioner



Art.nr MTN681829

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För din säkerhet

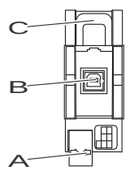
Risk för livshotande skador p.g.a. elektrisk ström.
Allt arbete på anordningen ska utföras av utbildade elektriker. Följ de föreskrifter som gäller i användningslandet samt gällande KNX-riktlinjer.

Beskrivning av USB-gränssnittet

Till USB-gränssnittet DIN-K (nedan kallat **USB-gränssnitt**) kan du ansluta en PC för adressering, programmering och diagnos av busskomponenter med USB1.1- eller USB2-gränssnitt. Ström tillförs uteslutande från den anslutna PC:n via USB-gränssnittet. KNX-systemet registrerar USB-gränssnittet när USB-kabeln är ansluten. Enheten är endast lokalt programmerad med den fysiska adressen via den anslutna PC:n och har därför varken programmeringsknapp eller programmerings-LED.

Den fasta programvaran till USB-gränssnittet kan uppdateras via en PC och är därmed "framtidssäkrad" för senare standarder.
USB-gränssnittet är utformat för montering på en DIN-skena. En dataskena behövs inte.

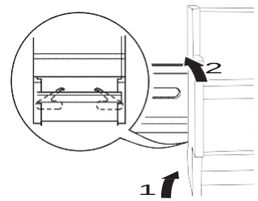
Anslutningar, indikeringar och manöverelement



A Bussanslutningsklämma
B USB-anslutning
C USB-kabelfixering

Så här installeras USB-gränssnittet

1 Sätt fast USB-gränssnittet på DIN-skenan underifrån.



2 Anslut KNX.

3 Anslut USB-kabeln till USB-anslutningen.

Tips:
Gör följande för att permanent ansluta USB-kabeln från en DIN-K-apparat till elcentralen: frigör det svarta skjutreglaget och dra ut det. Förlägg USB-kabeln och sätt tillbaka det svarta skjutreglaget. Detta fixerar USB-kabeln och säkerställer att den maximala monteringshöjden i elcentralen inte överskrids.

Tekniska data

Strömförsörjning:	via PC:ns USB-gränssnitt
Anslutning	
Buss:	Bussanslutningsklämma
USB-gränssnitt:	USB-uttag, typ B
Överföringshastighet:	9600 baud
Överföringsprotokoll:	kompatibel med USB 1.1/2.0
USB-kabel:	max. 5 m
Omgivningstemperatur:	–5 °C till +45 °C
Förvaringstemperatur:	–25 °C till +70 °C
Kapslingsklass:	IP 20
Skyddsklass:	II
Monteringsbredd:	36 mm (2 moduler)

Schneider Electric Industries SAS

Vid tekniska frågor ska du kontakta kundservicecentret i ditt land.

www.schneider-electric.com

Den här produkten ska monteras, anslutas och användas i enlighet med rådande standarder och/eller installationsföreskrifter. Eftersom standarder, specifikationer och konstruktioner ändras ibland ska du alltid kontrollera att informationen i denna publikation stämmer.

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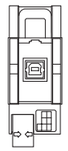
Schneider Electric

USB-grensesnitt DIN-K

Bruksanvisning



Art.-nr. MTN681829

V6818-751-01

For din sikkerhet

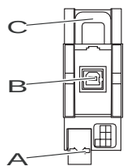
Livsfare på grunn av elektrisk strøm.
Alt arbeid på enheten må kun utføres av kvalifiserte elektrikere. Følg forskriftene som gjelder i landet hvor enheten skal brukes, samt gjeldende KNX-retningslinjer.

Bli kjent med USB-grensesnittet

USB-grensesnitt DIN-K (i det følgende kalt **USB-grensesnitt**) muliggjør tilkobling til en PC for adressering, programmering og diagnose av busskomponenter med USB1.1- eller USB2-grensesnitt. Strømforsyning kommer fra den tilkoblede PC-en via USB-grensesnittet. USB-grensesnittet registreres i KNX-systemet når USB-kabelen plugges inn. Apparatet programmeres kun lokalt med den fysiske adressen via den tilkoblede PC-en og har derfor ingen programmeringsknapp eller programmerings-LED.

Fastprogrammet for USB-grensesnittet kan oppdateres via PC-en og er derfor egnet for fremtidig bruk med eventuelle nye standarder.
USB-grensesnittet er utformet for montering på en DIN-skinne. Dataskinne er ikke påkrevet.

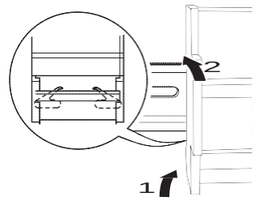
Forbindelser, display og betjeningselementer



A Busstilkoblingsklemme
B USB-tilkobling
C USB-kabelfeste

Slik installerer du USB-grensesnitt

1 Sett USB-grensesnittet på DIN-skinnen nedenfra.



2 Tilkoble KNX.

3 Koble USB-kabelen til USB-tilkoblingen.

Merk:
Hvis USB-kabelen for et DIN-K-apparat skal kobles permanent til fordeleren, løsner du den svarte nippelen på stiften og trekker den ut. Legg deretter USB-kabelen og sett på den svarte nippelen igjen. Det sikrer at USB-kabelen er festet og at den maksimale monteringshøyden i fordeleren ikke overskrides.

Tekniske data

Strømforsyning:	via PC USB-grensesnitt
Tilkobling	
Buss:	Busstilkoblingsklemme
USB-grensesnitt:	USB-hunnkontakt, type B
Overføringshastighet:	9600 baud
Overføringsprotokoll:	kompatibel med USB 1.1/2.0
USB-kabellengde:	Maks. 5 m
Omgivelsestemperatur:	-5 °C til +45 °C
Lagringstemperatur:	-25°C til +70°C
Beskyttelsesklasse:	IP 20
Beskyttelsesklasse:	II
Monteringsbredde:	36 mm (2 moduler)

Schneider Electric Industries SAS

Ta kontakt med kundesenteret i ditt land hvis du har tekniske spørmål.

www.schneider-electric.com

Dette produktet må installeres, kobles til og brukes i samsvar med gjeldende standarder og/eller installasjonsforskrifter. Ettersom standarder, spesifikasjoner og utforming kan bli endret, bør du alltid be om bekreftelse av informasjon i denne publikasjonen.

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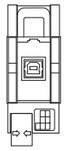
Schneider Electric

V6818-751-01

USB-liitäntä REG-K

Käyttöohjeet



Tuotenro MTN681829

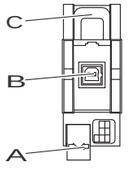
Käyttäjän turvallisuus

1/4 **Sähkövirta voi aiheuttaa kuolemanvaaran.**
Laitetta saa käsitellä vain ammattitaitoinen sähköasentaja. Noudata maakohtaisia määräyksiä sekä voimassaolevia KNX-ohjeita.

USB-liitäntään tutustuminen

REG-K USB-liitäntä (jäljempänä **USB-liitäntä**) mahdollistaa kytkennän tietokoneeseen väyläosien osoitusta, ohjelmointia ja vianmääritystä varten USB1.1- tai USB2-liitännöillä. Virta syötetään kokonaan kytketystä tietokoneesta USB-liitännällä. KNX-järjestelmä tunnistaa USB-liitännän kun USB-kaapeli kytketään. Laite on ohjelmoitu vain paikallisella kytketyn tietokoneen fyysisellä osoitteella ja täten sillä ei ole ohjelmointipainiketta tai ohjelmoinnin LED-valoa.
USB-liitännän laiteohjelmisto voidaan päivittää tietokoneelta ja on täten käytettävissä tuleville standardeille.
USB-liitäntä on suunniteltu asennettavaksi DIN-kiskoon.
Datakiskoa ei tarvita.

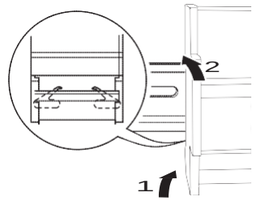
Liitännät, näytöt ja käyttölaitteet



A Väyläliitäntäpääte
B USB-liitäntä
C USB-kaapelin kiinnitys

USB-liitännän asentaminen

1 Aseta USB-liitäntä DIN-kiskoon alakautta.



2 Liitä KNX.
3 Kytke USB-kaapeli USB-liitäntään.

Huomaa:
Jos REG-K-laitteen USB-kaapeli kytketään pysyvästi jakotauluun, vapauta musta liukukappale pidikkeestä ja vedä se ulos. Aseta USB-kaapeli paikoilleen ja musta liukukappale takaisin. Tällä varmistetaan, että USB-kaapeli on kiinnitetty oikein ja että jakotaulun suurinta asennuskorkeutta ei ylitetä.

Tekniset tiedot

Virtalähde:	tietokoneen USB-liitännän kautta
Liitäntä	
Väylä:	Väyläliitäntäpääte
USB-liitäntä:	USB-pistukka, tyyppi B
Lähetysnopeus:	9600 baudia
Lähetysprotokolla:	yhteensopiva USB 1.1/2.0:n kanssa
USB-kaapelin pituus:	enint. 5 m
Ympäristön lämpötila:	-5 °C ... +45 °C
Varastointilämpötila:	-25 °C ... +70 °C
Kotelointiluokka:	IP 20
Suojaluokka:	II
Asennusleveys:	36 mm (2 moduulia)

Schneider Electric Industries SAS

Voit esittää teknisiä kysymyksiä maasi asiakaspalveluun.

www.schneider-electric.com

Tuote on asennettava, kytkettävä ja sitä on käytettävä vallitsevien standardien ja/tai asennussäännösten mukaisesti. Vahvista aina tämän julkaisun tiedot koska standardit, tekniset tiedot ja muotoilut muuttuvat ajoittain.

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Schneider Electric

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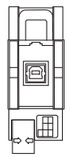
USB interface DIN skinnemontage

Vejledning



Art.nr. MTN681829

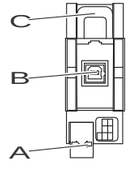
Af hensyn til din sikkerhed

1/4 **Fare for livsfarlig kvæstelse på grund af elektrisk strøm.**
Alt arbejde, der udføres på enheden, må kun udføres af uddannede og kvalificerede elektrikere. Overhold de gældende forskrifter i anvendelseslandet og de gældende KNX-retningslinjer.

Information om USB-interfacet

USB interfacet DIN (nedenfor betegnet som USB-interfacet) gør det muligt at forbinde en pc med USB1.1- eller USB2-interfaces for at adressere, programmere eller diagnosticere bus-komponenter. Spændingen forsynes udelukkende fra den tilsluttede pc via USB-interfacet. USB-interfacet genkendes af KNX-systemet, når USB-kablet sættes i. Enheden programmeres kun lokalt med den fysiske adresse via den tilsluttede pc og har derfor ikke en programmeringsknap eller en programmeringslysdiode.
Firmwaren til USB-interfacet kan opdateres via en pc og er derfor fremtidssikker for alle senere standarder.
USB-interfacet er beregnet til montering på en DIN-skinne. Der er ikke brug for en dataskinne.

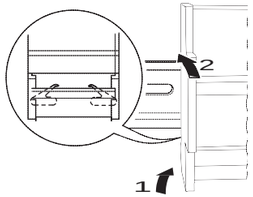
Produktets tilslutning, LED og betjening



A Buskonnektor
B USB-tilslutning
C USB-kabelfastgørelse

Sådan installeres USB-interface

1 Placér USB-interface på DIN-skinnen nedefra.



2 Tilslut KNX.
3 Tilslut USB-kablet til USB-enheden.

Bemærk:
Hvis USB-kablet for et DIN-apparat skal tilsluttes permanent på fordelingstavlen, skal du frigive den sorte klap ved holderen og trække den ud. Læg derefter USB-kablet ind, og sæt den sorte klap på. Det sikrer, at USB-kablet er fastgjort, og at den maks. monteringshøjde på fordelingstavlen ikke overskrides.

Tekniske data

Spændingsforsyning:	Via pc'ens USB-interface
Tilslutning	
Bus:	Buskonnektor
USB-interface:	USB-stik, type B
Overførselshastighed:	9600 baud
Overførselsprotokol:	Kompatibel med USB 1.1/2.0
USB-kabellængde:	Maks. 5 m
Omgivelsestemperatur:	-5 °C til +45 °C
Opbevaringstemperatur:	-25 °C til +70 °C
Tæthedsklasse:	IP 20
Beskyttelsesklasse:	II
Installationsbredde:	1 M36 (ca. 36 mm)

Schneider Electric Industries SAS

Hvis du har tekniske spørgsmål, bedes du kontakte LK Kundeservice.

www.lk.dk og/eller www.schneider-electric.dk

Dette produkt skal installeres, tilsluttes og anvendes i overensstemmelse med almindelige standarder og/eller installationsforskrifter. Da standarder, specifikationer og designs udvikler sig gennem tiden, skal du altid sørge for at få bekræftet informationen i denne publikation. KNX opdaterede vejledninger er tilgængelig på hjemmesiden.

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USB interface REG-K, light grey

Main

For connecting a programming or diagnostics device with a USB1.1 or USB2 interface to the KNX. For installation on DIN rails EN 50022.

Complementary

The bus is connected using a bus connecting terminal; a data rail is not necessary. With integrated bus coupler.

Device width: 2 modules = approx. 36 mm

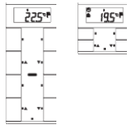
Contents: With bus connecting terminal and cable cover.

Colour: light grey

Schneider Electric

KNX tryckknapp med rumstemperaturregulator

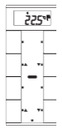
Bruksanvisning



Exxact

Tryckknapp, 2-kanals med rumstemperaturregulator Art.nr WDE002939, WDE003939, WDE004939

Exxact



Tryckknapp, 4-kanals med rumstemperaturregulator
Art.nr WDE002941, WDE003941, WDE004941

Nödvändiga tillbehör

– Tryckknappen måste kompletteras med en Exxact ram.

För din säkerhet

1/4 **FARA**
Risk för livshotande skada p.g.a. elektrisk ström.
Enheten får endast installeras och anslutas av elektriker. Följ de föreskrifter som gäller i användningslandet samt gällande KNX-riktlinjer.

Beskrivning av tryckknappen

Tryckknappen med rumstemperaturregulator (nedan kallad **tryckknapp**) ger dig fyra (tryckknapp med 2 kanaler) eller åtta (tryckknapp med 4 kanaler) manöverytor. Knapparna kan programmeras individuellt att utföra olika funktioner. Dessutom finns det en integrerad rumstemperaturregulator för olika former av rumstemperaturstyrning.

Funktioner för tryckknappen:

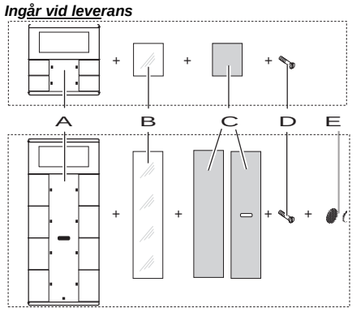
– koppling, toggling, dimring, jalusistyrning
– scenariofunktion
– meddelande- och avaktiveringsfunktioner
– tidsstyrning med synkronisering, läsning av extern temperatur, fläktstyrning

Funktioner för rumstemperaturregulatorn:

– uppvärmning/kylning med en regulatorutgång
– uppvärmning/kylning med separata regulatorutgångar
– uppvärmning/kylning med två regulatorutgångar

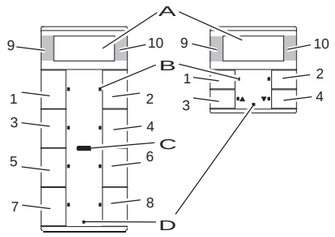
Tryckknappen kan anslutas direkt till KNX och parametreras av elinstallatören via KNX-programvaran (ETS).

Ingår vid leverans



A Tryckknapp
B Täcklock
C Folie
D Fästskruv
E Kardborrefäste (endast 4-kanals tryckknapp)

Anslutningar, indikeringar och manöverelement



1 - 8: Funktionsknappar
9 + 10: Funktionsknappar för display
A Display
B Lysdiod
C IR-mottagare
D Status-LED

Beskrivning av knappsatsen

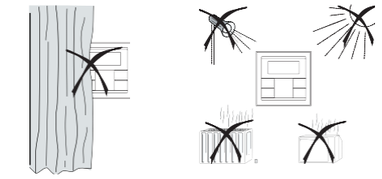
De motstående tryckknapparna kan konfigureras individuellt eller som ett par. Tyckknapparna programmeras med olika funktioner beroende på förinställningen.

Endast 4-kanals tryckknappar:
4-kanals tryckknappen är utrustad med en IR-mottagare med vilken knappen kan styras med alla IR-fjärrkontroller. Ett tryck på knapparna 1–8 på fjärrkontrollen aktiverar motsvarande knapps funktion. Tryckknapparna 9 och 10 på fjärrkontrollen har en direkt inverkan på displayknapparna 9 och 10.

Monteringsplats

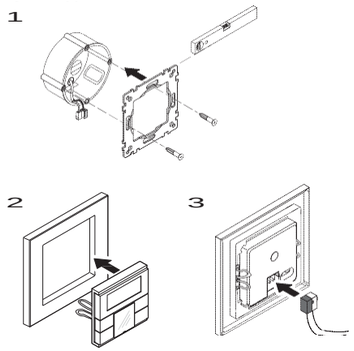
För att den integrerade rumstemparturregulatorn ska fungera optimalt måste man tänka på följande när man väljer plats där enheten ska monteras:

Störningskällor

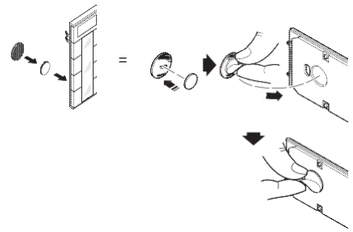


Montering av tryckknappen

Tryckknapp för 2 och 4 kanaler

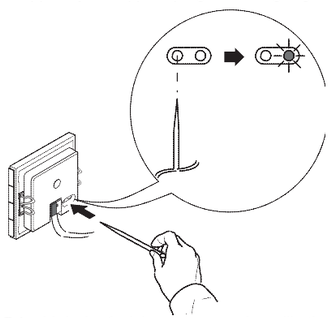


Endast tryckknapp för 4 kanaler

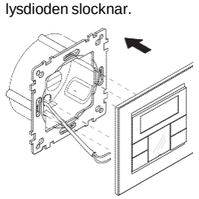


Manövrering av tryckknappen

1 Öppna tryckknappens programmeringsläge



2 Ladda in den fysiska adressen och applikationen i tryckknappen från ETS: Den röda programmeringslysdioden slocknar.

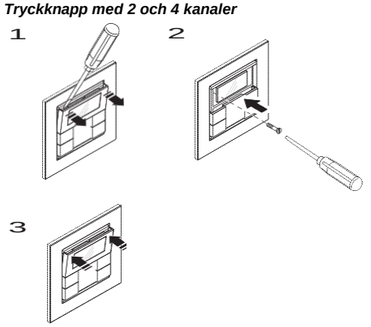


110...160 mm

Anmärkning till elinstallatören:
Se till att skriva upp de inställningar du har gjort i ETS och som är viktiga för användaren i kofigurationstabellen (se "Tabell förinställningar"), eftersom det inte går att se alla parametrar som kan ställas in på tryckknappens display.

Stöldskydd

Tryckknapp med 2 och 4 kanaler

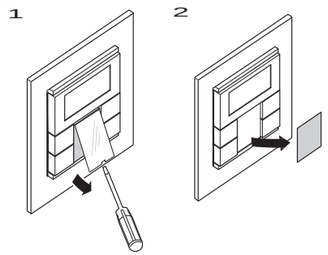


Demontering av tryckknappen

1/2 **OBS!**
Apparaten kan skadas.
Innan tryckknappen tas bort måste man kontrollera om den är säkrad mot stöld. Ta alltid bort stöldskyddet innan tryckknappen demonteras.

Märkning av tryckknappen

Öppna märkfältet



Tillverkning av märketiketter

Du kan också skapa och skriva ut etikettmallar med valfritt layoutprogram.

Foliestorlekar (i mm):

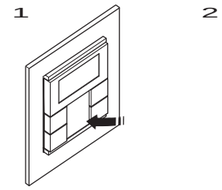
Tryckknapp	Höjd	Bredd	Tjocklek
2-kanals	24.9	23	max. 0,15
4-kanals	96,2	23	max. 0,15

Se efter i bruksanvisningen till din skrivare vilka typer av folie du kan skriva på.

Använd endast de medföljande färgade folierna som bas, eftersom detta säkerställer att tryck-knappslysdioderna kan lysa igenom märkfältet.

Två sorters färgad folie medföljer: en med en ursparning i mitten för IR-mottagaren, och en utan ursparning. Om tryckknappen ska styras från en IR-fjärrkontroll, måste den färgade folien med ursparning användas. Använd endast en av de två färgade folierna.

Stänga märkfältet



Förinställningar

När tryckknappen installeras gör elinstallatören olika inställningar som är nödvändiga för att knappen ska kunna användas korrekt. Beskrivningarna på följande sidor är till största delen beroende av dessa inställningar. Elinstallatören noterar inställningarna i en tabell som användaren får (se "Tabell förinställningar").

När den här symbolen visas betyder det att värdena finns i tabellen.

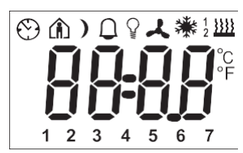
Inledning till rumstemperaturregulator/ display

Med den integrerade rumstemperaturregulatorn kan temperaturen styras på olika sätt.

På displayen kan viktig information läsas av och ställas in:

- Börtemperatur
- Driftläge (komfort, standby, natt etc.)
- Vardag/helgdag
- Visningsläge (börtemperatur, ärtemperatur, datum etc.)
- Bakgrundsbelysning
- Inställning av tid/omkoppling av tid

Beskrivning av displayen



På displayen visas följande symboler:

Komfortdrift eller vardag. Rumstemperaturen är inställd på komfort-börtemperaturen .

När symbolen blinkar betyder det att den utökade komforten är aktiv.
Standbydrift eller helgdag. Rumstemperaturen är inställd på standby-börtemperaturen .

Nattdrift. Rumstemperaturen är inställd på natt-börtemperaturen .

Tidsstyrningen är aktiv.

Konstant indikering: Tiden har synkroniserats.

Blinkande indikering: Tiden har inte synkroniserats; den visade tiden kan vara felaktig.

Larm, blinkande symbol. 4-kanals tryckknapp: Extra ljudvarning är möjlig .

1 2 3 4 Veckodagsindikering .
5 6 7 I kombination med : Fläkthastighet

Menykommandot ”Inställning av bakgrundsbelysningen” är aktivt.
Fläkt.

Värmestyrning är aktiverad eller regulatorn behöver ström.

Kylningsstyrning är aktiverad eller regulatorn behöver ström.

Indikering under symbolerna för värme och kyla.
- För värme **eller** kyla:
„1“: Börtemperaturen har ännu inte uppnåtts. Regulatorn värmer eller kyler.
"2": Nivå 2 är aktiverad (indikering endast om uppvärmning/kylning i två steg är inställt.
- För uppvärmning **och** kylning:
Det finns två lägen: manuell eller automatisk

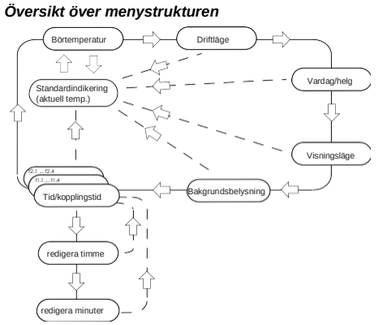
°C Temperaturindikering i grader Celsius
°F Temperaturindikering i grader Fahrenheit
88:88 Tidsindikering eller värdesindikering

Beskrivning av användarmenyn

Det finns en användarmeny för inställning av olika funktioner för rumstemperaturregulatorn.

I displayens täcklock finns en integrerad vippknapp. Den har tre kontakter: vänster, mitten, höger. Med dessa tryckknappar kan du öppna användarmenyn, bläddra fram och tillbaka och ändra enskilda värden.

Översikt över menystrukturen



Tryckknappsåtgärd	Aktiverad funktion
Mitten – lång knapptryckning*	Väj meny Spara Återgå till standarddisplay
Mitten – kort knapptryckning**	Välj nästa menykommando
Vänster/höger – kort knapptryckning**	Ändra värde

*lång knapptryckning = ca 5 s

**kort knapptryckning = ca 1 s

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Om det går ca 1 minut utan att någon knapp trycks in återgår rumstemperaturregulatorn automatiskt till standarddisplayen. De värden som var inställda innan användarmenyn öppnades återställs; **eventuella ändringar som gjorts sparas inte. Undantag: temperaturen sparas direkt.**

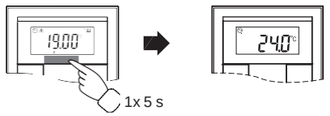
Inställning av rumstemperaturregulatorn/displayen

Standarddisplay
Här ser du ett exempel på en standarddisplay:

- Driftläget ”Komfort”
- Faktisk temperatur 20
- Uppvärmningen är aktiverad för att börtemperaturen ska uppnås
- Visas hela tiden: Tiden har synkroniserats med kopplingsuret (t.ex. årskopplingsuret DIN-K). Klocksymbolen blinkar: Tiden har inte synkroniserats (än).
- Veckodagsindikering **3** = onsdag

Tänk på att veckodagarna visas enligt förinställningarna. Elinstallatören har ställt in , en speciell veckodag som 1. I vissa länder är inte måndagen den första dagen, utan t.ex. söndag. Övriga nummer motsvarar andra dagar enligt inställningen (t.ex. 2 = måndag, 3 = tisdag etc.).

Inställning av börtemperaturen



Elinstallatören har specificerat tre börtemperaturer (för både uppvärmning och kylning):

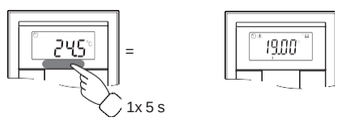
- för komfortdrift
- för standbydrift
- för nattdrift

Börtemperaturen visas i det aktuella driftläget. Du kan endast ändra denna börtemperatur. För att ändra börtemperaturen för ett annat driftläge måste du först gå till detta driftläge (se ”Inställning av driftläge”).

Elinstallatören har specificerat inom vilka gränser värdet kan ändras (t.ex. mellan min. 16 °C och max. 26 °C). Du kan inte ställa in något värde under eller över dessa gränsvärden. Om elinstallatören har gjort rätt inställningar , sänder 4-kanalstryckknappen ut ett varningsljud om de aktuella värdena håller på att överskridas.

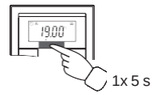
1

2

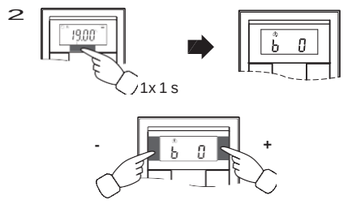


Inställning av driftläge

1

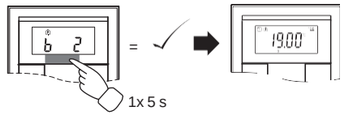


2



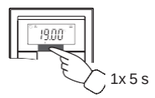
- b 0 = komfortdrift
  Välj detta driftläge om du uppehåller dig i rummet. Uppvärmningen är inställd på komfort-börtemperaturen (t.ex. 21 °C).
- b 1 = standbydrift
  Välj detta driftläge om du inte tänker vara i rummet på länge. Uppvärmningen är inställd på standby-börtemperaturen (t.ex. 18 °C).
- b 2 = nattdrift
  Uppvärmningen är inställd på natt-börtemperaturen (t.ex. 15 °C).
- b 3 = utökad komfort (blinkar)
  Välj detta driftläge för att tillfälligt förhindra att nattdriften aktiveras. Uppvärmningen är inställd på komfort-börtemperaturen (t.ex. 21 °C).

Elinstallatören kan ha ställt in tiderna när driftläget automatiskt kopplas om från nattdrift till komfortdrift och tvärt om.

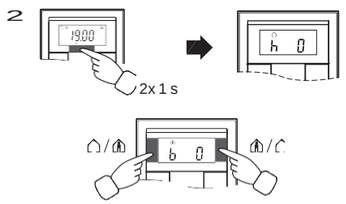


Inställning av vardag/helg

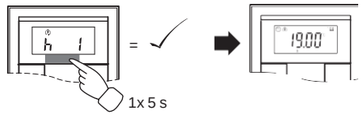
1



2



- h 0 = helg
- h 1 = vardag

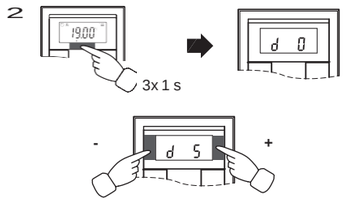


Inställning av displayläget

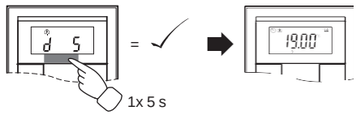
Med displayläget kan du välja värden som ska visas på displayen.

1

2



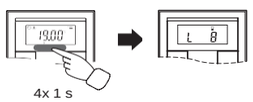
- d 0 = ärvärde för temperaturen (utan decimal)
- d 1 = börvärde för temperaturen (0,5 graders exakthet)
- d 2 = temperatur från extern temperatursensor
- d 3 = datum
- d 4 = tid
- d 5 = fläkthastighet
- d 6 = växelvis datum och tid
- d 7 = växelvis datum, tid och fläkt
- d 8 = växelvis ärvärde och börvärde för temperaturen
- d 9 = växelvis ärvärde/börvärde för temperatur och tid
- d 10 = växelvis ärvärde/börvärde för temperatur och fläkthastighet
- d 11 = temperatur från extern temperatursensor och ärtemperatur
- d 12 = växelvis temperatur från extern temperatursensor, ärtemperatur och tid
- d 13 = växelvis ärvärde/börvärde för temperatur, datum och tid
- d 14 = växelvis ärvärde/börvärde för temperatur, fläkthastighet och tid
- d 15 = växelvis temperatur från extern temperatursensor, ärtemperatur, fläkthastighet och tid



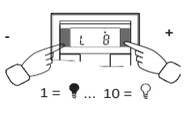
Inställning av bakgrundsbelysning

1

2



3



4

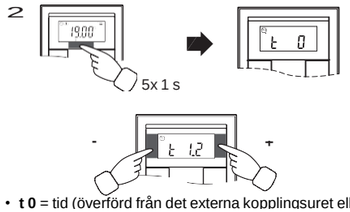
Inställning av tid för intern klocka och kopplingstider

Om tiden uppdateras med ett externt kopplingsur visas den uppdaterade tiden här. Om den här tiden ändras manuellt kommer den att skrivas över igen av kopplingsuret vid nästa uppdatering.

Via användarmenyn är det endast möjligt att justera kopplingstider som förprogrammerats via ETS. Kopplingstider som inte definierats i ETS visas på displayen som ”**--:--**” och kan inte ställas in via tryckknapparna på displayen.

1

2



- **t 0** = tid (överförd från det externa kopplingsuret eller från den interna klockan)
- **t 1.1** till **t 1.4** = tid kanal 1, kopplingstid 1–4
- **t 2.1** till **t 2.4** = tid kanal 2, kopplingstid 1–4

3 **Håll** tryckknappen intryckt: timindikeringen för den valda tiden/kopplingstiden blinkar.

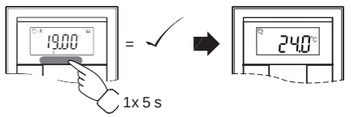
4 Tryck på den vänstra eller högra tryckknappen på displayen:
Ställ in önskade timmar

5 Tryck **kort** på tryckknappen: Minuterna blinkar.

6 Tryck på den vänstra eller högra tryckknappen på displayen:
Ställ in önskade minuter

7 Tryck **kort** på tryckknappen: Den inställda tiden (t...) visas igen.

8 Tryck **kort** på tryckknappen igen: Spara inställningen.



Synkronisera tiden med ett externt kopplingsur för att säkerställa precisionen på längre sikt.

Direktval av börtemperatur eller driftläge

Elinstallatören har specificerat om börtemperaturen eller driftläget ska kunna öppnas och justeras direkt via vänster och höger tryckknapp, eller om ingen av dessa funktioner ska vara aktiv.

1 **1x** tryckknapp **vänster/höger/vänster** – tryck **kort**.

Menykommandot ”Inställd börtemperatur” eller ”Inställt driftläge” visas med det senast inställda värdet. Ändra värdet genom att trycka på vänster eller höger tryckknapp på displayen. Värdet övertas direkt och behöver inte sparas separat. Efter ca 5 s visas rumstemperaturregulatorns standarddisplay igen.

Andra indikeringar

APL. Applikationen är inte laddad eller defekt
E 2 Börvärdestemperatur för uppvärmning = börvärdestemperatur för kylning
E 3 ETS-applikationen är inte kompatibel
E 4 Övre styrstorhetsintervall = nedre styrstorhetsintervall
E 5 FRAM fel
E 6 Fel i temperatursensor
E 7 STACK fel
E 8 RAM fel
E 9 Buffringsfel

Tabell förinställningar

Tidsstyrning kanal 1

Omkopplingstid	1	2	3	4
Tid	:	:	:	:
			–	
Funktion:				

Tidsstyrning kanal 2

Omkopplingstid	1	2	3	4
Tid	:	:	:	:
Funktion:				

Larmfunktioner

☐ Larmet ljuder om ärtemperaturen sjunker under frostskyddstemperaturen **eller**
☐ Larmet ljuder om börvärdesinställningen överskrids
☐ Övrigt:
_____
___

Börvärden för uppvärmning i °C/°F	Justeringsgräns i °C/°F	
Komfort: _____	min: _____	max: _____
Standby: _____	min: _____	max: _____
Natt: _____	min: _____	max: _____

Börvärden för uppvärmning i °C/°F	Justeringsgräns i °C/°F	
Komfort: _____	min: _____	max: _____
Standby: _____	min: _____	max: _____
Natt: _____	min: _____	max: _____
Frostskydd: _____	min: _____	max: _____
Värmeskydd: _____	min: _____	max: _____

Börvärdesinställningen är giltig t.o.m: Ändrat/permanent driftläge

Veckan börjar (1): på fer/lör/sön/mån

Direktval: Börtemperatur/driftläge/inget

Tekniska data

Försörjning:	via KNX
Anslutning:	Bussanslutningsklämma
Indikeringselement	
2-/4-kanals tryckknapp:	1x display
	1x drift-LED
2-kanals tryckknapp: 4-kanals tryckknapp:	4x status-LED
	8x status-LED Piezo-summer
Manöverelement	
2-/4-kanals tryckknapp:	3 tryckknappar för att navigera i menyn
2-kanals tryckknapp:	4 tryckknappar
4-kanals tryckknapp:	8 tryckknappar
	IR-mottagare (mottagningsvinkel: 60°)
Mätområde:	0 till 40 °C
Mätnoggrannhet:	± 1 K, beroende på installationsplatsen Offset kan konfigureras
Regulatortyp:	2-stegs Steglös PI-regulator Kopplande PI-regulator
Regulatorläge:	Värme med 1 regulatorutgång Kylning med 1 regulatorutgång Värme med 2 regulatorutgångar Kylning med 2 regulatorutgångar Värme och kylning med separata regulatorutgångar Värme i två steg med 2 regulatorutgångar Kylning i två steg med 2 regulatorutgångar -stegs värme och 2-stegs kylning med 4 regulatorutgångar
Kapslingsklass:	IP 20

Schneider Electric Industries SAS

Vid tekniska frågor vänligenkontakta kundservice.

Schneider Electric Sverige AB 0155-

26 54 00

www.schneider-electric.se

Den här produkten ska monteras, anslutas och användas i enlighet med rådande standarder och/eller installationsföreskrifter. Eftersom standarder, specifikationer och konstruktioner ändras ibland ska du alltid kontrollera att informationen i denna publikation stämmer.

V6212-451-00 01/10

Schneider Electric

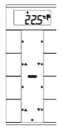
Multifunksjonstrykknapp med romtemperaturregulator

Bruksanvisning

Exxact

Multifunksjonsknapp, 4-knapps med romtemperaturregulator
Art.nr. WDE002939, WDE003939, WDE004939

Exxact



Multifunksjonsknapp, 8-knapps med romtemperaturregulator
Art.nr. WDE002941, WDE003941, WDE004941

Nødvendig tilbehør

– Du må komplettere trykknapp pluss med en Exxact designramme.

For din sikkerhet

1/4 **FARE**
Livsfare på grunn av elektrisk strøm.
Enheten må bare monteres og tilkobles av elektriker. Følg forskriftene som gjelder i landet hvor enheten skal brukes, samt gjeldende KNX-retningslinjer.

Bli kjent med trykknappen

Med **Trykknapp pluss med romtemperaturregulator** (heretter kalt **trykknapp**) har du fire (2-kanals trykknapp) eller åtte (4-kanals trykknapp) brukergrenseflater. Tastene kan stilles inn individuelt til å utføre ulike funksjoner. Videre er en romtemperaturregulator integrert, noe som gjør det mulig for deg å styre temperaturen på forskjellige måter.

Trykknappens funksjoner:

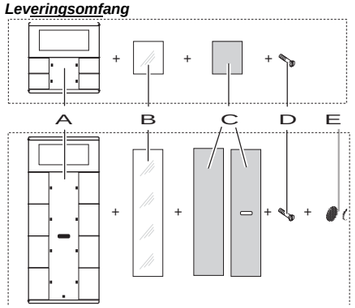
– Kobling, omkobling, dimming, persiennestyring
– Scenariofunksjon
– Melde- og deaktiveringsfunksjoner
– Tidsstyring med synkronisering, avlesning av ekstern temperatur, viftestyring

Funksjoner på romtemperaturregulatoren:

– Oppvarming/kjøling med én regulatorutgang
– Oppvarming/kjøling med separate regulatorutganger
– Oppvarming/kjøling med to regulatorutganger

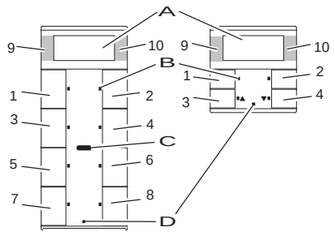
Trykknappen kan tilkobles direkte til KNX og er programmert av elektroinstallatøren via KNX-programvaren (ETS).

Leveringsomfang



A Trykknapp
B Deksel
C Folie
D Sikkerhetsskrue
E Klistremerke (kun 4-kanals trykknapp)

Forbindelser, display og betjeningselementer



1 - 8: Funksjonsknappene
9 + 10: Funksjonsknapper til display
A Display
B LED
C IR-mottaker
D Status-LED

Bli kjent med tastaturfeltet

Trykknappene på motsatt side av hverandre, kan enten konfigureres som individuelle trykknapper, eller som trykknapp-par. Trykknappene er programmert med ulike funksjoner avhengig av forhåndsinnstillingen.

Kun for 4-kanals trykknapp:
4-kanals trykknappen er utstyrt med en IR-mottaker som du kan styre trykknappen med via en hvilken som helst IR-fjernkontroll. Et trykk på trykknappene 1-8 på fjernstyringen aktiverer funksjonen til den korresponderende trykknappen. Trykknapp 9 og 10 på fjernstyringen har en direkte effekt på trykknappene 9 og 10 på displayet.

Installeringsside

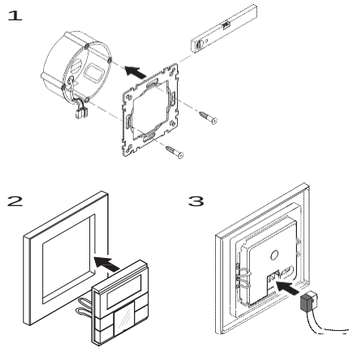
For at den integrerte romtemperaturregulatoren skal kunne arbeide best mulig, bør du huske på følgende når du velger rett installeringsside:

110...160 mm

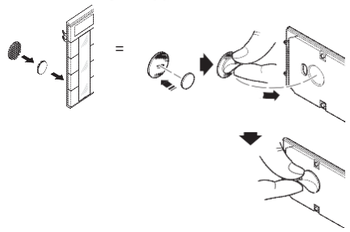
Interferenskilder

Installere trykknappen

Trykknapp 2-kanals og 4-kanals

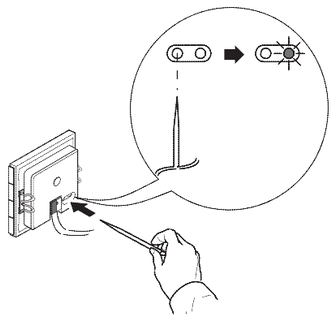


Kun 4-kanals trykknapp



Betjening av trykknappen

1 Still inn trykknappen på programmeringsmodus

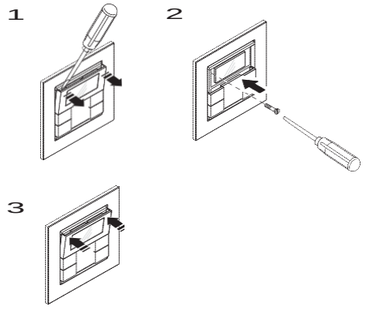


2 Last inn den fysiske adressen og applikasjonen fra ETS til trykknappen: Den røde programmerings-LED-en slukker.

For elektroinstallatøren:
Innstillingene du har gjort i ETS som er viktige for brukeren, må du notere i konfigureringstabellen (se "Tabell over forhåndsinnstillinger"). Dette fordi ikke alle parametere som kan stilles inn, vil vises i trykknappdisplayet.

Tyverisikring

Trykknapp 2-kanals og 4-kanals

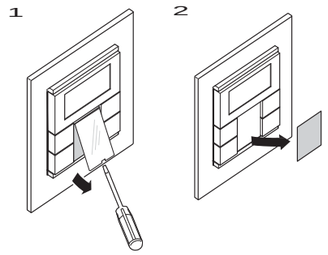


Demontering av trykknappen

1/2 **OBS**
Apparatet kan komme til skade.
Før trykknappen fjernes, må du sjekke om den er sikret med en tyverisikring. Fjern alltid tyverisikringen før du monterer av trykknappen.

Merke trykknappen

Åpne merkefelt



Lage merkede foliestriper

Du kan også lage og skrive ut passende foliestripemaler med et hvilket som helst layout-program.

Størrelsesspesifikasjon for folier (i mm):

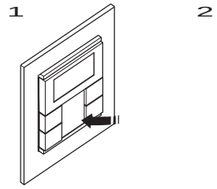
Trykknapp	Høyde	Bredde	Tykkelse
2-kanals	24.9	23	Maks. 0,15
4-kanals	96,2	23	Maks. 0,15

Se betjeningshåndboken for din skriver for å finne ut hvilken type folie du kan skrive ut.

Bruk kun de vedlagte fargede foliestripene som underlag, da dette sikrer at trykknappenes LED-er under merkefeltet synes gjennom.

To typer fargede foliestriper medfølger: En med nisje i midten for IR-mottakeren, og en uten nisje. Hvis du vil styre trykknappen via en IR-fjernkontroll må du bruke den fargede foliestripen med nisje. Bruk alltid kun én av de to fargede foliestripene.

Lukke merkefelt



Forhåndsinnstillinger

Når trykknappen installeres, definerer elektroinstallatøren samtidig forskjellige innstillinger som er nødvendige for at du skal kunne bruke trykknappen på korrekt måte. De fleste av forklaringene på de neste sidene avhenger av disse innstillingene. Elektroinstallatøren noterer de forskjellige innstillingene i en egen tabell for deg (se tabellen "forhåndsinnstillinger").

Hvis du kommer over dette symbolet , betyr det at du kan hente fram den respektive verdien i tabellen.

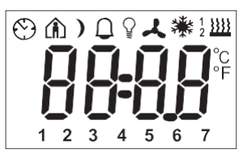
Innledning for romtemperaturregulator/display

Med den integrerte romtemperaturregulatoren kan du kontrollere temperaturen på ulike måter.

Du kan lese og stille inn viktig informasjon på displayet:

- Nominell temperatur
- Driftsmåte (komfort, standby, natt, etc.)
- Arbeidsdag/fridag
- Visningsmodus (nominell temperatur, faktisk temperatur, dato, etc.)
- Bakgrunnsbelysning
- Innstilling av tid/koblingstid

Bli kjent med displayet



Du vil se følgende symboler på displayet:

Komfortdrift eller arbeidsdag. Romtemperaturen justeres til innstilt nominell komforttemperatur .

Et blinkende symbol betyr at komfortforlengelsen er aktiv.

Standbydrift eller fridag. Romtemperaturen justeres til innstilt nominell standbytemperatur .

Nattdrift. Romtemperaturen justeres til innstilt nominell nattemperatur .

Tidsstyring er aktiv.

Kontinuerling visning: Tiden har blitt synkronisert.

Blinkende visning: Tiden har ikke blitt synkronisert; vist tid kan være unøyaktig.

Alarm, symbol blinker. For 4-kanals trykknapp: Ekstra akustisk varselsignal mulig .

1 2 3 4 Visning av ukedag .
5 6 7 I kombinasjons med : Viftehastighet

Menypunktet "Stille inn bakgrunnsbelysning" er aktivert.

Vifte.

Varmestyringsmodus er aktiv, eller regulatoren trenger strøm.

Kjølestyringsmodus er aktiv, eller regulatoren trenger strøm.

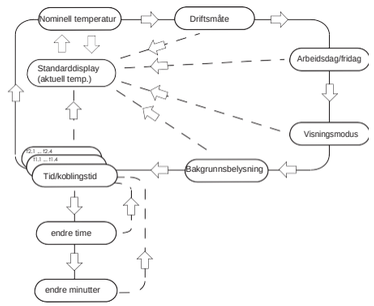
Visning under "varme" eller "kjøling"-symbolene.
- For varme **eller** kjøling:
„1": Nominell temperatur er ennå ikke nådd. Regulatoren varmer eller kjøler.
„2": Nivå 2 er aktivert (vises kun hvis 2-trinns varme/kjøling er innstilt.
- For varme **og** kjøling:
To moduser er tilgjengelige: Manuell eller automatisk

°C Temperaturvisning i grader Celsius
°F Temperaturvisning i grader Fahrenheit
88:88 Visning av tid eller verdi

Bli kjent med kontrollmenyen

En kontrollmeny er tilgjengelig for valg av individuelle funksjoner på romtemperaturregulatoren.
Det er integrert en trykknappsvippe i displayets dekklokk. Den har tre kontakter: Til venstre, i midten og til høyre. Med disse trykknappene kan du betjene kontrollmenyen, bla bakover og forover og endre individuelle verdier.

Oversikt over menystrukturen



Tastetrykk	Funksjon utløst
I midten – Langt tastetrykk*	Velg meny Lagre Gå tilbake til standard-display
I midten – Kort tastetrykk**	Velg neste menypunkt
Venstre/høyre – Kort tastetrykk**	Endre verdi

*Langt tastetrykk = ca. 5 sekunder

**Kort tastetrykk = ca. 1 sekund

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Hvis du ikke trykker på en trykknapp i løpet av ca. ett minutt, går romtemperaturregulatoren automatisk tilbake til standarddisplayet. Verdiene som ble innstilt før kontrollmenyen ble åpnet, blir

tilbakestilt; **endringer du eventuelt har gjort, blir ikke lagret. Unntak: Temperaturen lagres direkte.**

Stille inn romtemperaturregulator/ displayvisning

Standarddisplay

Her ser du et eksempel på et standarddisplay:

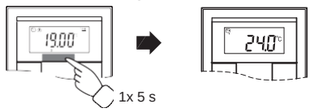
- "Komfort"-driftsmåte.
- Faktisk temperatur 20°
- Oppvarming er aktiv for å nå nominell komforttemperatur.
- vises konstant: Tiden har blitt synkronisert med koblingsuret (dvs. årskoblingsuret DIN-K). Klokkesymbolet blinker: Tiden er (ennå) ikke synkronisert.
- Visning av ukedag **3** = onsdag

Merk: Visningen av ukedag avhenger av forhåndsinnstillingene. Elektroinstallatøren har innstilt ,

en spesiell ukedag på 1. I noen land er ikke første ukedag mandag, men f.eks. søndag. De andre

mandag, 3 = tirsdag osv.)

Stille inn nominell temperatur



Elektroinstallatøren har spesifisert tre nominelle temperaturer (for både oppvarming og kjøling):

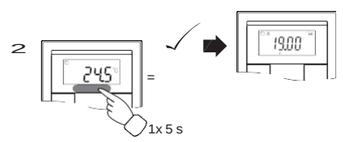
- for komfortdrift
- for standbydrift
- for nattdrift

Du ser den nominelle temperaturen for den aktuelle driftsmåten. Du kan bare endre denne nominelle temperaturen. For å endre den nominelle temperaturen for en annen driftsmåte, må du skifte driftsmåte først (se „Stille inn driftsmåte").

Elektroinstallatøren har spesifisert . Innenfor disse grensene kan denne verdien endres (for eksempel fra minimum 16 °C opp til maksimalt 26 °C). Du kan ikke stille inn verdier under eller over disse grenseverdiene. Hvis elektroinstallatøren har foretatt riktig innstilling , avgir den 4-kanals trykknappen en varsellyd så snart du forsøker å overskride disse grenseverdiene.

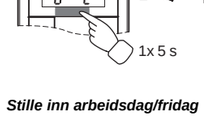
1

2

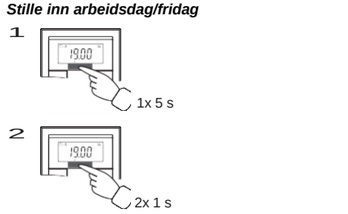


Stille inn driftsmåte

1



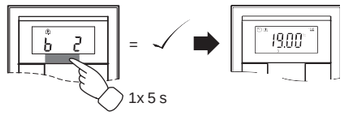
2



- b 0 = komfortdrift
  Velg denne driftsmåten hvis du oppholder deg i rommet. Oppvarmingen stilles inn på nominell komforttemperatur (f.eks. 21 °C).
- b 1 = standbydrift
  Velg denne driftsmåten hvis du ikke skal være i rommet over lengre tid. Oppvarmingen stilles inn på nominell standbytemperatur (f.eks. 18 °C).
- b 2 = nattdrift
  Oppvarmingen stilles inn på nominell nattemperatur (f.eks 15 °C).

  Velg denne driftsmåten hvis du vil koble ut nattdriften midlertidig. Oppvarmingen stilles inn på nominell komforttemperatur (f.eks. 21 °C).

tidspunktene for når driftsmåten skal skifte automatisk fra nattdrift til komfortdrift og omvendt.



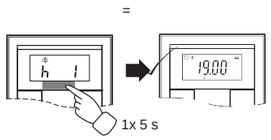
Stille inn arbeidsdag/fridag

1

2

- h 0 = fridag
- h 1 = arbeidsdag

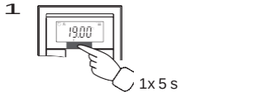
=



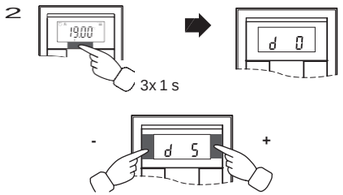
Stille inn visningsmodus

Med visningsmodus kan du velge hvilke verdier du ønsker å se i displayet.

1



2



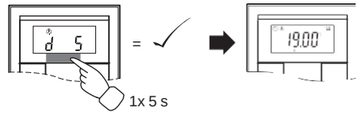
- d 0 = faktisk temperatur (uten desimaltegn)
- d 1 = nominell temperatur (til 0,5 grad nøyaktig)
- d 2 = temperatur fra ekstern temperatursensor
- d 3 = dato
- d 4 = klokkeslett
- d 5 = viftehastighet
- d 6 = dato og klokkeslett vekselvis
- d 7 = dato, klokkeslett og viftehastighet vekselvis
- d 8 = faktisk og nominell temperatur vekselvis
- d 9 = faktisk/nom. temperatur og klokkeslett vekselvis

vekselvis

- d 11 = temperatur fra ekstern temperatursensor og faktisk temperatur
- d 12 = temperatur fra ekstern temperatursensor, faktisk temperatur og klokkeslett vekselvis
- d 13 = faktisk/nom. temperatur, dato og klokkeslett vekselvis

klokkeslett vekselvis

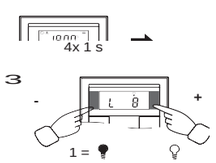
- d 15 = temperatur fra ekstern temperatursensor, faktisk temperatur, viftehastighet og klokkeslett vekselvis



Stille inn bakgrunnsbelysning

1

2



Stille inn internt klokkeslett og koblingstider

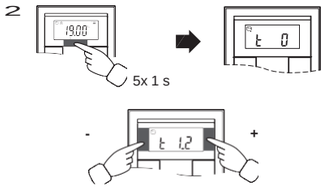
Hvis tiden er oppdatert med et eksternt koblingsur, vises den oppdaterte tiden her. Hvis du endrer tiden manuelt, overskrives den av

koblingsuret igjen under neste oppdatering.

Du kan kun benytte kontrollmenyen for å justere koblingstider som har blitt forhåndsprogrammert via ETS. Koblingstider som ikke er definert i ETS, vises som "**--:--**" når de hentes fram, og kan ikke stilles inn med trykknappene på displayet.

1

2



- **t 0** = tidspunkt (enten fra det eksterne koblingsuret eller fra den interne klokken)
- **t 1,1** til **t 1,4** = tidskanal 1, koblingstid 1-4
- **t 2.1** til **t 2.4** = tidskanal 2, koblingstid 1-4

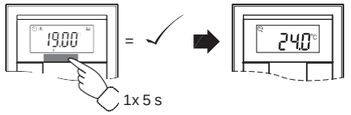
3 Trykk på midtre trykknapp og **hold** : Timevisningen for det valgte klokkeslettet/koblingstiden begynner å blinke.

4 Trykk på venstre eller høyre trykknapp på displayet: Still inn timene etter ønske

5 Trykk **kort** på midtre trykknapp: Minuttvisningen begynner nå å blinke.
Trykk på venstre eller høyre trykknapp på displayet: Still inn minuttene etter ønske.

7 Trykk **kort** på midtre trykknapp: Det innstilte klokkeslettet (t ...) vises på nytt.

8 Trykk nok en gang **kort** på midtre trykknapp : Lagre den ønskede nye innstillingen.



Synkroniser klokkeslettet via det eksterne koblingsuret for å sikre riktig tid over lengre perioder.

Velge nominell temperatur eller driftsmåte direkte

Elektroinstallatøren har spesifisert om du kan hente fram og justere den nominelle temperaturen eller driftsmåten direkte ved å trykke på høyre/venstre trykknapp, eller om ingen av disse funksjonene er aktivert.

1 **1x** trykknapp **venstre/høyre/venstre – kort** trykk på knappen.

Menypunktet "Stille inn nominell temperatur" eller "Stille inn driftsmåte" vises med den siste innstillingsverdien. Endre verdien ved å trykke på venstre eller høyre trykknapp på displayet. Verdien lagres direkte. Det er ikke nøvendig å utføre flere skritt for lagring. Etter ca. 5 sekunder går romtemperaturregulatoren automatisk tilbake til standarddisplayet.

Andre visninger

APL.	Applikasjonen ikke lastet eller feil
E 2	Oppvarming, nominell temperatur = kjøling, nominell temperatur
E 3	ETS-applikasjon ikke kompatibel
E 4	Øvre kontrollverdiområde = nedre kontrollverdiområde
E 5	FRAM-feil
E 6	Feil på temperatursensoren
E 7	STACK-feil
E 8	RAM-feil
E 9	Buffer-feil

Tabell over forhåndsinnstillinger

Tidsstyring kanal 1

Koblingstid	1	2	3	4
Tid	:	:	:	:

–

Funksjon: _____

Tidsstyring kanal 2

Koblingstid	1	2	3	4
Tid	:	:	:	:

Funksjon: _____

Alarmfunksjoner

☐ Alarmen lyder hvis den faktiske temperaturen er lavere enn frostbeskyttelsestemperaturen **eller**

☐ Alarmen lyder hvis den nominelle innstillingsgrensen overskrides

☐ Annet: _____

–

Varme nominelt i °C/°F		Innstillingsgrense i °C/°F	
Komfort:	_____	min: _____	maks:
Standby:	_____	min: _____	maks:
Natt:	_____	min: _____	maks:
Varme nominelt i °C/°F		Innstillingsgrense i °C/°F	
Komfort:	_____	min: _____	maks:
Standby:	_____	min: _____	maks:
Natt:	_____	min: _____	maks:
Frost-beskyttelse:	_____	min: _____	maks:
Varme-beskyttelse:	_____	min: _____	maks:

Justering av nominelle verdier gjelder frem til: Skifte av betjeningsmodus / permanent

Ukestart (1): på fre / lør / søn / man

Direktevalg: Nominell temperatur / betjeningsmodus / ingen

Tekniske data

Strømforsyning:	via KNX
Tilkobling:	Busstilkoblingsklemme
Visningselementer	
2-/4-kanals trykknapp:	1x display
	1x drifts-LED
2-kanals trykknapp: 4-kanals trykknapp:	4x status-LED
	8x status-LED
Betjeningselementer	Piezo-summer
2-/4-kanals trykknapp:	3 trykknapper for navigering av menyen
2-kanals trykknapp:	4 trykknapper
4-kanals trykknapp:	8 trykknapper
	IR-mottaker (mottaksvinkel: 60°)
Måleområde:	0 til 40 °C
Målenøyaktighet:	± 1 K, avhengig av monteringssted
Regulatortype:	Forskyvning kan programmeres 2-trinns
Regulatormodus:	Kontinuerlig PI-regulator Koblings-PI-regulator Varme med 1 regulatorutgang Kjøling med 1 regulatorutgang Varme med 2 regulatorutganger Kjøling med 2 regulatorutganger Oppvarming og kjøling med separate regulatorutganger 2-trinns oppvarming med 2 regulatorutganger 2-trinns kjøling med -trinns oppvarming og 2-trinns kjøling med 4 regulatorutganger
Beskyttelsesklasse:	IP 20

Schneider Electric Industries SAS

tekniske spørmål.

Schneider Electric Norge AS

64 98 56 00

www.schneider-electric.no

Dette produktet må installeres, kobles til og brukes i samsvar med gjeldende standarder og/eller installasjonsforskrifter. Ettersom standarder, spesifikasjoner og utforming kan bli endret, bør du alltid be om bekreftelse av informasjon i denne publikasjonen.

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sv no fi

Schneider Electric

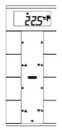
KNX Huonesäädin painikkeilla

Käyttöohjeet

Exxact

KNX Huonesäädin painikkeilla, 4-toim.
Tuotenro WDE002939, WDE003939, WDE004939

Exxact



KNX Huonesäädin painikkeilla, 8-toim.
Tuotenro WDE002941, WDE003941, WDE004941

Tarvittavat lisävarusteet

– Painike ja muotoiltu kehys Exxact on kiinnitettävä.

Käyttäjän turvallisuus

1/4 **VAARA**
Sähkövirta voi aiheuttaa kuolemanvaaran.
Laitteen saa asentaa ja kytkeä vain ammattitaitoinen sähköasentaja. Noudata maakohtaisia määräyksiä sekä voimassaolevia KNX-ohjeita.

Painikkeeseen tutustuminen

Huonesäädin painike (jäljempänä **painike**) mahdollistaa neljä (2-osainen painike) tai kahdeksan (4-osainen painike) käyttöpintaa. Yksittäisille näppäimille voidaan määrittää useita eri toimintoja. Huonelämpötilan ohjausyksikön avulla voidaan tämän lisäksi hallita monipuolisesti lämpötilaa.

Painikkeen toiminnot:

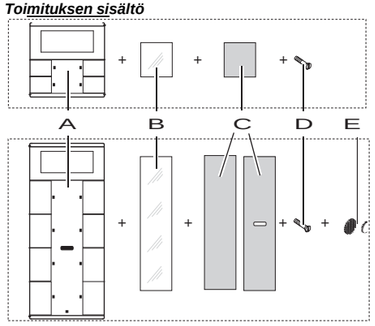
– Kytkentä, vaihtaminen, valonsäätö, verhojen ohjaus
– Kohtaustoiminto
– Tarkkailu- ja estotoiminto
– Kellonajan hallinta synkronoinnila, ulkolämpötilan lukeminen, tuulettimen ohjaus

Huonelämpötilan ohjausyksikön toiminnot:

– Lämmitys/jäähdytys yhdellä ohjainlähdöllä
– Lämmitys/jäähdytys erillisillä ohjainlähdöillä
– Lämmitys/jäähdytys kahdella ohjainlähdöllä

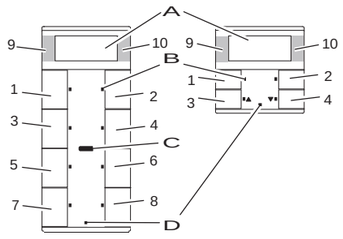
Painike voidaan kiinnittää suoraan KNX:ään ja sähköasentaja voi parametrisoida sen KNX Toolohjelmiston avulla (ETS).

Toimituksen sisältö



A Painike
B Kansi
C Kalvoliuska
D Turvaruuvi
E Tarra (vain 4-osainen painike)

Liitännät, näytöt ja käyttölaitteet



1 - 8: Toimintopainikkeet
9 + 10: Näytön toimintopainikkeet

A Näyttö
B LED-valo
C IR-vastaanotin
D Tilan LED-valo

Näppäimistöön tutustuminen

Vastakkain olevat näppäimet voidaan määrittää joko yksinään tai pareittain. Painikkeet ohjelmoidaan eri toiminnoilla riippuen esiasetuksesta.

4-osaiset painikkeet:
4-osaisessa painikkeessa on IR-vastaanotin, jonka ansiosta painiketta voidaan ohjata millä tahansa kaukosäätimellä. Kaukosäätimen painikkeet 1–8 aktivoivat vastaavan painikkeen toiminnot. Kaukosäätimen painikkeet 9 ja 10 vaikuttavat suoraan näytön painikkeisiin 9 ja 10.

Asennuspuoli

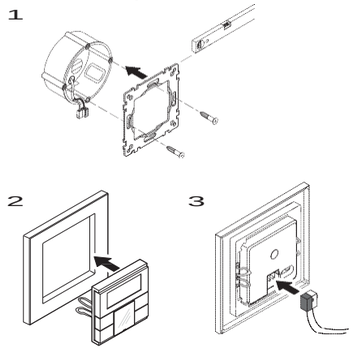
Jotta integroidun huonelämpötilan ohjausyksikkö toimii parhaalla mahdollisella tavalla on huomioitava seuraavat seikat valittaessa oikeaa asennuspuolta:

110...160 mm

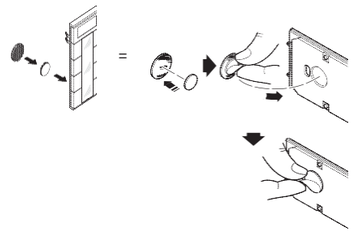
Häiriölähteet

Painikkeen asentaminen

Painike, 2-osainen ja 4-osainen

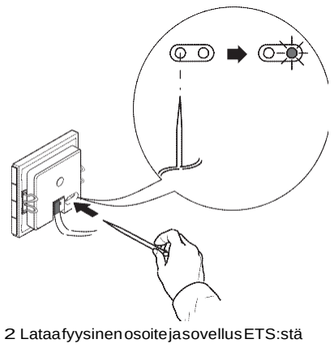


Vain 4-osainen painike

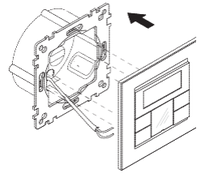


Painikkeen käyttäminen

1 Aseta painike ohjelmointitilaan



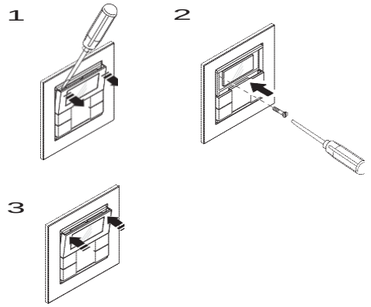
2 Lataa fyysinen osoite ja sovellus ETS:stä painikkeeseen: Ohjelmoinnin punainen LED-valo sammuu.



Huomautus sähköasentajalle:
Varmista, että olet kirjannut ETS:ssä tekemäsi käyttäjän kannalta tärkeät asetukset konfiguraatiotaulukkoon (katso „Esiasetusten taulukko"); painikkeen näytössä ei voida näyttää kaikkia asetettavia parametrejä.

Varkaudenesto

Painike, 2-osainen ja 4-osainen

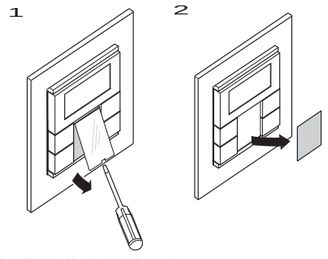


Painikkeen poistaminen

1/2 **VARO**
Laite saattaa vaurioitua.
Tarkista, että painikkeessa on varkaudenesto ennen sen poistamista. Poista varkaudenesto aina ennen painikkeen poistamista.

Painikkeen merkitseminen

Tekstikentän avaaminen



Etikettikalvoliuskojen luominen

Voit myös luoda ja tulostaa vastaavat kalvoliuskamallit ilman sijoitusohjelmaa.

Pinnoitteiden koot (mm):

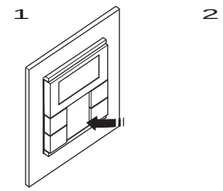
Painike	Korkeus	Leveys	Paksuus
2-osainen	24.9	23	enint. 0,15
4-osainen	96,2	23	enint. 0,15

Tarkista tulostettavat kalvoliuskat tulostimen käyttöoppaasta.

Käytä vain oheisia värillisiä kalvoliuskoja pohjana. Näin varmistat, että LED-painikkeet näkyvät tekstikentän läpi.

Tuotteen mukana toimitetaan kahdenlaisia värillisiä kalvoliuskoja: toisessa on syvennys IR-vastaanottimen keskellä ja toisessa ei ole tätä syvennystä. Jos haluat ohjata painiketta IR-kaukosäätimestä, käytä värillistä kalvoliuskaa syvennyksellä. Käytä aina vain yhtä värillistä kalvoliuskaa.

Tekstikentän sulkeminen



Esiasetukset

Sähköasentaja määrittää painikkeen asennuksen yhteydessä painikkeen asetukset, jotta painike toimii oikein. Useat seuraavilla sivuilla esitettävät selitykset ovat riippuvaisia näistä asetuksista. Sähköasentaja kirjaa asetukset taulukkoon (katso esiasetukset-taulukko).

Lukeman aikainen symboli ilmaisee, että asetuksen arvo on merkitty taulukkoon.

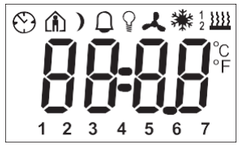
Huonelämpötilan ohjausyksikkö/ näyttö

Integroidun huonelämpötilan ohjausyksikön avulla voit hallita monipuolisesti lämpötilaa.

Voit lukea ja asettaa tärkeitä tietoja näytöllä:

- Ohjearvolämpötila
- Käyttötila (mukavuustila, valmiustila, yökäyttö, jne.)
- Työpäivä/vapaapäivä
- Näyttötila (ohjearvolämpötila, todellinen lämpötila, päivämäärä jne.)
- Taustavalo
- Ajan/kytkentäajan asettaminen

Näyttöön tutustuminen



Näytöllä näkyvät seuraavat symbolit:

Mukavuustila tai työpäivä. Huonelämpötila on säädetty asetettuun mukavuustilan ohjearvolämpötilaan .

Vilkkuva symboli ilmaisee, että mukavuustilan laajennus on käytössä.

Valmiustila tai vapaapäivä. Huonelämpötila on säädetty asetettuun valmiustilan ohjearvolämpötilaan .

Yökäyttö. Huonelämpötila on säädetty asetettuun yökäytön ohjearvolämpötilaan .

Aikasäätö on aktiivinen.

Jatkuva näyttö: Aikaa on synkronoitu.

Vilkkuva näyttö: Aikaa ei ole synkronoitu; näkyvä aika ei välttämättä ole tarkka.

Hälytys, symboli vilkkuu. 4-osainen painike: Äänivaroitus myös mahdollinen .

1 2 3 4 Viikonpäivän näyttö .
5 6 7 Yhdistettynä symboliin : Tuulettimen nopeus

Valikkokomento "Taustavalon asetus" on aktivoitu.

Tuuletin.

Lämmitysohjaustila on aktiivinen tai ohjain vaatii virtaa.

Jäähdytysohjaustila on aktiivinen tai ohjain vaatii virtaa.

Näkyy symbolin "lämmitys" tai "jäähdytys" alla.
- Lämmitykselle **tai** jäähdytykselle:
„1": Ohjearvon lämpötilaa ei ole vielä saavutettu. Säädin lämpenee tai jäähtyy.
„2": Taso 2 on aktivoitu (näkyy vain jos kaksivaiheinen lämmitys/jäähdytys on asetettu..
- Lämmitykselle **ja** jäähdytykselle:
Kaksi tilaa on käytettävissä: Manuaalinen tai automaattinen

°C Lämpötila näytetään celsiusasteina
°F Lämpötila näytetään fahrenheitasteina

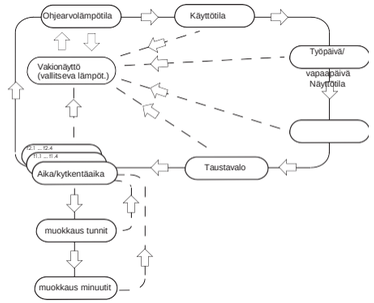
88:88 Ajan tai arvon näyttö

Ohjausvalikkoon tutustuminen

Huonelämpötilan ohjausyksikön toimintoja valitaan ohjausvalikon kautta.

Keinukytkin on integroitu näytön kannen sisälle. Keinukytkimessä on kolme kosketinta: vasen, keskiasento ja oikea. Näillä painikkeilla voit käyttää käyttää ohjausvalikkoa, liikkua eteen- ja taaksepäin ja muuttaa yksittäisiä arvoja.

Valikkorakenteen yleiskuva



Painikkeen toiminto	Aktivoitu toiminto
Keskiosa – Painikkeen painaminen pitkään*	Valitse valikko Tallenna Palaa vakionäyttötilaan
Keskiosa – Painikkeen painaminen lyhyesti*	Valitse seuraava valikkokomento
Vasen/oikea – Painikkeen painaminen lyhyesti**	Muuta arvoa

*Painikkeen painaminen pitkään = n. 5 s

**Painikkeen painaminen lyhyesti = n. 1 s

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Jos mitään painiketta ei paineta noin 1 minuutin kuluessa, huonelämpötilan valvontayksikön näyttö palautuu automaattisesti vakiotilaan. Järjestelmä tallentaa ohjausvalikon avaamista edeltävät arvot; **tekemiäsi muutoksia ei tallenneta. Poikkeus: Lämpötila tallentuu heti.**

Huonelämpötilan ohjausyksikön/ näytön asettaminen

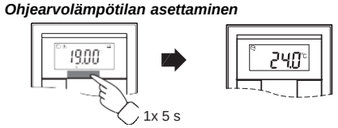
Vakionäyttö

Ohessa on esimerkki vakionäytöstä:

- "Mukavuus" -käyttötila
- Todellinen lämpötila 20°
- Lämmitys on päällä ohjearvolämpötilan saavuttamiseksi.
- näkyy jatkuvasti: Aika on synkronoitu ajastimella (esim. vuosikytkentäkellolla REG-K). Kellosymboli vilkkuu: Aikaa ei ole (vielä) synkronoitu.
- Viikonpäivänäyttö **3** = keskiviikko

Muista että viikonpäivän näyttö riippuu esiasetuksista. Sähköasentaja on asettanut , arvolle 1 tietyn viikonpäivän. Joissakin maissa viikon ensimmäinen päivä ei ole maanantai vaan sunnuntai. Muilla numeroilla on vastaavalla tavalla eri merkitys (esim. 2 = maanantai, 3 = tiistai jne.).

Ohjearvolämpötilan asettaminen



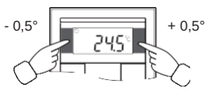
Sähköasentaja on määrittänyt kolme ohjearvolämpötilaa (lämmitykselle ja jäähdytykselle):

- mukavuustilalle
- valmiustilalle
- yökäytölle

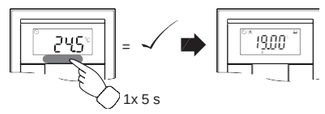
Näet tämänhetkisen käyttötilan ohjearvolämpötilan. Voit muuttaa vain tätä ohjearvolämpötilaa. Jos haluat muuttaa toisen käyttötilan ohjearvolämpötilan, sinun on ensin vaihdettava käyttötilaa (katso "Käyttötilan asetus").

Sähköasentaja on määrittänyt alueen, jolla tätä arvoa voidaan muuttaa (esim. mininimiarvon 16 °C ja maksimiarvon 26 °C välillä). Arvoa ei voi asettaa näiden rajojen ylä- tai alapuolelle. Jos sähköasentaja on määrittänyt asianmukaisen asetuksen , 4-osainen painike antaa äänivaroituksen heti, kun raja-arvot yritetään ylittää tai alittaa.

1

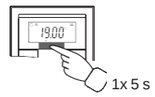


2

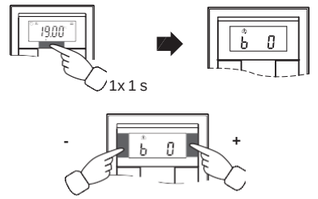


Käyttötilan asetus

1

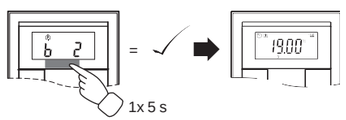


2



- b 0 = mukavuustila
  Valitse tämä käyttötila, jos oleskelet huoneessa. Lämmitys säädetään mukavuustilan ohjearvolämpötilaan (esim. 21 °C).
- b 1 = valmiustila
  Valitse tämä käyttötila, jos olet pidemmän aikaa poissa huoneesta. Lämmitys säädetään valmiustilan ohjearvolämpötilaan (esim. 18 °C).
- b 2 = yökäyttö
  Lämmitys säädetään yökäytön ohjearvolämpötilaan (esim. 15 °C).
- b 3 = mukavuustilan laajennus (vilkkuu)
  Valitse tämä käyttötila, jos haluat keskeyttää yökäytön tilapäisesti. Lämmitys säädetään mukavuustilan ohjearvolämpötilaan (esim. 21 °C).

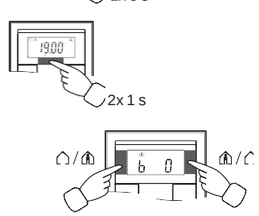
Sähköasentaja on saattanut määrittää ajat, jolloin käyttötila vaihtuu automaattisesti yötilasta mukavuustilaan ja päinvastoin.



Työpäivän/vapaapäivän asettaminen

1

2



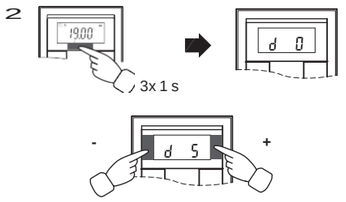
- h 0 = vapaapäivä
- h 1 = työpäivä

Näyttötilan asetus

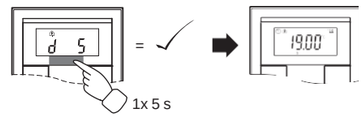
Näyttötilassa voit valita näytöllä näytettävät arvot.

1

2



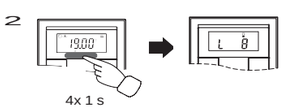
- d 0 = todellinen lämpötila (ilman desimaalipilkkua)
- d 1 = ohjearvolämpötila (0,5 asteen tarkkuudella)
- d 2 = ulkolämpötilatunnistimen lämpötila
- d 3 = päivämäärä
- d 4 = aika
- d 5 = tuulettimen nopeus
- d 6 = päivämäärä ja aika vuorotellen
- d 7 = päivämäärä, aika ja tuulettimen nopeus vuorotellen
- d 8 = todellinen lämpötila ja ohjearvolämpötila vuorotellen
- d 9 = todellinen/ohjearvolämpötila ja aika vuorotellen
- d 10 = todellinen/ohjearvolämpötila ja tuulettimen nopeus vuorotellen
- d 11 = ulkolämpötilatunnistimen lämpötila ja todellinen lämpötila
- d 12 = ulkolämpötilatunnistimen lämpötila, todellinen lämpötila ja aika vuorotellen
- d 13 = todellinen/ohjearvolämpötila, päivämäärä ja aika vuorotellen
- d 14 = todellinen/ohjearvolämpötila, tuulettimen nopeus ja aika vuorotellen
- d 15 = ulkolämpötilatunnistimen lämpötila, todellinen lämpötila, tuulettimen nopeus ja aika vuorotellen



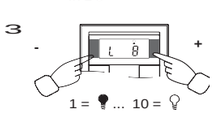
Taustavalon asetus

1

2



3



4

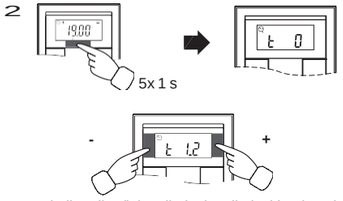
Sisäisen ajan ja kytkentäaikojen asetus

Jos aika päivitetään ulkoisesta aikakytkimestä, päivitetty aika näkyy tässä. Jos muutat tätä aikaa manuaalisesti, aikakytkin ylikirjoittaa ajan uudelleen seuraavan päivityksen yhteydessä.

Ohjausvalikkoa voidaan käyttää vain säätämään niitä kytkentäaikoja, jotka on esiohjelmoitu ETS:in kautta. ETS:in määrittämättömät kytkentäajat näkyvät muodossa "**--:--**". Näitä aikoja ei voi asettaa näytön painikkeilla.

1

2



- **t 0** = kellonaika (joko ulkoiselta aikakytkimeltä tai sisäiseltä kellolta saatu aika)
- **t 1,1 – t 1,4** = aika kanava 1, kytkentäaika 1-4
- **t 2,1 – t 2,4** = aika kanava 2, kytkentäaika 1-4

3 Paina keskimmäistä painiketta **pitkään**: Valitun ajan/kytkentäajan tuntinäyttö alkaa vilkkua.

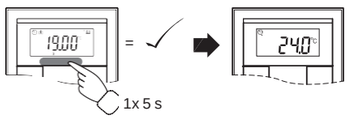
4 Paina näytön vasenta tai oikeaa painiketta: Aseta tunnit

5 Paina keskimmäistä painiketta **lyhyesti**: Minuuttinäyttö alkaa vilkkua.

6 Paina näytön vasenta tai oikeaa painiketta: Aseta minuutit.

7 Paina keskimmäistä painiketta **lyhyesti**: Asetettu aika (t...) tulee uudestaan näkyviin.

8 Paina keskimmäistä painiketta **lyhyesti** uudelleen: Tallenna uusi asetus.



Synkronoi aika ulkoisen aikakytkimen avulla pitkäaikaisen tarkkuuden takaamiseksi.

Ohjearvolämpötilan tai käyttötilan valitseminen suoraan

Sähköasentaja on joko määrittänyt , että voit avata ja säätää ohjearvolämpötilaa ja käyttötilaa suoraan painamalla vasenta/oikeaa painiketta; tai hän on jättänyt nämä toiminnot aktivoimatta.

1 Paina painiketta **1 x vasemmalta/oikealta – lyhyesti**.

Näytöllä näkyy valikkokomento "ohjearvolämpötilan asettaminen" tai "käyttötilan asetus" ja viimeksi asetettu arvo. Muuta arvoa painamalla näytön oikeaa tai vasenta painiketta. Arvo tallentuu heti, sitä ei tarvitse tallentaa erikseen. Huonelämpötilan ohjausyksikkö palautuu noin 5 sekunnin kuluttua automaattisesti vakionäyttötilaan.

Näytön muut viestit

APL.	Sovellusta ei ladattu tai se on viallinen.
E 2	Lämmityksen ohjearvolämpötila = jäähdytyksen ohjearvolämpötila
E 3	ETS-sovellus ei ole yhteensopiva
E 4	Ylemmän säätöarvon alue = alemman säätöarvon alue
E 5	FRAM-virhe
E 6	Lämpötilatunnistimen virhe
E 7	STACK-virhe
E 8	RAM-virhe
E 9	Puskurivirhe

Esiasetusten taulukko

Aikasäädön kanava 1

Kytkentäaika	1	2	3	4
laskuaika	:	:	:	:
			–	
Toiminto:				

Aikasäädön kanava 2

Kytkentäaika	1	2	3	4
laskuaika	:	:	:	:
Toiminto:				

Hälytystoiminnot

- ☐ Hälytys soi jos todelinen lämpötila on alle pakkassuojauslämpötilan **tai**
- ☐ Hälytys soi jos ohjearvon säädön rajoitus ylitetään
- ☐ Muu: _____

	Lämmityksen ohjearvot ° C / ° F	Säädön rajoitus ° C / ° F
Mukavuus:	_____	min: _____ maks:
Valmiustila:	_____	min: _____ maks:
Yö:	_____	min: _____ maks:

	Lämmityksen ohjearvot ° C / ° F	Säädön rajoitus ° C / ° F
Mukavuus:	_____	min: _____ maks:
Valmiustila:	_____	min: _____ maks:
Yö:	_____	min: _____ maks:
Pakkassuojaus:	_____	min: _____ maks:
Lämpösuojaus:	_____	min: _____ maks:

Ohjearvon säädön voimassaolo päättyy:
Toimintatavan muutokseen / jatkuva

Viikko alkaa (1): pe / la / su / ma

Suora valinta: Ohjearvon lämpötila / toimintomuoto / ei mitään

Tekniset tiedot

Virtalähde:	KNX:n kautta
Liitäntä:	Väyläliitäntäpääte
Näyttölaitteet	
2-/4-osainen painike:	1x näyttö
	1x toiminnon LED-valo
2-osainen painike:	4x tilan LED-valo 4-
osainen painike:	8x tilan LED-valo
	Pietsosähköinen summeri
Käyttölaitteet	
2-/4-osainen painike:	3 painiketta valikossa siirtymistä varten
2-osainen painike:	4 painiketta 4-
osainen painike:	8 painiketta
	IR-vastaanotin (vastaanottokulma: 60°)
Mittausalue:	0 ... 40 °C
Mittaustarkkuus:	± 1 K, riippuu asennuspaikasta Säätöpoikkeama voidaan määrittää
Ohjaintyyppi:	2-vaiheinen
	jatkuva PI-ohjain
	PI-katkaisuohjain
Ohjaintila:	Lämmitys 1 ohjainlähdöllä
	Jäähdytys 1 ohjainlähdöllä
	Lämmitys 2 ohjainlähdöllä
	Jäähdytys 2 ohjainlähdöllä
	Lämmitys ja jäähdytys erillisillä ohjainlähdöillä
	2-vaiheinen lämmitys, jossa on 2 ohjainlähtöä
	2-vaiheinen jäähdytys, jossa on 2 ohjainlähtöä
	-vaiheinen lämmitys ja 2-vaiheinen jäähdytys, jossa on 4 ohjainlähtöä
Kotelointiluokka:	IP 20

Schneider Electric Industries SAS

Voit esittää teknisiä kysymyksiä maasi asiakaspalveluun.

Schneider Electric Finland Oy

010 446 610

www.schneider-electric.fi

Tuote on asennettava, kytkettävä ja sitä on käytettävä vallitsevien standardien ja/tai asennussäännösten mukaisesti. Vahvista aina tämän julkaisun tiedot koska standardit, tekniset tiedot ja muotoilut muuttuvat ajoittain.

V6212-451-00 01/10

Power Supply Unit N 125	
N125/01 (160 mA / with integrated choke)	**5WG1 125-1AB01**
N125/11 (320 mA / with integrated choke)	**5WG1 125-1AB11**
N125/21 (640 mA / with integrated choke)	**5WG1 125-1AB21**

Product and Applications Description

The power supply unit N 125 provides the system power necessary for the instabus EIB. The connection to the bus line is established by clicking the device onto the DIN-rail (with a data rail installed) and/or via the bus connection block located on the front side. If the power supply N 125 is installed the bus connector module REG 191 is not necessary (also for other DIN-rail devices connected to the same data rail) because the bus voltage is carried from the bus connection block to the data rail.
The integrated choke prevents the data telegrams from short-circuiting on the bus line. When the built-in reset switch is operated (operation > 20s), the bus devices are returned to their initial state.

For each bus line, at least one power supply unit N 125 is needed. Up to two power supply units may be attached to a single bus line. Note: With the power supply unit N125/21 no second power supply unit is permitted to be run in parallel on the bus line.
A second unit is not required unless the supply voltage at a bus device is less than 21 V. The cable length between the two power supply units must be at least 200 m.

When more than 30 bus devices are installed in short bus cable distance (e.g. 10 m), e.g. in distribution boards, the power supply unit N 125 should be arranged near these bus devices. The distance between power supply unit N 125 and any of its bus devices must not exceed 350 m.
The power supply unit N 125 has a voltage and current regulation and is therefore short-circuit proof. Short power failures can be bridged with a backup interval of approximately 200 ms.

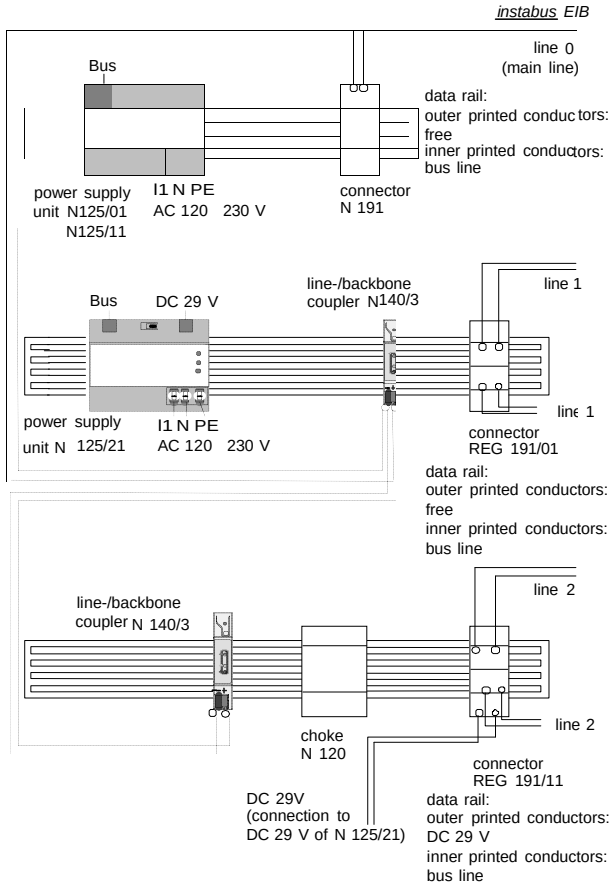
To ensure an uninterrupted power supply a separate circuit with safety separation should be used for the power supply unit N 125's power supply line.

The power supply unit N125/21 can supply DC 24 V power from an additional pair of terminals (yellow-white). This DC 24 V output voltage can be used to power e.g. an additional line via a separate choke N 120. The total current provided by the N125/21 shall not exceed 640mA.

Application Programs

Requires no application programs

Example of Operation



Power Supply Unit N 125	
N125/01 (160 mA / with integrated choke)	**5WG1 125-1AB01**
N125/11 (320 mA / with integrated choke)	**5WG1 125-1AB11**
N125/21 (640 mA / with integrated choke)	**5WG1 125-1AB21**

Installation Instructions

- The device may be used for permanent interior installations in dry locations within distribution boards or small casings with DIN rail EN 60715-TH35-7,5.

⚠ WARNING

- The device may be built into distribution boards (230/400V) together only with appropriate VDE-devices.
- The device must be mounted and commissioned by an authorised electrician.
- Free DIN rail areas with sticked-in data rails must be covered with covers, order no. 5WG1 192-8AA01.
- A safety disconnection of the device must be possible.
- The prevailing safety rules must be heeded.
- The device must not be opened.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.

- A device suspected faulty should be returned to the local Siemens office.

Technical Specifications

Input voltage
- rated voltage: AC 120 .. 230 V, 50...60 Hz
- permissible range: AC 102 ... 253 V

Rated power intake
approx. 24 VA

Output voltage
- rated voltage: DC 29 V
- safety extra low voltage (SELV)
- permissible range: DC 28 ... 30 V

Output current
- rated current 160 mA (N125/01),
  320 mA (N125/11),
  640 mA (N125/21)
- short-circuit current:
  limited to 1,0 A (N125/01, N125/11), 1,5 A (N125/21)

Backup interval
on input voltage failure: approximately 200 ms at rated current

Operator elements
slide switch: for resetting the bus devices connected to the line (operation > 20 s)

Display elements
- 1 red LED: for indicating a voltage interruption on operating the slide switch in RESET-position
- 1 green LED: for indicating normal operation
- 1 red LED: for indicating a shorted-out bus line or device over-load

Connections
- mains connection, screwless plug-in terminals:
  strip insulation for 9 ... 10 mm
  permissible conductor types/cross sections:
  - 0,5 ... 3,3 mm2 (AWG 12) single core
  - 0,5 ... 2,5 mm2 plain flexible conductor
  - 0,5 ... 3,3 mm2 (AWG 12) stranded conductor
  - 0,5 ... 3,3 mm2 (AWG 12) flexible conductor with terminal pin, crimped on gas tight
- bus line:
  pressure contacts on data rail,
  screwless extra low voltage terminal (red-black)
  ∅ 0,6 ... 0,8 mm
- output voltage (no choke) – N125/21 only:
  screwless extra low voltage terminal (yellow-white)
  ∅ 0,6 ... 0,8 mm

Physical specifications
- housing: plastic
- dimensions: N-system DIN-rail mounted device, width: 4 SU (1 SU = 18 mm)
- weight: approx. 240 g
- installation: rapid mounting on DIN rail according to EN 60715-TH35-7,5

Electrical safety
- degree of pollution (according to IEC 60664-1): 2
- protection (according to EN 60529): IP 20
- bus: safety extra low voltage SELV DC 24 V
- device complies with EN 50 090-2-2, EN 61558-2-6 and EN 61558-2-17

Electromagnetic compatibility
complies with EN 50090-2-2

Environmental specifications
- climatic conditions: EN 50090-2-2
- ambient temperature operating: - 5 ... + 45 °C
- storage temperature: - 25 ... + 70 ° C
- relative humidity (non-condensing): 5 % to 93 %

Power Supply Unit N 125	
N125/01 (160 mA / with integrated choke)	**5WG1 125-1AB01**
N125/11 (320 mA / with integrated choke)	**5WG1 125-1AB11**
N125/21 (640 mA / with integrated choke)	**5WG1 125-1AB21**

Certification EIB
KNX certified UL
listed

CE mark
complies with the EMC regulations (residential and functional buildings), and low voltage regulations

Location and Function of the Display and Operator Elements

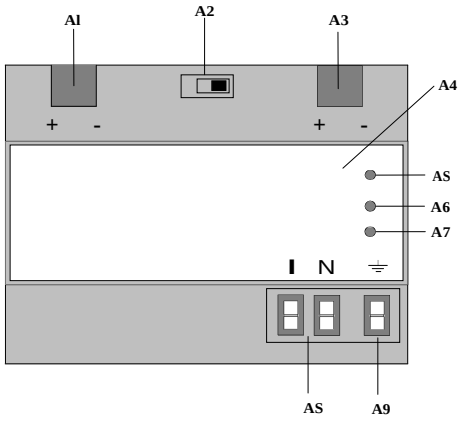


Figure 1: Location of the display and operator elements

A1 extra low-voltage bus terminals (red-black)
A2 reset switch
A3 extra low-voltage terminals (yellow-white) - N125/21 only
A4 type plate
A5 red LED for indicating that the power supply unit N 125 is in reset position
A6 green LED for indicating normal operation of the power supply unit N 125
A? red LED for indicating a shorted-out bus line or a device over-load
A8 screwless plug-in terminals for connecting the mains (mains terminals)
A9 ground terminal

Mounting and Wiring

General description
The N-system DIN-rail device can be installed to N-system distribution boards, surface or flush mounted, or to any DIN rail available that has a data rail installed. The connection to the bus line is established by clicking the device onto the DIN-rail (with a data rail installed). Take care that the type plates of all devices on a DIN-rail can be read in the same direction, guaranteeing the devices are polarised correctly.

Connection to the bus without data rail
If the connection is established via bus connection block (data rail not installed) the data rail connection system has to be covered with the enclosed insulation hood after removing the guiding hood e.g. with a screw driver to guarantee a sufficient insulation from the DIN rail.

Removing the guiding top (Figure 2)
- The guiding top (D3) surrounds the contact system (D2) on the back side of the device (D1).
- Insert the screw driver between the DIN-rail device (D1) and the guiding hood (D3) and remove the guiding hood.

Inserting the insulation top (Figure 2)
- Put the insulation top (D4) onto the contact system and click it into place by a slight pressure.

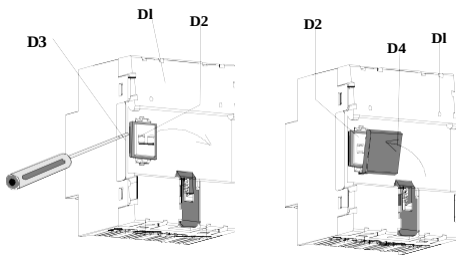


Figure 2: Mounting and dismounting a DIN-rail device

Power Supply Unit N 125	
N125/01 (160 mA / with integrated choke)	**5WG1 125-1AB01**
N125/11 (320 mA / with integrated choke)	**5WG1 125-1AB11**
N125/21 (640 mA / with integrated choke)	**5WG1 125-1AB21**

Connecting mains (figure 3)
- The mains are connected via screwless plug-in terminals (E1).
- Remove approx. 9 to 10 mm of insulation from the wire (E2) and plug it into the terminal (E1).

Disconnecting the mains (figure 3)
- Press the terminal lock (E3) of the terminal (E1) with a screw-driver and
- remove the wire (E2) from the terminal (E1).

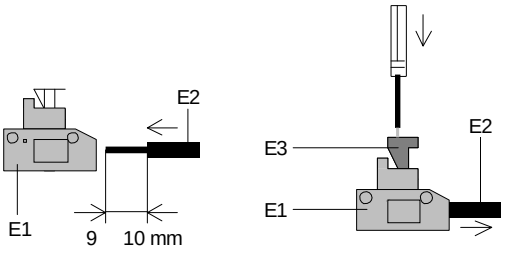


Figure 3: Connecting and disconnecting wires

Slipping on of the safety extra low voltage block
- slip the connection block onto the guide slot and
- press the connection block down to the stop

Connecting the safety extra low voltage block (figure 4)
- The connection block (F2) can be used with single core conductors 0 0,6 ... 0,8 mm.
- The connection block (F2) consists of a red (yellow) connector (F2.1) and a black (white) connector (F2.2). Each connector can take up to four wires with single core conductors 0 0,6 ... 0,8 mm.
- Remove approx. 5 mm of insulation from the conductor (F2.4) and plug it into the connection block (F2) (red = +, black = -).

Disconnecting the safety extra low voltage block (figure 4)
- Unplug the connection block (F2) and remove the bus cable conductor (F2.4) while simultaneously wiggling it.

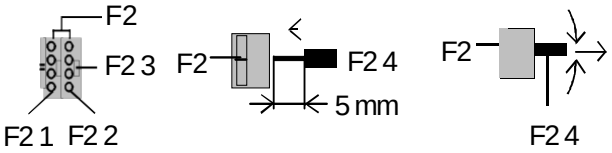
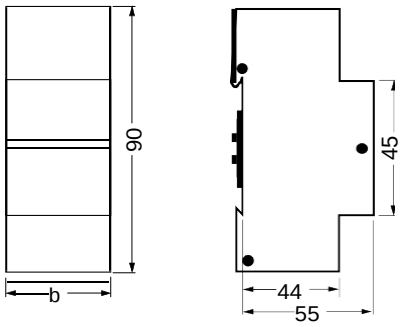


Figure 4: Connecting and disconnecting safety extra low voltage block

Dimension Diagram

Dimensions in mm



b = 4 SU

1 Standard unit (SU) = 18 mm

General notes

- Any faulty device should be returned to the local Siemens office.
- If you have further questions concerning the product, please contact our Technical Support:

 +49 (0) 180 50 50-222
 +49 (0) 180 50 50-223
☒ www.siemens.com/automation/support-request

25 C0 BTM Wall Switch 909301

Use of the application program

Product family: Push button
Product type: Push button, 1…4 fold
Manufacturer: Siemens

Name: DELTA i1system Wall switch, single UP 221/2
Order no.: 5WG1 22112AB_2
Order no.: 5WG1 22112DB_2

Name: DELTA i1system Wall switch, single UP 221/3, with status LED's
Order no.: 5WG1 22112AB_3
Order no.: 5WG1 22112DB_3

Name: DELTA i1system Wall switch, double UP 222/2
Order no.: 5WG1 22212AB_2
Order no.: 5WG1 22212DB_2

Name: DELTA i1system Wall switch, double UP 222/3, with status LED's
Order no.: 5WG1 22212AB_3
Order no.: 5WG1 22212DB_3

Name: DELTA i1system Wall switch, triple UP 223/2
Order no.: 5WG1 22312AB_2
Order no.: 5WG1 22312DB_2

Name: DELTA i1system Wall switch, triple UP 223/3, with status LED's
Order no.: 5WG1 22312AB_3
Order no.: 5WG1 22312DB_3

Name: DELTA i1system Wall switch, triple UP 223/4, with temperature sensor
Order no.: 5WG1 22312AB_4

Name: DELTA i1system Wall switch, triple UP 223/5, with IR receiver1decoder
Order no.: 5WG1 22312AB_5
Order no.: 5WG1 22312DB_5

Name: DELTA profil Wall switch, single UP 241/2
Order no.: 5WG1 24112AB_2

Name: DELTA profil Wall switch, single UP 241/3, with status LED's
Order no.: 5WG1 24112AB_3

Name: DELTA profil Wall switch, double UP 243/2
Order no.: 5WG1 24312AB_2

Name: DELTA profil Wall switch, double UP 243/3, with status LED's
Order no.: 5WG1 24312AB_3

Name: DELTA profil Wall switch, quadruple UP 245/2
Order no.: 5WG1 24512AB_2

Name: DELTA profil Wall switch, quadruple UP 245/3, with status LED's
Order no.: 5WG1 24512AB_3

Name: DELTA profil Wall switch, quadruple UP 245/4, with temperature sensor
Order no.: 5WG1 24512AB_4

Name: DELTA profil Wall switch, quadruple UP 245/5, with IR receiver1decoder
Order no.: 5WG1 24512AB_5

Name: DELTA style Wall switch, single UP 285/2
Order no.: 5WG1 28512AB_2
Order no.: 5WG1 28512DB_2

Name: DELTA style Wall switch, single UP 285/3, with status LED's
Order no.: 5WG1 28512AB_3
Order no.: 5WG1 28512DB_3

Name: DELTA style Wall switch, double UP 286/2
Order no.: 5WG1 28612AB_2
Order no.: 5WG1 28612DB_2

Name: DELTA style Wall switch, double UP 286/3, with status LED's
Order no.: 5WG1 28612AB_3
Order no.: 5WG1 28612DB_3

Name: DELTA style Wall switch, quadruple UP 287/2
Order no.: 5WG1 28712AB_2
Order no.: 5WG1 28712DB_2

Name: DELTA style Wall switch, quadruple UP 287/3, with status LED's
Order no.: 5WG1 28712AB_3
Order no.: 5WG1 28712DB_3

Name: DELTA style Wall switch, quadruple UP 287/4, with temperature sensor
Order no.: 5WG1 28712AB_4

GAMMA *instabus*

Application program description

February 2012

25 C0 BTM Wall Switch 909301

Name: DELTA style Wall switch, quadruple UP 287/5, with IR receiver1decoder
Order no.: 5WG1 28712AB_5
Order no.: 5WG1 28712DB_5

Functional description

The wall switches for the DELTA i1system (DELTA line, DELTA vita, DELTA miro) have one, two or three horizon1 tally arranged pairs of buttons. A labelling field is placed in the middle between these buttons.

These types of wall switches are available:
- Wall switch single, double and triple, with one orienta1 tion LED, without status LED.
- Wall switch single, double and triple, with one orienta1 tion LED and with one status LED per button.
- Wall switch triple, with one orientation LED, with one status LED per button, scene controller, and room tem1 perature sensor.
- Wall switch triple, with one orientation LED, with one status LED per button, scene controller, and IR receiver1 decoder.

The wall switches in the designs DELTA profile and DELTA style have one, two or four vertically arranged pairs of buttons. A labeling field is placed in the middle between these buttons.

These types of wall switches are available:
- Wall switch single, double and quadruple, with one orientation LED, without status LED.
- Wall switch single, double and quadruple, with one orientation LED and with one status LED per button.
- Wall switch quadruple, with one orientation LED, with one status LED per button, scene controller, and room temperature sensor.
- Wall switch quadruple, with one status LED per button, scene controller, and IR receiver1decoder.

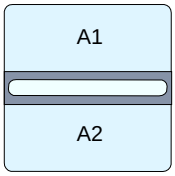
The wall switches UP 2xx (11folf to 41fold) are mounted together with the respective design frame DELTA line / vita / miro, DELTA profil or DELTA style onto a bus cou1 pling unit (BTM) UP 117. At the same time the electrical connection between the wall switch and the bus cou1 pling unit (BTM) is established via the Bus Transceiver Interface (BTI).
Bus coupling unit (BTM) and the fitting design frame are not included and therefore have to be ordered separately (see current catalog).
The wall switches in the designs DELTA profile and DELTA style have one, two or four vertically arranged pairs of buttons. The wall switches for the DELTA i1system (DELTA line, DELTA vita, DELTA miro) have one, two or three horizontally arranged pairs of buttons.
Push buttons aligned opposite to each other may be used as a pair of buttons (e.g. for defined switching/dimming, or control of shutters and blinds, i.e. with the upper button light is turned on and with the lower button light is turned off), or as single buttons for sending values, single1button switching/dimming or single button control of blinds. Buttons belonging together are interlocked via software avoiding false operation when pressed simulta1 neously.

The application program is universally applicable to the single, double and quadruple wall switches in the design DELTA profil / DELTA style and to the single, double and triple wall switches in the design DELTA i1system. The wall switch type (number of push button pairs) is se1 lected via parameter. Only those communication objects and parameters are visible for which a pair of buttons (1, 2, 3 or 4 pairs) is present.

For a unique assignment of communication objects and parameters to the buttons respectively the pairs of buttons with vertically aligned pairs of buttons in the designs DELTA profil and style and with horizontally aligned pairs of buttons in the design DELTA i1system the buttons are labeled A1/A2, B1/B2, C1/C2 and D1/D2:

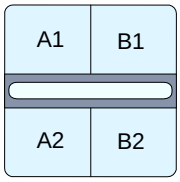
Wall switch single DELTA profil / style

button top	A1
button bottom	A2



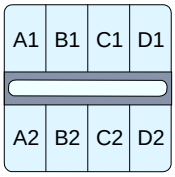
Wall switch double DELTA profil / style

button left top	A1
button left bottom	A2
button right top	B1
button right bottom	B2



Wallswitch quadruple DELTA profil / style

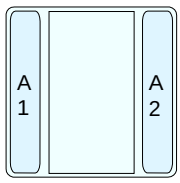
button left top	A1
button left bottom	A2
button middle1left top	B1
button middle left bottom	B2
button middle right top	C1
button middle right bottom	C2
button right top	D1
button right bottom	D2



25 C0 BTM Wall Switch 909301

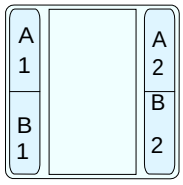
Wall switch single DELTA i1system

button left	A1
button right	A2



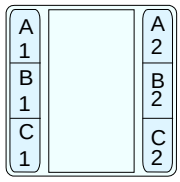
Wall switch double DELTA i1 system

button top left	A1
button top right	A2
button bottom left	B1
button bottom right	B2



Wall switch triple DELTA i1system

button top left	A1
button top right	A2
button middle left	B1
button middle right	B2
button bottom left	C1
button bottom right	C2



Joint functions

Operation buttons

Depending on the device type the wall switch provides two to eight buttons (A1, A2, B1, B2, C1, C2, D1, D2). Push buttons aligned opposite to each other may be used as a pair of buttons (A, B, C, D) or as single push buttons.

Each individual switch button (A1, A2, B1, B2, C1, C2, D1, D2) may be assigned one of the following functions:

- Switching (on, off, toggle)
- door bell function
- single button dimming
- single button control of solar protection (blinds, roller shades)
- 11bit scene control (scene 1 or 2: recall / save)
- 81bit scene / effect control (recall, recall / save)
- Send value (81bit value, percent)
- Send value (161bit value, temperature value, brightness value)
- Forced control

Depending on the selected main function another function may be executed either additionally after a time delay (time delay configurable from 100ms to 6550s) or alternatively when the button is pressed for a longer period.

When switch buttons are configured as a pair then this button pair may be assigned one of the following func1 tions:

- Dual1button dimming with stop telegram
- Dual1button control of solar protection (blinds, roller shades)
- Send variable percent value
- Send variable 81bit value
- 11bit scene control (scene 1 and 2: recall / save)
- 81bit scene / effect control (recall / save)
- Forced control

Depending on the selected main function another function may be executed additionally after a time delay (time delay configurable from 100ms to 6550s).

These options are available as additional or alternative functions for single buttons or button pairs:

- Switching (on)
- Switching (off)
- Send percent value
- Send 81bit value (0…255)
- Send temperature value
- Send brightness value
- Send 161bit value (0…65535)
- 11bit scene control (scene 1: recall / save)
- 11bit scene control (scene 2: recall / save)
- 81bit scene / effect control: recall
- Forced on
- Forced off
- Deactivate forced control

Orientation lighting

The orientation light (LED) of the device may be turned on or off continuously or depending on a status object. These configuration options are available for the orienta1 tion light (LED):

- LED permanently off
- LED permanently on
- LED indicates IR activity (only for switch with IR re1 ceiver)
- LED indicates user operation
- LED indicates long button press
- A binary status object controls the LED for each status value on (=1) or off (=0) respectively to either
  - on
  - off
  - flash, slowly (0,3 Hz)
  - flash, moderately (1 Hz)
  - flash, fast (5 Hz)
- An analog status object (81bit value [0...255], percent value, 161bit value [0...65535], temperature value [0°C....40°C], brightness value [0...2000 lux] controls the LED for each of up to three value ranges respec1 tively to either
  - on

- off
- flash, slowly (0,3 Hz)
- flash, moderately (1 Hz)
- flash, fast (5 Hz)

The brightness of the orientation light is configurable and may be controlled via object (e.g. for night opera1 tion).
On bus voltage recovery the orientation light resumes with the status it had before bus voltage failure. This is achieved by requesting the status value via the bus. If a status value is not received the orientation LED remains off.

Locking of buttons
Operation of each push button respectively pair of buttons can be locked or unlocked via a communication object. A parameter determines whether the operation of the button respectively pair of buttons is always unlocked or is locked via the blocking object with a configurable blocking object value of 1 or 0.
There are no special actions associated with this function on bus voltage failure or recovery

Note

On devices with status LED's the LED associated with a button, which is locked, flashes when the button is pressed independent of the configuration of the status LED and the current LED display.

Additional functions of devices with status LED
Status LED
[applies to UP 2xx/3, UP 2xx/4 and UP 2xx/5]
The same configuration options as for the orientation LED are available for the status LED's of a device.

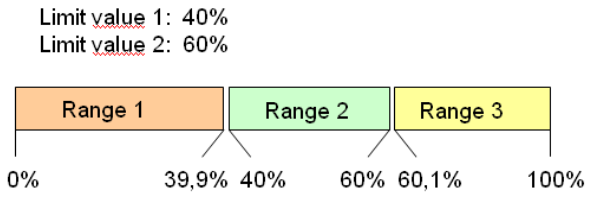
- LED permanently off
- LED permanently on
- LED indicates IR activity (only for switch with IR re1 ceiver)
- LED indicates user operation
- LED indicates long button press
- A binary status object controls the LED for each status value on (=1) or off (=0) respectively to either
  - on
  - off
  - flash, slowly (0,3 Hz)
  - flash, moderately (1 Hz)
  - flash, fast (5 Hz)
- An analog status object (81bit value [0...255], percent value, 161bit value [0...65535], temperature value [0°C....40°C], brightness value [0...2000 lux] controls the LED for each of up to three value ranges respec1 tively to either
  - on
  - off
  - flash, slowly (0,3 Hz)
  - flash, moderately (1 Hz)
  - flash, fast (5 Hz)

The brightness of the status LED can be configured mutually for all status LED's and can be influenced via object (e.g. for night operation).
To find a switch when its associated status LED is turned off and it is dark, this LED may be configured to cyclically flash briefly.
There are no special actions associated with status LED's on bus voltage failure.
On bus voltage recovery, the current status values for the LED status displays (1 Bit, 8 Bit, 16 Bit) are requested via the bus if this function is configured in the parameter window "General1 Timers".

Examples for value*dependent status display

When „value1dependent" is selected an 81bit or 161bit status object is available. Two limit values can be config1 ured dividing the range of values into three status display ranges. For each status display range the LED display can be configured independently as On, Off or flashing.
Example: The status object receives a temperature value (2 byte). The limit values are set to 5°C and 35°. For display range 1 (< 5°C) the LED is configured to „flash1 ing", for display range 2 (5°C ... 35°C) to „Off" and for display range 3 (> 35°C) to „flashing". With this setting the LED displays frost and heat protection.
The brightness of the status LED can be changed via a communication object.

(A) Display is determined by percentage value



The two limit values can be freely set within the configu1 ration range i.e. limit value 1 may be smaller or larger than limit value 2).

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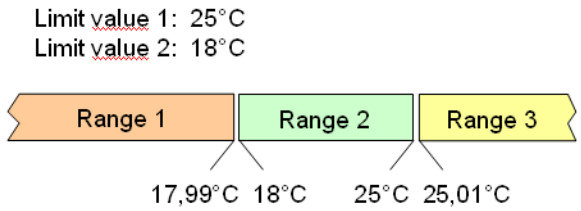
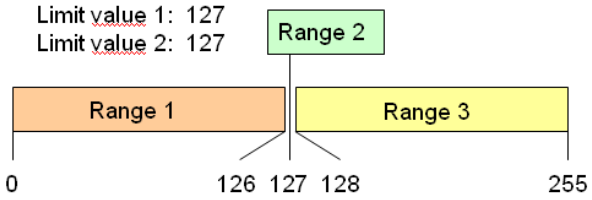
(B) Display is determined by temperature



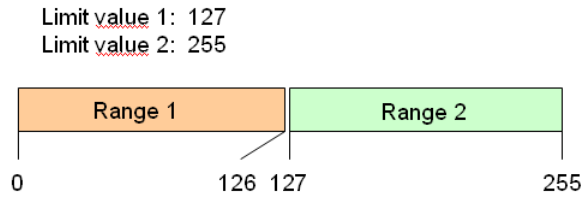
If both limit values are set to the same value then display range 2 only includes this single value.

(C) Display is determined by 81bit value:

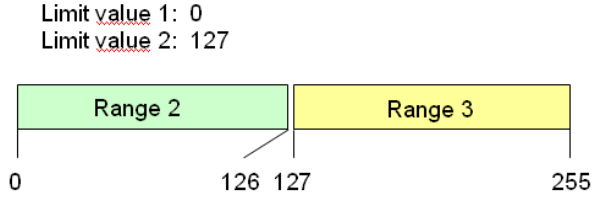


If the limit value 2 is set to the maximum possible value then display range 3 does not exist because no value can be received for that range.

(D) Display is determined by 81bit value:



(E) Display is determined by 81bit value:



Note

If the display is determined by temperature or brightness and the larger limit value is set to the maximum config1 urable value then display range 3 exists.

Scene control module

[only applies to UP 2xx/4 and UP 2xx/5]

A scene is defined as a set of predefined switching states and values that are sent to various actuators upon a scene control event e.g. pressing a wall switch button to set the lights and the venetian blinds in a presentation room to the preset settings for a presentation.

The application program defines eight scene channels (A to H) that each can be assigned to up to eight 81bit scene numbers. Each scene number defines a separate state.

The scene control module allows including actuators that do not support 81bit scene control into an 81bit scene.

For scene channels that are enabled an associated parameter window and corresponding communication objects are displayed. For each channel one of these functions can be selected:

- Switching
- venetian blind
- forced control
- 81bit value
- 161bit value

Each channel can be assigned to up to eight different scene numbers (1...64).

The scenes for all scene channels are mutually recalled and saved via the 81bit scene object.

Before saving a scene the actuators belonging to that scene must be set to the desired light levels and switching states. When receiving a save telegram scene controllers or actuators with 81bit scene function are commanded to interrogate the current light levels and switching states of the actuators and save these as scene settings.

Saved scene values are only deleted by a new configura1 tion of the device if the parameter “Delete scene memory after bus voltage recovery” is set to “Yes”. When this parameter is set to “No”, the saved values are retained even after a restart of the device (e.g. after bus voltage recovery) and when the device configuration is downloaded again.

Reading the states of the actuators that are part of a scene is executed via the group addresses that are assigned to the objects (e.g. “scene channel A save”).

To enable the scene control module to read a status via a read request, the group address used must be configured as “sending address” in the switching, value or status object of an actuator and the read flag of the object must be set.

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Scenes are recalled and saved via 8-bit scene telegrams. Bits 0 through 5 of the 8-bit scene object contain the scene number (1…64). The most significant bit 7 determines if a scene is recalled (bit value = 0) or saved (bit value = 1). Bit 6 is not used.

Note

A scene setting can be recalled for the first time about 2 seconds after the 81bit scene save command.

Note

If several scene save commands are triggered after each other the scene save commands are executed in the sequence of reception.

Room temperature measurement

[only applies to UP 2xx/4]

The room temperature can be sent cyclically or on change of value. For adaptation to local circumstances the measured room temperature can be adjusted by a configurable offset value.

IR receiver decoder

[only applies to UP 2xx/5]

The device offers a 16 channel IR receiver decoder.

As described above for the single buttons / button pairs functions can assigned to each of the 16 IR channels either for the single buttons or for the button pair. Likewise, additional functions can be selected dependent on the selected main function. With the 16 channel IR hand1held remote S 425/72 these possibilities can be fully utilized.

Additionally,the wallswitch can receive up to 16 bright1 ness values and temperature values, motion detection messages and IR identification numbers from corre1 sponding IR transmitters and send these messages onto the Bus.

Functions for single buttons

Switching

When the button is pressed the corresponding command telegram (ON / OFF/ Toggle) is sent immediately.

When the parameter „send additional telegram after delay (second telegram)“ is selected then with one button operation two different switching commands can be sent with a time delay (100ms to 6550s) via two communica1 tion objects (e.g. “ON” via object 1, “OFF” via object 2). The second telegram can also contain a different function, e.g. 81bit scene recall. If the button is pressed again before the configured delay time expires the time delay starts over.

When the parameter „send additional telegram on long key press (alternatively)“ is selected then by the differen1 tiation between short / long button operation two differ1 ent communication objects can be sent (e.g. short button operation “ON” viaobject 1, long button operation “OFF” via object 2). The time determining the difference be1 tween short and long button operation is configurable.

The operation function can be disabled via a blocking object.

No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

Door bell function

When the button is pressed an “On” or “Off” message is sent. When the button is released the inverse message is sent.

An additional telegram for this function is not available.

The operation function can be disabled via a blocking object.

No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

11button dimming

Using a single button, a short button operation can switch on respectively off (toggle) and with a long button operation dim brighter respectively darker. The dimming direction brighter / darker changes with each new long button operation. After switching on with a short button operation the dimming direction is preset to “darker” and after switching off it is preset to “brighter”. The time that determines the difference between a short and a long button operation is configurable in general for the functions dimming / solar protection (parameter window “General–Timers”).

An additional telegram for this function is not available.

The operation function can be disabled via a blocking object.

No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

11button solar protection control

Using a single button, a long button operation moves the solar protection down or up (the movement direction changes with each new long button operation). Via a short button operation the movement can be stopped respectively the slats can be opened or closed by a step. With a short button operation a solar protection moving downward is stopped and with each further short opera1 tion the slats are opened step1by1step. With a short button operation a solar protection moving upward is stopped and with each further short operation the slats are closed step1by1step.

The time that determines the difference between a short and a long button operation is configurable in general

for the functions dimming / solar protection (parameter window “General – Timers”).
An additional telegram for this function is not available.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

11bit scene 1 recall / save
11bit scene 2 recall / save
The "11bit scenen recall / save" function allows the user to change the char1acteristics of a preset scene, i.e. bright1 ness levels and switching states of the groups within a scene, without using the ETS.
Using a single button (configurable for scene 1 or scene 2), a short button operation recalls the scene and a long button operation saves the scene. There is a communica1 tion object for saving a scene and a second object for recalling the saved scene.
Recalling a scene happens with a 11bit switching tele1 gram, where a "0"1telegram recalls scene 1 and a "1"1 telegram recalls scene 2. A parameter determines which scene number is assigned to the button.
A scene is saved via a 11bit switching telegram, where a "0"1telegram saves scene 1 and a "1"1telegram saves scene 2. The scene controller must have a functionally corresponding application program.
Before saving a scene the actuators belonging to that scene must be set to the desired light levels and switch1 ing states. When receiving a save telegram a scene controller is commanded to interrogate the current light levels and switching states of the actuators and save these as scene settings.
If a button has an associated LED, that LED, if configured accordingly, signals the long button operation.
The time that determines the difference between a short and a long button operation is configurable in general for the function save scene (parameter window “General – Timers”).
An additional telegram for this function is not available.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

81bit scene recall / save
The "81bit scene recall / save" function allows for changing the characteristics of a preset scene, i.e. brightness levels and switching states of the groups within a scene, without using the ETS.
Using a single button configured for a scene number (1…64), a short button operation recalls the scene and a long button operation saves the scene. It is possible to configure only recalling the 81bit scene. There is only one communication object for saving the 81bit scene and recalling the saved scene using the target scene number.
Recalling a scene happens with an 81bit telegram, where the lower 6 bits (bit 015) contain the scene number, bit 6 is reserved, and bit 7 is set to "0" (recall).
A scene is saved via an 81bit telegram, where the lower 6 bits (bit 015) contain the scene number, bit 6 is reserved, and bit 7 is set to "1" (save). The scene controller or actua1 tors with an 81bit scene function must have a functionally corresponding application program.
Before saving a scene the actuators belonging to that scene must be set to the desired light levels and switching states. When receiving a save telegram scene controllers or actuators with 81bit scene function are commanded to interrogate the current light levels and switching states of the actuators and save these as scene settings.
If a button has an associated LED, that LED, if configured accordingly, signals the long button operation.
The time that determines the difference between a short and a long button operation is configurable in general for the function save scene (parameter window “General – Timers”).
An additional telegram for this function is not available.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

Send value (8 bit)
This function is used to send 81bit values in the range 0…255 or 0…100%.
An 81bit value is assigned to the button so that with a short operation of this button e.g. the associated lights are dimmed to the configured value or the speed of a fan is controlled.
When the parameter „send additional telegram after delay (second telegram)“ is selected then with one button operation two different values can be sent with a time delay (100ms to 6550s) via two communication objects (e.g. “100%” via object 1, “0%” via object 2). The second telegram can also contain a different function, e.g. 81bit scene recall. If the button is pressed again before the configured delay time expires the time delay starts over.
When the parameter „send additional telegram on long key press (alternatively)“ is selected then by the differen1 tiation between short / long button operation two differ1 ent communication objects can be sent (e.g. short button operation “100%” via object 1, long button operation “127” via object 2). The time determining the difference between short and long button operation is configurable.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

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Send value (161Bit)
This function is used to send 2 byte floating point values for temperature (0…40°C), brightness level (0…2000 Lux) or any value in the range 0…65535.
An 161bit value is assigned to the button so that with a short operation of this button e.g. the setpoint tempera1 ture is set to the configured value.
When the parameter „send additional telegram after delay (second telegram)“ is selected then with one button operation two different values can be sent with a time delay (100ms to 6550s) via two communication objects (e.g. “21°C” via object 1, “18°C” via object 2). The second telegram can also contain a different function, e.g. 81bit scene recall. If the button is pressed again before the configured delay time expires the time delay starts over.
When the parameter „send additional telegram on long key press (alternatively)“ is selected then by the differen1 tiation between short / long button operation two differ1 ent communication objects can be sent (e.g. short button operation “21°C” via object 1, long button operation “500 Lux” via object 2). The time determining the difference between short and long button operation is configurable.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

Forced control
A short operation of the button immediately sends the configured telegram (“forced on” respectively “forced off”) onto the bus. A long operation of the button sends a telegram that deactivates the forced control and at the same time may send an on or off signal.
The time that determines the difference between a short and a long button operation is configurable in general for the function forced control (parameter window “General – Timers”).
Actuators with a forced control input allow for overriding specific actuator outputs by central control commands. This may prohibit e.g. turning selected lights on during energy savings or night mode. In night mode a forced control off telegram may be sent at 20:00 and at 06:00 a forced control telegram may deactivate the forced con1 trol. Using the forced control function allows manually activating forced control or deactivating an automatically activated forced control.
Via an additional communication object, for actuators without 21bit forced control, a short button operation sends a switching command “ON” (or alternatively “OFF”) and a long button operation sends a switching command “OFF” (or alternatively “ON”).
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

Functions for button pairs
21button dimming
With a button pair, short operation of the buttons pro1 vides defined on and off switching whereas long opera1 tion of the buttons provides defined brighter and darker dimming. Which button of the pair switches off and dimsdarker respectively switches on and dims brighter can be configured.
The function “Dimming with stop telegram” sends a dimming “brighter” respectively “darker” as soon as a long button operation is detected on one of the two buttons and a stop telegram when that button is re1 leased.
The time that determines the difference between a short and a long button operation is configurable in general for the functions dimming / solar protection (parameter window “General – Timers”).
When the parameter „Send second telegram“ is selected then with one button operation two different switching commands can be sent with a time delay (100ms to 6550s) via two communication objects (e.g. “ON” via object 1, “OFF” via object 2). The second telegram can also contain a different function, e.g. 81bit scene recall. If the button of a button pair is pressed again before the configured delay time expires the time delay starts over.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

Solar protection control (venetian blind) for button pair
With a button pair, long operation of the buttons pro1 vides defined up and down movement of the solar protection whereas short operation of the buttons provides stopping the movement respectively opens or closes the slats step1by1step. Which button of the pair moves the solar protection up or down respectively opens or closes the slats step1by1step can be configured.
The time that determines the difference between a short and a long button operation is configurable in general for the functions dimming / solar protection (parameter window “General – Timers”).
When the parameter „Send second telegram“ is selected then with one button operation two different switching commands can be sent with a time delay (100ms to 6550s) via two communication objects (e.g. “ON” via object 1, “OFF” via object 2). The second telegram can also contain a different function, e.g. 81bit scene recall. If the button of a button pair is pressed again before the configured delay time expires the time delay starts over.

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The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

11bit scene recall / save
The "11bit scenen recall / save" function allows the user to change the char1acteristics of a preset scene, i.e. bright1 ness levels and switching states of the groups within a scene, without using the ETS.
Using a button pair (scene 1 on button 1, scene 2 on button 2), a short button operation recalls the associated scene and a long button operation saves the associated scene. There is a communication object each for saving a scene and a second object for recalling the saved scene.
Recalling a scene happens with a 11bit switching tele1 gram, where a "0"1telegram recalls scene 1 and a "1"1 telegram recalls scene 2.
A scene is saved via a 11bit switching telegram, where a "0"1telegram saves scene 1 and a "1"1telegram saves scene 2. The scene controller must have a functionally corresponding application program.
Before saving a scene the actuators belonging to that scene must be set to the desired light levels and switch1 ing states. When receiving a save telegram a scene controller is commanded to interrogate the current light levels and switching states of the actuators and save these as scene settings.
If a button has an associated LED, that LED, if configured accordingly, signals the long button operation.
The time that determines the difference between a short and a long button operation is configurable in general for the function save scene (parameter window “General – Timers”).
When the parameter „Send second telegram“ is selected then with one button operation two different scene control commands can be sent with a time delay (100ms to 6550s) via two communication objects (e.g. “scene 1 recall” via object 1, “scene 2 recall” via object 2). The second telegram can also contain a different function, e.g. 81bit scene recall. If the button of a button pair is pressed again before the configured delay time expires the time delay starts over.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

81bit scene recall / save
The "81bit scene recall / save" function allows for changing the characteristics of a preset scene, i.e. brightness levels and switching states of the groups within a scene, without using the ETS.
Each button of a button pair can be configured for a scene number (1…64), a short button operation recalls the scene and a long button operation saves the scene.
There is only one communication object for saving the 81 bit scene and recalling the saved scene using the target scene number.
Recalling a scene happens with an 81bit telegram, where the lower 6 bits (bit 015) contain the scene number, bit 6 is reserved, and bit 7 is set to "0" (recall).
A scene is saved via an 81bit telegram, where the lower 6 bits (bit 015) contain the scene number, bit 6 is reserved, and bit 7 is set to "1" (save). The scene controller or actua1 tors with an 81bit scene function must have a functionally corresponding application program.
Before saving a scene the actuators belonging to that scene must be set to the desired light levels and switching states. When receiving a save telegram scene controllers or actuators with 81bit scene function are commanded to interrogate the current light levels and switching states of the actuators and save these as scene settings.
If a button has an associated LED, that LED, if configured accordingly, signals the long button operation.
The time that determines the difference between a short and a long button operation is configurable in general for the function save scene (parameter window “General – Timers”).
When the parameter „Send second telegram“ is selected then with one button operation two different scene control commands can be sent with a time delay (100ms to 6550s) via two communication objects (e.g. “scene 11 recall” via object 1, “scene 22 recall” via object 2). The second telegram can also contain a different function, e.g. switching “ON”. If the button of a button pair is pressed again before the configured delay time expires the time delay starts over.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

Send variable value (8 bit)
This function offers sending variable 81bit values in the range from 0…255 or 0…100%. With a short operation of one button (button 1 or 2) of a button pair the current value of the communication object is incremented respectively decrmented and sent onto the bus. With a long operation of button 1 or 2 the value is incremented respectively decremented step1by1step and sent cyclically as long as the button is pressed. When the variable value reaches or falls below the lower limit or reaches or rises above the upper limit then the lower respectively upper limit value is sent.
The time that determines the difference between a short and a long button operation as well as the iteration

period are configurable in general for the function send variable value (parameter window "General – Timers").
The upper limit value (button 1) and the lower limit value (button 2) as well as the step are configurable.
When the parameter „Send second telegram" is selected then an additional command can be sent with a time delay (100ms to 6550s) via a second communication object (e.g. "scene 22 recall" via object 2). If the additional command shall be sent after releasing the button the delay time for sending the additional command must be selected such that it is greater than the time differentiat1 ing between a short and a long button operation and greater than the time between sending variable value telegrams while pressing the button.
If the button of a button pair is pressed again or a variable value telegram is sent before the configured delay time expires the time delay starts over.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

Forced control
A short operation of a button of the button pair immedi1 ately sends the configured telegram (e.g. button 1: "forced on"; button 2: "forced off") onto the bus. A long operation of a button sends a telegram that deactivates the forced control and at the same time may send an on or off signal.
The time that determines the difference between a short and a long button operation is configurable in general for the function forced control (parameter window "General – Timers").
Actuators with a forced control input allow for overriding specific actuator outputs by central control commands. This may prohibit e.g. turning selected lights on during energy savings or night mode. In night mode a forced control off telegram may be sent at 20:00 and at 06:00 a forced control telegram may deactivate the forced con1 trol. Using the forced control function allows manually activating forced control or deactivating an automatically activated forced control.
When the parameter „Send second telegram" is selected then with one button operation two different scene control commands can be sent with a time delay (100ms to 6550s) via two communication objects (e.g. "forced ON" via object 1, "ON" via object 2). The second telegram can also contain a different function, e.g. 81bit scene recall. If the button of a button pair is pressed again before the configured delay time expires the time delay starts over.
The operation function can be disabled via a blocking object.
No special actions are assigned to this function for bus voltage failure or bus voltage recovery.

Building site function
The building site function enables switching the building site lighting on and off via bus wall switches and actua1 tors, even if these devices have not yet been commis1 sioned with ETS.
All button pairs are preconfigured with the building site function for switching (top On, bottom Off).

Behavior on bus voltage failure / recovery
The behavior on bus voltage failure and recovery is covered in the functional descriptions of the single button and button pair functions.
In the parameter window "General – Timers" the behav1 ior on bus voltage recovery with respect to reading the status values is configured for the following functions :
1 LED status display (1 Bit, 8 Bit, 16 Bit)
1 Send variable value
1 Blocking object
Additionally, the delay time until status objects are interro1 gated can be configured.

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Communication objects

Maximum number of group addresses: 250
Maximum number of assignments: 250

Note

The number and names of communication objects visible can vary depending on the parameter settings.

The application program already has been loaded in the factory.
With the ETS (Engineering Tool Software) the specific parameters and addresses are assigned appropriately, and downloaded into the device.
Downloading the application programm requires Engi1 neering Tool Software (ETS) version ETS3.0e or higher.

No.	Object name	Function	Number Bit	Flags
0	Button A1, switching	On	1 Bit	CT
1	Button A1, 2nd telegram, percentage	Value	1 Byte	CT
2	Button A2, switching	Off	1 Bit	CT
3	Button A2, 2nd telegram, percentage	Value	1 Byte	CT
4	Status LED A1	On / Off	1 Bit	CRWTU
5	Status LED A2	81bit value	1 Byte	CRWTU
6	Brightness of status LED's	0=min / 1=max	1 Bit	CRWTU
7	Button pair B, switching	On / Off	1 Bit	CT
8	Button B1, 2nd telegram, 81bit scene	recall / save	1 Byte	CT
9	Button pair B, dimming	brighter / darker	4 Bit	CT
10	Button B2, 2nd telegram, Brightness	value	2 Byte	CT
11	Status LED B1	On / Off	1 Bit	CRWTU
12	Status LED B2	81bit value	1 Byte	CRWTU
13	Brightness of orientation LED	0=min / 1=max	1 Bit	CRWTU
14	Button C1, switching	Toggle	1 Bit	CWT
15	Button C1, dimming	brighter / darker	4 Bit	CT
16	Button C2, slats	stop / open / close	1 Bit	CT
17	Button C2, solar protection	up/ down	1 Bit	CT
18	Status LED C1	On / Off	1 Bit	CRWTU
19	Status LED C2	81bit value	1 Byte	CRWTU
20	Orientation LED	On / Off	1 Bit	CRWTU
21	Button D1, switching	Toggle	1 Bit	CWT
22	Button D1, dimming	brighter / darker	4 Bit	CT
23	Button D2, slats	stop / open / close	1 Bit	CT
24	Button D2, solar protection	up/ down	1 Bit	CT
25	Status LED D1	On / Off	1 Bit	CRWTU
26	Status LED D2	81bit value	1 Byte	CRWTU
27	LED flashing	0=normal / 1=flashing	1 Bit	CRWT
28	C00/16/32/48>>1, switching	On	1 Bit	CT
29	C00/16/32/48 >>1, 2nd telegram, switching	On	1 Bit	CWT
30	C00/16/32/48<<0, switching	Off	1 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, switching	On	1 Bit	CT
32	C00/16/32/48, temperature	value	2 Byte	CRT
33	C00/16/32/48, Brightness	value	2 Byte	CRT
34	C00/16/32/48, presence	1=presence	1 Bit	CRT
35	C01/17/33/49>>1, switching	On	1 Bit	CT
36	C01/17/33/49 >>1, 2nd telegram, switching	On	1 Bit	CWT
37	C01/17/33/49<<0, switching	Off	1 Bit	CT
38	C01/17/33/49 <<0, 2nd telegram, switching	On	1 Bit	CT
39	C01/17/33/49, temperature	value	2 Byte	CRT
40	C01/17/33/49, Brightness	value	2 Byte	CRT
41	C01/17/33/49, presence	1=presence	1 Bit	CRT
...	...	...	...	...
133	C15/31/47/63>>1, switching	On	1 Bit	CT
134	C15/31/47/63 >>1, 2nd telegram, switching	On	1 Bit	CWT
135	C15/31/47/63<<0, switching	Off	1 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, switching	On	1 Bit	CT
137	C15/31/47/63, temperature	value	2 Byte	CRT
138	C15/31/47/63, Brightness	value	2 Byte	CRT
139	C15/31/47/63, presence	1=presence	1 Bit	CRT
140	81bit scene, Scene channel A1H	recall / save	1 Byte	CRWT
141	Scene channel A, switching	save	1 Bit	CRWTU
142	Scene channel B, solar protection	save	1 Bit	CRWTU
143	Scene channel C, forced control	save	2 Bit	CRWTU
144	Scene channel D, 81bit value	save	1 Byte	CRWTU
145	Scene channel E, 161Bit value	save	2 Byte	CRWTU
146	Scene channel F, switching	save	1 Bit	CRWTU
147	Scene channel G, solar protection	save	1 Bit	CRWTU
148	Scene channel H, forced control	save	2 Bit	CRWTU
149	Scene channel A, switching	recall	1 Bit	CRWT
150	Scene channel B, solar protection	recall	1 Bit	CRWT
151	Scene channel C, forced control	recall	2 Bit	CRWT
152	Scene channel D, 81bit value	recall	1 Byte	CRWT
153	Scene channel E, 161Bit value	recall	2 Byte	CRWT
154	Scene channel F, switching	recall	1 Bit	CRWT
155	Scene channel G, solar protection	recall	1 Bit	CRWT
156	Scene channel H, forced control	recall	2 Bit	CRWT
157	IR1ID	Number	2 Byte	CRWT
158	blocking object (buttons and IR)	disable / enable	1 Bit	CRWTU
159	blocking object (IR presence)	disable / enable	1 Bit	CRWTU
160	Internal temperature	Value degree °C	2 Byte	CRWT

General objects

Brightness of LED's

Obj	Name	Funktion	Length	Flag
6	Brightness of status LED's	0=min / 1=max	1 bit	CRWTU
Via this object the brightness of the status LED's can be set via the bus. The minimum and maximum brightness of the status LED is determined via respective parameters.				
13	Brightness Orientation LED	0=min / 1=max	1bit	CRWTU
Via this object the brightness of the orientation LED can be set via the bus. The minimum and maximum brightness of the orientation light is determined via respective parameters.				

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Orientation LED

Obj	Name	Function	Length	Flag
20	Orientation LED	On / Off	1 Bit	CRWTU
20	Orientation LED	81bit value	1 Byte	CRWTU
Via this object the orientation light can be turned on or off. This object is visible if in the parameter window „General 1 LED's" the setting "status object" or "dependent on value" is configured. Otherwise, this object is not visible and hence without function.				

Flashing of status LED's

Obj	Name	Function	Length	Flag
27	LED flashing	0=normal / 1=flashing	1 Bit	CRWTU
27	LED flashing	1=normal / 0=flashing	1 Bit	CRWTU
Via this object the status LEDs can be forced to flash inde1 pendent of other settings for the status LEDs. If flashing is enabled when an On telegram (object value = 1) is received via this object all status LEDs flash with a frequency of approx. 0.5Hz (1 second On, 1 second Off). If flashing is enabled when an Off telegram (object value = 0) is received via this object all status LEDs flash with a frequency of approx. 0.5Hz (1 second On, 1 second Off).				

Security / blocking object

Obj	Name	Function	Length	Flag
158	blocking object (Button pairs and IR)	disable / enable	1 Bit	CRWTU
Via this object the operation functions of the buttons are enabled or disabled according to the parameter settings.				

Temperature sensor

Obj	Name	Function	Length	Flag
160	Internal temperature	Value degree °C	2 Byte	CRWTU
This object holds the current temperature value of the sensor. The value is determined taking the configured offset into account and is transmitted according to the configuration on change of value and/or cyclically.				

Objects Buttons

The top and bottom buttons of the design DELTA profil / style as well as the left and right buttons of the design DELTA i1system can each be either used as "pair of buttons" or as "single buttons". Dependent on this setting the available functions change.

Functions when using „single buttons"

Note:

Objects for buttons B1/B2, C1/C2 and D1/D2 are only present, when parameter „Device type" is set to double, triple or quadruple.

Switching: On

Obj	Name	Function	Length	Flag
0	Button A1, switching	On	1 Bit	CT
2	Button A2, switching	On	1 Bit	CT
7	Button B1, switching	On	1 Bit	CT
9	Button B2, switching	On	1 Bit	CT
14	Button C1, switching	On	1 Bit	CT
16	Button C2, switching	On	1 Bit	CT
21	Button D1, switching	On	1 Bit	CT
23	Button D2, switching	On	1 Bit	CT
When one of the buttons is pressed an "On" switching tele1 gram is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under "Functions second telegram".

Switching: Off

Obj	Name	Function	Length	Flag
0	Button A1, switching	Off	1 Bit	CT
2	Button A2, switching	Off	1 Bit	CT
7	Button B1, switching	Off	1 Bit	CT
9	Button B2, switching	Off	1 Bit	CT
14	Button C1, switching	Off	1 Bit	CT
16	Button C2, switching	Off	1 Bit	CT
21	Button D1, switching	Off	1 Bit	CT
23	Button D2, switching	Off	1 Bit	CT
When one of the buttons is pressed an "Off" switching tele1 gram is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the

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additional objects see description under "Functions second telegram".

Switching: Toggle

Obj	Name	Function	Length	Flag
0	Button A1, switching	Toggle	1 Bit	CWT
2	Button A2, switching	Toggle	1 Bit	CWT
7	Button B1, switching	Toggle	1 Bit	CWT
9	Button B2, switching	Toggle	1 Bit	CWT
14	Button C1, switching	Toggle	1 Bit	CWT
16	Button C2, switching	Toggle	1 Bit	CWT
21	Button D1, switching	Toggle	1 Bit	CWT
23	Button D2, switching	Toggle	1 Bit	CWT
On the first operation of a button an „On" telegram is sent via the corresponding object and on the next operation of the same button an "Off" telegram is sent. On each following operation the value is inverted and then sent (toggle func1 tion).				

Switching, dimming: Toggle, brighter / darker (1*button dimming)

Obj	Name	Function	Length	Flag
0	Button A1, switching	Toggle	1 Bit	CWT
1	Button A1, dimming	brighter / darker	4 Bit	CT
2	Button A2, switching	Toggle	1 Bit	CWT
3	Button A2, dimming	brighter / darker	4 Bit	CT
7	Button B1, switching	Toggle	1 Bit	CWT
8	Button B1, dimming	brighter / darker	4 Bit	CT
9	Button B2, switching	Toggle	1 Bit	CWT
10	Button B2, dimming	brighter / darker	4 Bit	CT
14	Button C1, switching	Toggle	1 Bit	CWT
15	Button C1, dimming	brighter / darker	4 Bit	CT
16	Button C2, switching	Toggle	1 Bit	CWT
17	Button C2, dimming	brighter / darker	4 Bit	CT
21	Button D1, switching	Toggle	1 Bit	CWT
22	Button D1, dimming	brighter / darker	4 Bit	CT
23	Button D2, switching	Toggle	1 Bit	CWT
24	Button D2, dimming	brighter / darker	4 Bit	CT
On the first operation of a button an „On" telegram is sent via the corresponding object and on the next operation of the same button an "Off" telegram is sent. On each following operation the value is inverted and then sent (toggle func1 tion).				

Obj	Name	Function	Length	Flag
On a long operation of a button a "brighter" dimming telegram is sent via the corrseponding object and on the next operation of the same button a "darker" dimming telegram is sent. On each following long operation the dimming direction (brighter / darker) is changed. After a switching on command the dimming direction is preset to „darker" and after a switching off command the dimming direction is preset to "brighter". A short press of a button generates a switching command and a long press of a button generates a dimming command.				

Door bell function: press = On, release = Off

Obj	Name	Function	Length	Flag
0	Button A1, bell function	On / Off	1 Bit	CT
2	Button A2, bell function	On / Off	1 Bit	CT
7	Button B1, bell function	On / Off	1 Bit	CT
9	Button B2, bell function	On / Off	1 Bit	CT
14	Button C1, bell function	On / Off	1 Bit	CT
16	Button C2, bell function	On / Off	1 Bit	CT
21	Button D1, bell function	On / Off	1 Bit	CT
23	Button D2, bell function	On / Off	1 Bit	CT
On pressing a button a switching „On" telegram is sent via the corresonding object and on releasing the button a telegram "Off" is sent.				

Door bell function: press = Off, release = On

Obj	Name	Function	Length	Flag
0	Button A1, bell function	Off /On	1 Bit	CT
2	Button A2, bell function	Off /On	1 Bit	CT
7	Button B1, bell function	Off /On	1 Bit	CT
9	Button B2, bell function	Off /On	1 Bit	CT
14	Button C1, bell function	Off /On	1 Bit	CT
16	Button C2, bell function	Off /On	1 Bit	CT
21	Button D1, bell function	Off /On	1 Bit	CT
23	Button D2, bell function	Off /On	1 Bit	CT
On pressing a button a switching „Off" telegram is sent via the corresonding object and on releasing the button a telegram "On" is sent.				

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Solar protection, Slats: up / down / stop (1*button solar protection control)

Obj	Name	Function	Length	Flag
0	Button A1, slats	stop / open / close	1 Bit	CT
1	Button A1, venetian blind	up/ down	1 Bit	CWT
2	Button A2, slats	stop / open / close	1 Bit	CT
3	Button A2, venetian blind	up/ down	1 Bit	CWT
7	Button B1, slats	stop / open / close	1 Bit	CT
8	Button B1, venetian blind	up/ down	1 Bit	CWT
9	Button B2, slats	stop / open / close	1 Bit	CT
10	Button B2, venetian blind	up/ down	1 Bit	CWT
14	Button C1, slats	stop / open / close	1 Bit	CT
15	Button C1, venetian blind	up/ down	1 Bit	CWT
16	Button C2, slats	stop / open / close	1 Bit	CT
17	Button C2, venetian blind	up/ down	1 Bit	CWT
21	Button D1, slats	stop / open / close	1 Bit	CT
22	Button D1, venetian blind	up/ down	1 Bit	CWT
23	Button D2, slats	stop / open / close	1 Bit	CT
23	Button D2, venetian blind	up/ down	1 Bit	CWT

On the first long operation of a button a move solar protection „Down“ telegram is sent via the corresponding object and on the next long operation of the same button a move solar protection “Up” telegram is sent. On each following long operation the motion direction (Up/Down) is changed.
On each short operation of a button a command “stop / slats open” is sent via the corresponding object if previously the solar protection was moved down. If previously the solar protection was moved up, on each short operation of a button a command “stop / slat close” is sent. The motion direction of the slat command (open / close) is always opposite to the direction of the last motion (down / up) command.
A long press of a button generates a command to move the solar protection and a short press of a button generates a command stopping the motion of the solar protection or adjusting the slats by a step.

Roller shutter control: up / down / stop (1 –button roller shutter control)

Obj	Name	Function	Length	Flag
0	Button A1, roller shutter	stop	1 Bit	CT
1	Button A1, roller shutter	up/ down	1 Bit	CT
2	Button A2, roller shutter	stop	1 Bit	CT
3	Button A2, roller shutter	up/ down	1 Bit	CT
7	Button B1, roller shutter	stop	1 Bit	CT
8	Button B1, roller shutter	up/ down	1 Bit	CT
9	Button B2, roller shutter	stop	1 Bit	CT
10	Button B2, roller shutter	up/ down	1 Bit	CT
14	Button C1, roller shutter	stop	1 Bit	CT
15	Button C1, roller shutter	up/ down	1 Bit	CT
16	Button C2, roller shutter	stop	1 Bit	CT
17	Button C2, roller shutter	up/ down	1 Bit	CT
21	Button D1, roller shutter	stop	1 Bit	CT
22	Button D1, roller shutter	up/ down	1 Bit	CT
23	Button D2, roller shutter	stop	1 Bit	CT
24	Button D2, roller shutter	up/ down	1 Bit	CT

On the first long operation of a button a move roller shutter „Down“ telegram is sent via the corresponding object and on the next long operation of the same button a move roller shutter “Up” telegram is sent. On each following long opera1 tion the motion direction (Up/Down) is changed.
On each short operation of a button a command “stop” is sent via the corresponding object.
A long press of a button generates a command to move the roller shutter and a short press of a button generates a command stopping the motion of the roller shutter.

1*bit scene 1 recall / save

Obj	Name	Function	Length	Flag
0	Button A1, scene 1	recall	1 Bit	CT
1	Button A1, scene 1	save	1 Bit	CT
2	Button A2, scene 1	recall	1 Bit	CT
3	Button A2, scene 1	save	1 Bit	CT
7	Button B1, scene 1	recall	1 Bit	CT
8	Button B1, scene 1	save	1 Bit	CT
9	Button B2, scene 1	recall	1 Bit	CT
10	Button B2, scene 1	save	1 Bit	CT
14	Button C1, scene 1	recall	1 Bit	CT
15	Button C1, scene 1	save	1 Bit	CT
16	Button C2, scene 1	recall	1 Bit	CT
17	Button C2, scene 1	save	1 Bit	CT
21	Button D1, scene 1	recall	1 Bit	CT
22	Button D1, scene 1	save	1 Bit	CT

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Obj	Name	Function	Length	Flag
23	Button D2, scene 1	recall	1 Bit	CT
24	Button D2, scene 1	save	1 Bit	CT
On short operation of a button a telegram „scene 1 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 1 save” (object value = 0) is sent. A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.				

1*bit scene 2 recall / save

Obj	Name	Function	Length	Flag
0	Button A1, scene 2	recall	1 Bit	CT
1	Button A1, scene 2	save	1 Bit	CT
2	Button A2, scene 2	recall	1 Bit	CT
3	Button A2, scene 2	save	1 Bit	CT
7	Button B1, scene 2	recall	1 Bit	CT
8	Button B1, scene 2	save	1 Bit	CT
9	Button B2, scene 2	recall	1 Bit	CT
10	Button B2, scene 2	save	1 Bit	CT
14	Button C1, scene 2	recall	1 Bit	CT
15	Button C1, scene 2	save	1 Bit	CT
16	Button C2, scene 2	recall	1 Bit	CT
17	Button C2, scene 2	save	1 Bit	CT
21	Button D1, scene 2	recall	1 Bit	CT
22	Button D1, scene 2	save	1 Bit	CT
23	Button D2, scene 2	recall	1 Bit	CT
24	Button D2, scene 2	save	1 Bit	CT
On short operation of a button a telegram „scene 2 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 2 save” (object value = 1) is sent. A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.				

8*bit scene recall or save

Obj	Name	Function	Length	Flag
0	Button A1, 81bit scene	recall / save	1 Byte	CT
2	Button A2, 81bit scene	recall / save	1 Byte	CT
7	Button B1, 81bit scene	recall / save	1 Byte	CT
9	Button B2, 81bit scene	recall / save	1 Byte	CT
14	Button C1, 81bit scene	recall / save	1 Byte	CT
16	Button C2, 81bit scene	recall / save	1 Byte	CT
21	Button D1, 81bit scene	recall / save	1 Byte	CT
23	Button D2, 81bit scene	recall / save	1 Byte	CT
On operation of a button the scene with the configured scene number (scene 1 …. scene 64) is recalled or saved via the corresponding object.				

Obj	Name	Function	Length	Flag
Bits 0 through 5 of the 81bit scene object contain the scene number (1…64). The most significant bit 7 determines if a scene is recalled (bit value = 0) or saved (bit value = 1). Bit 6 is not used.				

Send 8*bit value: percentage value

Obj	Name	Function	Length	Flag
0	Button A1, 81bit value	value	1 Byte	CT
2	Button A2, 81bit value	value	1 Byte	CT
7	Button B1, 81bit value	value	1 Byte	CT
9	Button B2, 81bit value	value	1 Byte	CT
14	Button C1, 81bit value	value	1 Byte	CT
16	Button C2, 81bit value	value	1 Byte	CT
21	Button D1, 81bit value	value	1 Byte	CT
23	Button D2, 81bit value	value	1 Byte	CT
On operation of a button the percentage value (0 ... 100%) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

Send 8*bit value: decimal value

Obj	Name	Function	Length	Flag
0	Button A1, 81bit value	value	1 Byte	CT
2	Button A2, 81bit value	value	1 Byte	CT
7	Button B1, 81bit value	value	1 Byte	CT
9	Button B2, 81bit value	value	1 Byte	CT
14	Button C1, 81bit value	value	1 Byte	CT
16	Button C2, 81bit value	value	1 Byte	CT
21	Button D1, 81bit value	value	1 Byte	CT
23	Button D2, 81bit value	value	1 Byte	CT
On operation of a button the 81bit value (0 ... 255) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

Send 16*bit value: temperature value

Obj	Name	Function	Length	Flag
0	Button A1, temperature	value	2 Byte	CT
2	Button A2, temperature	value	2 Byte	CT
7	Button B, temperature	value	2 Byte	CT
9	Button B2, temperature	value	2 Byte	CT

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14	Button C1, temperature	value	2 Byte	CT
16	Button C2, temperature	value	2 Byte	CT
21	Button D1, temperature	value	2 Byte	CT
23	Button D2, temperature	value	2 Byte	CT
On operation of a button the temperature value (0 ... 40°C) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

Send 16*bit value: brightness value

Obj	Name	Function	Length	Flag
0	Button A1, Brightness	value	2 Byte	CT
2	Button A2, Brightness	value	2 Byte	CT
7	Button B1, Brightness	value	2 Byte	CT
9	Button B2, Brightness	value	2 Byte	CT
14	Button C1, Brightness	value	2 Byte	CT
16	Button C2, Brightness	value	2 Byte	CT
21	Button D1, Brightness	value	2 Byte	CT
23	Button D2, Brightness	value	2 Byte	CT
On operation of a button the brightness value (0 ... 2000 lux) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

Send 16*bit value: decimal value

Obj	Name	Function	Length	Flag
0	Button A1, 161bit value	value	2 Byte	CT
2	Button A2, 161bit value	value	2 Byte	CT
7	Button B1, 161bit value	value	2 Byte	CT
9	Button B2, 161bit value	value	2 Byte	CT
14	Button C1, 161bit value	value	2 Byte	CT
16	Button CA2, 161bit value	value	2 Byte	CT
21	Button D1, 161bit value	value	2 Byte	CT
23	Button D2, 161bit value	value	2 Byte	CT
On operation of a button the percentage value (0 ... + 65535) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

Forced on, inactive / off, inactive

For each button with this function an additonal function may be configured. These are described in this section as the possible objects only appear in this context and are different from those described under “Functions second telegram”.

Obj	Name	Function	Length	Flag
0	Button A1, forced control	On / Off / inactive	2 Bit	CT
1	Button A1, 2nd telegram, switching	On / Off	1 Bit	CT
2	Button A2, forced control	On / Off / inactive	2 Bit	CT
3	Button A2, 2nd telegram, switching	On / Off	1 Bit	CT
7	Button B1, forced control	On / Off / inactive	2 Bit	CT
8	Button B1, 2nd telegram, switching	On / Off	1 Bit	CT
9	Button B2, forced control	On / Off / inactive	2 Bit	CT
10	Button B2, 2nd telegram, switching	On / Off	1 Bit	CT
14	Button C1, forced control	On / Off / inactive	2 Bit	CT
15	Button C1, 2nd telegram, switching	On / Off	1 Bit	CT
16	Button C2, forced control	On / Off / inactive	2 Bit	CT
17	Button C2, 2nd telegram, switching	On / Off	1 Bit	CT
21	Button D1, forced control	On / Off / inactive	2 Bit	CT
22	Button D1, 2nd telegram, switching	On / Off	1 Bit	CT
23	Button D2, forced control	On / Off / inactive	2 Bit	CT
24	Button D2, 2nd telegram, switching	On / Off	1 Bit	CT
On short operation of one of the buttons A1, B1, C1 or D1 a “forced on” (binary value = 11) telegram and on short opera1 tion of one of the buttons A2, B2, C2 and D2 a “forced off” (binary value = 10) is sent via the corresponding object. Additionally, depending on the configuration an “On” or “Off” switching command is sent via the corresponding object for the second telegram of each button. On long operation of one of the buttons A1, B1, C1 or D1 a “deactivate forced control” (binary value = 01) telegram and on long operation of one of the buttons A2, B2, C2 and D2 a				

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Obj	Name	Function	Length	Flag
"deactivate forced control" (binary value = 00) is sent via the corresponding object. Additionally, depending on the configuration an "On" or "Off" switching command is sent via the corresponding object for the second telegram of each button. The second telegram can be activated with the following settings: short button operation = On long button operation = On short button operation = On long button operation = Off short button operation = Off long button operation = On short button operation = Off long button operation = Off E.g. when forced control is activated (short operation of button) then switching "On" and when forced control is deactivated (long operation of button) then switching "Off" can be sent via the corresponding object for the second telegram. These switching commands can be used to control actuators without 21bit forced control object. A short button operation generates a command activating and a long button operation generates a command deactivat1 ing forced control.				

Forced off, inactive / on, inactive

For each button with this function an additonal function may be configured. These are described in this section as the possible objects only appear in this context and are different from those described under "Functions second telegram".

Obj	Name	Function	Length	Flag
0	Button A1, forced control	On / Off / inactive	2 Bit	CT
1	Button A1, 2nd telegram, switching	On / Off	1 Bit	CT
2	Button A2, forced control	On / Off / inactive	2 Bit	CT
3	Button A2, 2nd telegram, switching	On / Off	1 Bit	CT
7	Button B1, forced control	On / Off / inactive	2 Bit	CT
8	Button B1, 2nd telegram, switching	On / Off	1 Bit	CT
9	Button B2, forced control	On / Off / inactive	2 Bit	CT
10	Button B2, 2nd telegram, switching	On / Off	1 Bit	CT
14	Button C1, forced control	On / Off / inactive	2 Bit	CT
15	Button C1, 2nd telegram, switching	On / Off	1 Bit	CT
16	Button C2, forced control	On / Off / inactive	2 Bit	CT
17	Button C2, 2nd telegram, switching	On / Off	1 Bit	CT
21	Button D1, forced control	On / Off / inactive	2 Bit	CT
22	Button D1, 2nd telegram, switching	On / Off	1 Bit	CT
23	Button D2, forced control	On / Off / inactive	2 Bit	CT
24	Button D2, 2nd telegram, switching	On / Off	1 Bit	CT
On short operation of one of the buttons A1, B1, C1 or D1 a "forced off" (binary value = 10) telegram and on short opera1 tion of one of the buttons A2, B2, C2 and D2 a "forced on" (binary value = 11) is sent via the corresponding object. Additionally, depending on the configuration an "On" or "Off" switching command is sent via the corresponding object for the second telegram of each button. On long operation of one of the buttons A1, B1, C1 or D1 a "deactivate forced control" (binary value = 00) telegram and on long operation of one of the buttons A2, B2, C2 and D2 a "deactivate forced control" (binary value = 01) is sent via the corresponding object. Additionally, depending on the configuration an "On" or "Off" switching command is sent via the corresponding object for the second telegram of each button. The second telegram can be activated with the following settings: short button operation = On long button operation = On short button operation = On long button operation = Off short button operation = Off long button operation = On short button operation = Off long button operation = Off E.g. when forced control is activated (short operation of button) then switching "On" and when forced control is deactivated (long operation of button) then switching "Off" can be sent via the corresponding object for the second telegram. These switching commands can be used to control actuators without 21bit forced control object. A short button operation generates a command activating and a long button operation generates a command deactivat1 ing forced control.				

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Functions/Objects when using „button pair“

Note:

Objects for buttons B1/B2, C1/C2 and D1/D2 are only present, when parameter „Device type“ is set to double, triple or quadruple.

For all “button pair” functions an additonal time1delayed function may be configured for each button. The time delay starts with release of the button. For more infor1 mation about the additional objects see description under “Functions second telegram”.

Switching, dimming: On, brighter / Off, darker

Obj	Name	Function	Length	Flag
0	Button pair A, switching	On / Off	1 Bit	CT
2	Button pair A, dimming	brighter / darker	4 Bit	CT
7	Button pair B, switching	On / Off	1 Bit	CT
9	Button pair B, dimming	brighter / darker	4 Bit	CT
14	Button pair C, switching	On / Off	1 Bit	CT
16	Button pair C, dimming	brighter / darker	4 Bit	CT
21	Button pair D, switching	On / Off	1 Bit	CT
23	Button pair D, dimming	brighter / darker	4 Bit	CT

On a short operation of the buttons A1, B1, C1 or D1 an “On” switching telegram is sent via the corresponding object and on long operation a dimming “brighter” telegram is sent via the corresponding object.
On a short operation of the buttons A2, B2, C2 or D2 an “Off” switching telegram is sent via the corresponding object and on long operation a dimming “darker” telegram is sent via the corresponding object.
A short button operation generates a command for switching and a long button operation one for dimming the lighting.

Switching, dimming: Off, darker / On, brighter

Obj	Name	Function	Length	Flag
0	Button pair A, switching	Off /On	1 Bit	CT
2	Button pair A, dimming	darker / brighter	4 Bit	CT
7	Button pair B, switching	Off /On	1 Bit	CT
9	Button pair B, dimming	darker / brighter	4 Bit	CT
14	Button pair C, switching	Off /On	1 Bit	CT
16	Button pair C, dimming	darker / brighter	4 Bit	CT
21	Button pair D, switching	Off /On	1 Bit	CT
23	Button pair D, dimming	darker / brighter	4 Bit	CT

On a short operation of the buttons A1, B1, C1 or D1 an “Off” switching telegram is sent via the corresponding object and on long operation a dimming “darker” telegram is sent via the corresponding object.
On a short operation of the buttons A2, B2, C2 or D2 an “On” switching telegram is sent via the corresponding object and on long operation a dimming “brighter” telegram is sent via the corresponding object.
A short button operation generates a command for switching and a long button operation one for dimming the lighting.

Switching, dimming: Toggle, brighter / Toggle, darker

Obj	Name	Function	Length	Flag
0	Button pair A, switching	Toggle	1 Bit	CWT
2	Button pair A, dimming	brighter / darker	4 Bit	CT
7	Button pair B, switching	Toggle	1 Bit	CWT
9	Button pair B, dimming	brighter / darker	4 Bit	CT
14	Button pair C, switching	Toggle	1 Bit	CWT
16	Button pair C, dimming	brighter / darker	4 Bit	CT
21	Button pair D, switching	Toggle	1 Bit	CWT
23	Button pair D, dimming	brighter / darker	4 Bit	CT

On the first short operation of a button an „On“ telegram is sent via the corresponding object and on the next short operation of the same button an “Off” telegram is sent. On each following short operation the value is inverted and then sent (toggle function).
On a long operation of a button A1, B1, C1 or D1 a “brighter” dimming telegram is sent via the corrseponding object and likewise on long operation of a button A2, B2, C2 or D2 a “darker” dimming telegram is sent.
A short press of a button generates a command switching and a long press of a button a command dimming the lighting.

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Switching, dimming: Toggle, darker / Toggle, brighter

Obj	Name	Function	Length	Flag
0	Button pair A, switching	Toggle	1 Bit	CWT
2	Button pair A, dimming	darker / brighter	4 Bit	CT
7	Button pair B, switching	Toggle	1 Bit	CWT
9	Button pair B, dimming	darker / brighter	4 Bit	CT
14	Button pair C, switching	Toggle	1 Bit	CWT
16	Button pair C, dimming	darker / brighter	4 Bit	CT
21	Button pair D, switching	Toggle	1 Bit	CWT
23	Button pair D, dimming	darker / brighter	4 Bit	CT

On the first short operation of a button an „On“ telegram is sent via the corresponding object and on the next short operation of the same button an “Off” telegram is sent. On each following short operation the value is inverted and then sent (toggle function).
On a long operation of a button A1, B1, C1 or D1 a “darker” dimming telegram is sent via the corrseponding object and likewise on long operation of a button A2, B2, C2 or D2 a “brighter” dimming telegram is sent.
A short press of a button generates a command switching and a long press of a button a command dimming the lighting.

Solar protection, slats: up / down

Obj	Name	Function	Length	Flag
0	Button pair A, slats	stop / open / close	1 Bit	CT
2	Button pair A, venetian blind	up/ down	1 Bit	CT
7	Button pair B, slats	stop / open / close	1 Bit	CT
9	Button pair B, venetian blind	up/ down	1 Bit	CT
14	Button pair C, slats	stop / open / close	1 Bit	CT
16	Button pair C, venetian blind	up/ down	1 Bit	CT
21	Button pair D, slats	stop / open / close	1 Bit	CT
23	Button pair D, venetian blind	up/ down	1 Bit	CT

On long operation of buttons A1, B1, C1 or D1 a move solar protection „Up“ telegram is sent via the corresponding object and on short operation a command “stop / slats open”.
On long operation of buttons A2, B2, C2 or D2 a move solar protection „Down“ telegram is sent via the corresponding object and on short operation a command “stop / slats close”.
A long press of a button generates a command to move the solar protection and a short press of a button generates a command stopping the motion of the solar protection or adjusting the slats by a step.

Solar protection, Slats: down / up

Obj	Name	Function	Length	Flag
0	Button pair A, slats	stop / close / open	1 Bit	CT
2	Button pair A, venetian blind	down / up	1 Bit	CT
7	Button pair B, slats	stop / close / open	1 Bit	CT
9	Button pair B, venetian blind	down / up	1 Bit	CT
14	Button pair C, slats	stop / close / open	1 Bit	CT
16	Button pair C, venetian blind	down / up	1 Bit	CT
21	Button pair D, slats	stop / close / open	1 Bit	CT
23	Button pair D, venetian blind	down / up	1 Bit	CT

On long operation of buttons A1, B1, C1 or D1 a move solar protection „Down“ telegram is sent via the corresponding object and on short operation a command “stop / slats close”.
On long operation of buttons A2, B2, C2 or D2 a move solar protection „Up“ telegram is sent via the corresponding object and on short operation a command “stop / slats open”.
A long press of a button generates a command to move the solar protection and a short press of a button generates a command stopping the motion of the solar protection or adjusting the slats by a step.

Roller shutter: Up, stop / Down, stop

Obj	Name	Function	Length	Flag
0	Button pair A, roller shutter	stop	1 Bit	CT
2	Button pair A, roller shutter	up/ down	1 Bit	CT
7	Button pair B, roller shutter	stop	1 Bit	CT
9	Button pair B, roller shutter	up/ down	1 Bit	CT
14	Button pair C, roller shutter	stop	1 Bit	CT
16	Button pair C, roller shutter	up/ down	1 Bit	CT

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Obj	Name	Function	Length	Flag
21	Button pair D, roller shutter	stop	1 Bit	CT
23	Button pair D, roller shutter	up/ down	1 Bit	CT

On long operation of buttons A1, B1, C1 or D1 a move roller shutter „Down" telegram is sent via the corresponding object and on short operation a command "stop".
On long operation of buttons A2, B2, C2 or D2 a move roller shutter „Up" telegram is sent via the corresponding object and on short operation a command "stop".
A long press of a button generates a command to move the roller shutter and a short press of a button generates a command stopping the motion of the roller shutter.

Roller shutter: Down, stop / Up, stop

Obj	Name	Function	Length	Flag
0	Button pair A, roller shutter	stop	1 Bit	CT
2	Button pair A, roller shutter	down / up	1 Bit	CT
7	Button pair B, roller shutter	stop	1 Bit	CT
9	Button pair B, roller shutter	down / up	1 Bit	CT
14	Button pair C, roller shutter	stop	1 Bit	CT
16	Button pair C, roller shutter	down / up	1 Bit	CT
21	Button pair D, roller shutter	stop	1 Bit	CT
23	Button pair D, roller shutter	down / up	1 Bit	CT

On long operation of buttons A1, B1, C1 or D1 a move roller shutter „Up" telegram is sent via the corresponding object and on short operation a command "stop".
On long operation of buttons A2, B2, C2 or D2 a move roller shutter „Down" telegram is sent via the corresponding object and on short operation a command "stop".
A long press of a button generates a command to move the roller shutter and a short press of a button generates a command stopping the motion of the roller shutter.

Send percent value variable (increment / decrement)

Obj	Name	Function	Length	Flag
0	Button pair A, percentage (variable)	value	1 Byte	CWTU
7	Button pair B, per1 centage (variable)	value	1 Byte	CWTU
14	Button pair C, per1 centage (variable)	value	1 Byte	CWTU
21	Button pair D, percentage (variable)	value	1 Byte	CWTU

On short operation of buttons A1, B1, C1 or D1 a telegram is sent via the corresponding object with a percentage value (0…100%) incremented by the configured percentage step.
On short operation of buttons A2, B2, C2 or D2 a telegram is sent via the corresponding object with a percentage value (0…100%) decremented by the configured percentage step.
On long operation of buttons A1, B1, C1 or D1 the percentage value is incremented step by step and sent cyclically via the corresponding object as long as the button is pressed.
On long operation of buttons A2, B2, C2 or D2 the percentage value is decremented step by step and sent cyclically via the corresponding object as long as the button is pressed.

Send percent value variable (decrement / increment)

Obj	Name	Function	Length	Flag
0	Button pair A, percentage (variable)	value	1 Byte	CWTU
7	Button pair B, percentage (variable)	value	1 Byte	CWTU
14	Button pair C, percentage (variable)	value	1 Byte	CWTU
21	Button pair D, percentage (variable)	value	1 Byte	CWTU

On short operation of buttons A1, B1, C1 or D1 a telegram is sent via the corresponding object with a percentage value (0…100%) decremented by the configured percentage step.
On short operation of buttons A2, B2, C2 or D2 a telegram is sent via the corresponding object with a percentage value (0…100%) incremented by the configured percentage step.
On long operation of buttons A1, B1, C1 or D1 the percentage value is decremented step by step and sent cyclically via the corresponding object as long as the button is pressed.
On long operation of buttons A2, B2, C2 or D2 the percentage value is incremented step by step and sent cyclically via the corresponding object as long as the button is pressed.

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Send 8*bit value variable (increment / decrement)

Obj	Name	Function	Length	Flag
0	Button pair A, 81bit value (variable)	value	1 Byte	CWTU
7	Button pair B, 81bit value (variable)	value	1 Byte	CWTU
14	Button pair C, 81bit value (variabel)	value	1 Byte	CWTU
21	Button pair D, 81bit value (variabel)	value	1 Byte	CWTU

On short operation of buttons A1, B1, C1 or D1 a telegram is sent via the corresponding object with an 81bit value (0…255) incremented by the configured step.
On short operation of buttons A2, B2, C2 or D2 a telegram is sent via the corresponding object with an 81bit value (0…255) decremented by the configured step.
On long operation of buttons A1, B1, C1 or D1 the 81bit value is incremented step by step and sent cyclically via the corre1 sponding object as long as the button is pressed.
On long operation of buttons A2, B2, C2 or D2 the 81bit value is decremented step by step and sent cyclically via the corre1 sponding object as long as the button is pressed.

Send 8*bit value variable (decrement / increment)

Obj	Name	Function	Length	Flag
0	Button pair A, 81bit value (variable)	value	1 Byte	CWTU
7	Button pair B, 81bit value (variable)	value	1 Byte	CWTU
14	Button pair C, 81bit value (variable)	value	1 Byte	CWTU
21	Button pair D, 81bit value (variable)	value	1 Byte	CWTU

On short operation of buttons A1, B1, C1 or D1 a telegram is sent via the corresponding object with an 81bit value (0…255) decremented by the configured step.
On short operation of buttons A2, B2, C2 or D2 a telegram is sent via the corresponding object with an 81bit value (0…255) incremented by the configured step.
On long operation of buttons A1, B1, C1 or D1 the 81bit value is decremented step by step and sent cyclically via the corre1 sponding object as long as the button is pressed.
On long operation of buttons A2, B2, C2 or D2 the 81bit value is incremented step by step and sent cyclically via the corre1 sponding object as long as the button is pressed.

1*bit scene 1 / 2: recall / save

Obj	Name	Function	Length	Flag
0	Button pair A, scene 1 / 2	recall	1 Bit	CT
2	Button pair A, scene 1 / 2	save	1 Bit	CT
7	Button pair B, scene 1 / 2	recall	1 Bit	CT
9	Button pair B, scene 1 / 2	save	1 Bit	CT
14	Button pair C, scene 1 / 2	recall	1 Bit	CT
16	Button pair C, scene 1 / 2	save	1 Bit	CT
21	Button pair D, scene 1 / 2	recall	1 Bit	CT
23	Button pair D, scene 1 / 2	save	1 Bit	CT

On short operation of buttons A1, B1, C1 or D1 a telegram „scene 1 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 1 save” (object value = 0) is sent.
On short operation of buttons A2, B2, C2 or D2 a telegram „scene 2 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 2 save” (object value = 1) is sent.
A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.

1*bit scene 2 / 1: recall / save

Obj	Name	Function	Length	Flag
0	Button pair A, scene 2 / 1	recall	1 Bit	CT
2	Button pair A, scene 2 / 1	save	1 Bit	CT
7	Button pair B, scene 2 / 1	recall	1 Bit	CT
9	Button pair B, scene 2 / 1	save	1 Bit	CT
14	Button pair C, scene 2 / 1	recall	1 Bit	CT
16	Button pair C, scene 2 / 1	save	1 Bit	CT
21	Button pair D, scene 2 / 1	recall	1 Bit	CT
23	Button pair D, scene 2 / 1	save	1 Bit	CT

On short operation of buttons A1, B1, C1 or D1 a telegram „scene 2 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 2 save” (object value = 1) is sent.
On short operation of buttons A2, B2, C2 or D2 a telegram „scene 1 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 1 save” (object value = 0) is sent.
A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.

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8*bit scene recall and save

Obj	Name	Function	Length	Flag
0	Button A1, 81bit scene	recall / save	1 Byte	CT
2	Button A2, 81bit scene	recall / save	1 Byte	CT
7	Button B1, 81bit scene	recall / save	1 Byte	CT
9	Button B2, 81bit scene	recall / save	1 Byte	CT
14	Button C1, 81bit scene	recall / save	1 Byte	CT
16	Button C2, 81bit scene	recall / save	1 Byte	CT
21	Button D1, 81bit scene	recall / save	1 Byte	CT
23	Button D2, 81bit scene	recall / save	1 Byte	CT

On short operation of a button the scene with the configured scene number (scene 1 …. scene 64) is recalled and on long operation of the button the scene is saved via the correspond1 ing object.
Bits 0 through 5 of the 81bit scene object contain the scene number (1…64). The most significant bit 7 determines if a scene is recalled (bit value = 0) or saved (bit value = 1).
Bit 6 is not used.
A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.

Forced on, inactive / off, inactive

Obj	Name	Function	Length	Flag
0	Button A1, forced control	forced On / inactive	2 Bit	CT
2	Button A2, forced control	forced Off / inactive	2 Bit	CT
7	Button B1, forced control	forced On / inactive	2 Bit	CT
9	Button B2, forced control	forced Off / inactive	2 Bit	CT
14	Button C1, forced control	forced On / inactive	2 Bit	CT
16	Button C2, forced control	forced Off / inactive	2 Bit	CT
21	Button D1, forced control	forced On / inactive	2 Bit	CT
23	Button D2, forced control	forced Off / inactive	2 Bit	CT

On short operation of one of the buttons A1, B1, C1 or D1 a “forced on” (binary value = 11) telegram and on short opera1 tion of one of the buttons A2, B2, C2 and D2 a “forced off” (binary value = 10) is sent via the corresponding object.
On long operation of one of the buttons A1, B1, C1 or D1 a “deactivate forced control” (binary value = 01) telegram and on long operation of one of the buttons A2, B2, C2 and D2 a “deactivate forced control” (binary value = 00) is sent via the corresponding object.
A short button operation generates a command activating and a long button operation generates a command deactivat1 ing forced control.

Forced off, inactive / on, inactive

Obj	Name	Function	Length	Flag
0	Button A1, forced control	forced Off / inactive	2 Bit	CT
2	Button A2, forced control	forced On / inactive	2 Bit	CT
7	Button B1, forced control	forced Off / inactive	2 Bit	CT
9	Button B2, forced control	forced On / inactive	2 Bit	CT
14	Button C1, forced control	forced Off / inactive	2 Bit	CT
16	Button C2, forced control	forced On / inactive	2 Bit	CT
21	Button D1, forced control	forced Off / inactive	2 Bit	CT
23	Button D2, forced control	forced On / inactive	2 Bit	CT

On short operation of one of the buttons A1, B1, C1 or D1 a “forced off” (binary value = 10) telegram and on short opera1 tion of one of the buttons A2, B2, C2 and D2 a “forced on” (binary value = 11) is sent via the corresponding object.
On long operation of one of the buttons A1, B1, C1 or D1 a “deactivate forced control” (binary value = 00) telegram and on long operation of one of the buttons A2, B2, C2 and D2 a “deactivate forced control” (binary value = 01) is sent via the corresponding object.
A short button operation generates a command activating and a long button operation generates a command deactivat1 ing forced control.

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Functions/Objects for an additional button function (send additional or second telegram) for single buttons and button pairs

Note:

Objects for buttons B1/B2, C1/C2 and D1/D2 are only present, when parameter „Device type“ is set to double, triple or quadruple.

If an additional function per button can be selected when configuring single buttons or button pairs, then one of these additional functions may be sent after a time delay or on long operation of a button via a second communi1 cation object per button:

- Switching On
- Switching Off
- Send percentage
- Send 81bit value
- Send temperature value
- Send brightness value
- Send 161bit value
- 11bit scene: recall / save scene 1
- 11bit scene: recall / save scene 2
- 81bit scene: recall
- Forced on
- Forced off
- Forced control off

Additonal button function, Switching: On

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, switching	On	1 Bit	CT
3	Button A2, 2nd telegram, switching	On	1 Bit	CT
8	Button B1, 2nd telegram, switching	On	1 Bit	CT
10	Button B2, 2nd telegram, switching	On	1 Bit	CT
15	Button C1, 2nd telegram, switching	On	1 Bit	CT
17	Button C2, 2nd telegram, switching	On	1 Bit	CT
22	Button D1, 2nd telegram, switching	On	1 Bit	CT
24	Button D2, 2nd telegram, switching	On	1 Bit	CT
On operation of one of the buttons the switching “on“ com1 mand configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

Additonal button function, Switching: Off

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, switching	Off	1 Bit	CT
3	Button A2, 2nd telegram, switching	Off	1 Bit	CT
8	Button B1, 2nd telegram, switching	Off	1 Bit	CT
10	Button B2, 2nd telegram, switching	Off	1 Bit	CT
15	Button C1, 2nd telegram, switching	Off	1 Bit	CT
17	Button C2, 2nd telegram, switching	Off	1 Bit	CT
22	Button D1, 2nd telegram, switching	Off	1 Bit	CT
24	Button D2, 2nd telegram, switching	Off	1 Bit	CT
On operation of one of the buttons the switching “off“ com1 mand configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

Additonal button function, Send percentage

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, Percentage value	value	1 Byte	CT
3	Button A2, 2nd telegram, Percentage value	value	1 Byte	CT
8	Button B1, 2nd telegram, Percentage value	value	1 Byte	CT
10	Button B2, 2nd telegram, Percentage value	value	1 Byte	CT
15	Button C1, 2nd telegram, Percentage value	value	1 Byte	CT
17	Button C2, 2nd telegram, Percentage value	value	1 Byte	CT
22	Button D1, 2nd telegram, Percentage value	value	1 Byte	CT
24	Button D2, 2nd telegram, Percentage value	value	1 Byte	CT
On operation of one of the buttons the percent value (0...100%) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

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Additonal button function, Send 8*bit value

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, 81bit value	value	1 Byte	CT
3	Button A2, 2nd telegram, 81bit value	value	1 Byte	CT
8	Button B1, 2nd telegram, 81bit value	value	1 Byte	CT
10	Button B2, 2nd telegram, 81bit value	value	1 Byte	CT
15	Button C1, 2nd telegram, 81bit value	value	1 Byte	CT
17	Button C2, 2nd telegram, 81bit value	value	1 Byte	CT
22	Button D1, 2nd telegram, 81bit value	value	1 Byte	CT
24	Button D2, 2nd telegram, 81bit value	value	1 Byte	CT
On operation of one of the buttons the 81bit value (0...255) configured as second telegram for this button is sent immedi1 ately or time delayed via the corresponding second object.				

Additonal button function, Send temperature value

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, temperature	value	2 Byte	CT
3	Button A2, 2nd telegram, temperature	value	2 Byte	CT
8	Button B1, 2nd telegram, temperature	value	2 Byte	CT
10	Button B2, 2nd telegram, temperature	value	2 Byte	CT
15	Button C1, 2nd telegram, temperature	value	2 Byte	CT
17	Button C2, 2nd telegram, temperature	value	2 Byte	CT
22	Button D1, 2nd telegram, temperature	value	2 Byte	CT
24	Button D2, 2nd telegram, temperature	value	2 Byte	CT
On operation of one of the buttons the temperature value (0...40°C) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

Additonal button function, Send brightness value

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, Brightness	value	2 Byte	CT
3	Button A2, 2nd telegram, Brightness	value	2 Byte	CT
8	Button B1, 2nd telegram, Brightness	value	2 Byte	CT
10	Button B2, 2nd telegram, Brightness	value	2 Byte	CT
15	Button C1, 2nd telegram, Brightness	value	2 Byte	CT
17	Button C2, 2nd telegram, Brightness	value	2 Byte	CT
22	Button D1, 2nd telegram, Brightness	value	2 Byte	CT
24	Button D2, 2nd telegram, Brightness	value	2 Byte	CT
On operation of one of the buttons the brightness value (0...2000 Lux) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

Additonal button function, Send 16*bit value

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, 161bit value	value	2 Byte	CT
3	Button A2, 2nd telegram, 161bit value	value	2 Byte	CT
8	Button B1, 2nd telegram, 161bit value	value	2 Byte	CT
10	Button B2, 2nd telegram, 161bit value	value	2 Byte	CT
15	Button C1, 2nd telegram, 161bit value	value	2 Byte	CT
17	Button C2, 2nd telegram, 161bit value	value	2 Byte	CT
22	Button D1, 2nd telegram, 161bit value	value	2 Byte	CT
24	Button D2, 2nd telegram, 161bit value	value	2 Byte	CT
On operation of one of the buttons the 161bit value (0...65535) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

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Additonal button function, 1*bit scene: recall / save scene 1

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, scene 1	recall / save	1 Bit	CT
3	Button A2, 2nd telegram, scene 1	recall / save	1 Bit	CT
8	Button B1, 2nd telegram, scene 1	recall / save	1 Bit	CT
10	Button B2, 2nd telegram, scene 1	recall / save	1 Bit	CT
15	Button C1, 2nd telegram, scene 1	recall / save	1 Bit	CT
17	Button C2, 2nd telegram, scene 1	recall / save	1 Bit	CT
22	Button D1, 2nd telegram, scene 1	recall / save	1 Bit	CT
24	Button D2, 2nd telegram, scene 1	recall / save	1 Bit	CT

On operation of one of the buttons the scene 1 (object value = 0) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object. Scene 1 is recalled if this object is connected to a 11bit scene object for recalling a scene. Scene 1 is saved if this object is connected to a 11bit scene object for saving a scene.

Additonal button function, 1*bit scene: recall / save scene 2

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, scene 2	recall / save	1 Bit	CT
3	Button A2, 2nd telegram, scene 2	recall / save	1 Bit	CT
8	Button B1, 2nd telegram, scene 2	recall / save	1 Bit	CT
10	Button B2, 2nd telegram, scene 2	recall / save	1 Bit	CT
15	Button C1, 2nd telegram, scene 2	recall / save	1 Bit	CT
17	Button C2, 2nd telegram, scene 2	recall / save	1 Bit	CT
22	Button D1, 2nd telegram, scene 2	recall / save	1 Bit	CT
24	Button D2, 2nd telegram, scene 2	recall / save	1 Bit	CT

On operation of one of the buttons the scene 2 (object value = 1) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object. Scene 2 is recalled if this object is connected to a 11bit scene object for recalling a scene. Scene 2 is saved if this object is connected to a 11bit scene object for saving a scene.

Additonal button function, 8*bit scene recall

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, 81bit scene	recall	1 Byte	CT
3	Button A2, 2nd telegram, 81bit scene	recall	1 Byte	CT
8	Button B1, 2nd telegram, 81bit scene	recall	1 Byte	CT
10	Button B2, 2nd telegram, 81bit scene	recall	1 Byte	CT
15	Button C1, 2nd telegram, 81bit scene	recall	1 Byte	CT
17	Button C2, 2nd telegram, 81bit scene	recall	1 Byte	CT
22	Button D1, 2nd telegram, 81bit scene	recall	1 Byte	CT
24	Button D2, 2nd telegram, 81bit scene	recall	1 Byte	CT

On operation of one of the buttons the scene with the preset number (scene 1 ... scene 64) configured as second telegram for this button is recalled immediately or time delayed via the corresponding second object.
Bits 0 through 5 of the 81bit scene object contain the scene number (1…64). The most significant bit 7 determines if a scene is recalled (bit value = 0) or saved (bit value = 1).
Bit 6 is not used.

Additonal button function, forced on

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, forced control	forced On	2 Bit	CT
3	Button A2, 2nd telegram, forced control	forced On	2 Bit	CT
8	Button B1, 2nd telegram, forced control	forced On	2 Bit	CT
10	Button B2, 2nd telegram, forced control	forced On	2 Bit	CT
15	Button C1, 2nd telegram, forced control	forced On	2 Bit	CT
17	Button C2, 2nd telegram, forced control	forced On	2 Bit	CT
22	Button D1, 2nd telegram, forced control	forced On	2 Bit	CT
24	Button D2, 2nd telegram, forced control	forced On	2 Bit	CT

On operation of one of the buttons the “forced on” command (binary value = 11) configured as second telegram for this button is sent immediately or time delayed via the correspond1 ing second object.

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Additonal button function, forced off

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, forced control	forced Off	2 Bit	CT
3	Button A2, 2nd telegram, forced control	forced Off	2 Bit	CT
8	Button B1, 2nd telegram, forced control	forced Off	2 Bit	CT
10	Button B2, 2nd telegram, forced control	forced Off	2 Bit	CT
15	Button C1, 2nd telegram, forced control	forced Off	2 Bit	CT
17	Button C2, 2nd telegram, forced control	forced Off	2 Bit	CT
22	Button D1, 2nd telegram, forced control	forced Off	2 Bit	CT
24	Button D2, 2nd telegram, forced control	forced Off	2 Bit	CT
On operation of one of the buttons the "forced off" command (binary value = 10) configured as second telegram for this button is sent immediately or time delayed via the correspond1 ing second object.				

Additonal button function, forced control off

Obj	Name	Function	Length	Flag
1	Button A1, 2nd telegram, forced control	forced control off	2 Bit	CT
3	Button A2, 2nd telegram, forced control	forced control off	2 Bit	CT
8	Button B1, 2nd telegram, forced control	forced control off	2 Bit	CT
10	Button B2, 2nd telegram, forced control	forced control off	2 Bit	CT
15	Button C1, 2nd telegram, forced control	forced control off	2 Bit	CT
17	Button C2, 2nd telegram, forced control	forced control off	2 Bit	CT
22	Button D1, 2nd telegram, forced control	forced control off	2 Bit	CT
24	Button D2, 2nd telegram, forced control	forced control off	2 Bit	CT
On operation of one of the buttons the "forced control off" command (binary value = 00) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

Objects Status LEDs

Obj	Name	Function	Length	Flag
4	Status LED A1	On / Off	1 Bit	CRWTU
		81Bit value	1 Byte	
		Lux value	2 Byte	
		Temperature value		
		161Bit value		
5	Status LED A2	On / Off	1 Bit	CRWTU
		81Bit value	1 Byte	
		Lux value	2 Byte	
		Temperature value		
		161Bit value		
11	Status LED B1	On / Off	1 Bit	CRWTU
		81Bit value	1 Byte	
		Lux value	2 Byte	
		Temperature value		
		161Bit value		
12	Status LED B2	On / Off	1 Bit	CRWTU
		81Bit value	1 Byte	
		Lux value	2 Byte	
		Temperature value		
		161Bit value		
18	Status LED C1	On / Off	1 Bit	CRWTU
		81Bit value	1 Byte	
		Lux value	2 Byte	
		Temperature value		
		161Bit value		
19	Status LED C2	On / Off	1 Bit	CRWTU
		81Bit value	1 Byte	
		Lux value	2 Byte	
		Temperature value		
		161Bit value		
25	Status LED D1	On / Off	1 Bit	CRWTU
		81Bit value	1 Byte	
		Lux value	2 Byte	
		Temperature value		
		161Bit value		
26	Status LED D2	On / Off	1 Bit	CRWTU
		81Bit value	1 Byte	
		Lux value	2 Byte	
		Temperature value		
		161Bit value		
The status to be displayed by the LED is received via the group address assigned to this object If the object is configured as type "1 Byte" or "2 Byte" then the LED can be switched on, off or flashing dependent on two threshold values.				

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Objects IR receiver decoder

As described for single buttons / button pairs above, for each of the 16 IR channels functions can be assigned to the individual buttons of an IR channel or to the button pair. Likewise, additional functions can be selected dependent on the selected main functions.
Additionally, the wall switch can receive each up to 16 brightness values, temperature values, motion detec1 tions and IR ID numbers from corresponding IR transmit1 ters and send these onto the bus.
The following documents these functions only for the first and the sixteenth IR channel.
Depending on the selected IR channel block the number of the first IR channel is 0, 16, 32, or 48. Accordingly this first channel is named as C00/16/32/48.
The naming ">>1" corresponds with the IR hand1held remote button labeled with "1" or with an arrow pointing up.
The naming "<<0" corresponds with the IR hand1held remote button labeled with "0" or with an arrow pointing down.

For all IR decoder functions for "button pair" an additonal time1delayed function may be configured for each button. The time delay starts with release of the button. For more information about the additional objects see description under "Functions second telegram".

IR decoder functions, single buttons *
Switching: On

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, switching	On	1 Bit	CT
30	C00/16/32/48 <<0, switching	On	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, switching	On	1 Bit	CT
135	C15/31/47/63 <<0, switching	On	1 Bit	CT
When one of the buttons is pressed an "On" switching tele1 gram is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under "Functions second telegram".

IR decoder functions, single buttons *
Switching: Off

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, switching	Off	1 Bit	CT
30	C00/16/32/48 <<0, switching	Off	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, switching	Off	1 Bit	CT
135	C15/31/47/63 <<0, switching	Off	1 Bit	CT
When one of the buttons is pressed an "Off" switching tele1 gram is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under "Functions second telegram".

IR decoder functions, single buttons *
Switching: Toggle

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, switching	Toggle	1 Bit	CWT
30	C00/16/32/48 <<0, switching	Toggle	1 Bit	CWT
...	...	...	...	...
133	C15/31/47/63 >>1, switching	Toggle	1 Bit	CWT
135	C15/31/47/63 <<0, switching	Toggle	1 Bit	CWT
On the first operation of a button an „On" telegram is sent via the corresponding object and on the next operation of the same button an "Off" telegram is sent. On each following operation the value is inverted and then sent (toggle func1 tion).				

IR decoder functions, single buttons *
Switching, dimming: Toggle, brighter / darker (1*button dimming)

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, switching	Toggle	1 Bit	CWT
29	C00/16/32/48 >>1, dimming	brighter / darker	4 Bit	CT
30	C00/16/32/48 <<0, switching	Toggle	1 Bit	CWT
31	C00/16/32/48 <<0, dimming	brighter / darker	4 Bit	CT
...	...	...	...	...

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Obj	Name	Function	Length	Flag
133	C15/31/47/63 >>1, switching	Toggle	1 Bit	CWT
134	C15/31/47/63 >>1, dimming	brighter / darker	4 Bit	CT
135	C15/31/47/63 <<0, switching	Toggle	1 Bit	CWT
136	C15/31/47/63 <<0, dimming	brighter / darker	4 Bit	CT
On the first operation of a button an „On“ telegram is sent via the corresponding object and on the next operation of the same button an “Off” telegram is sent. On each following operation the value is inverted and then sent (toggle func1 tion). On a long operation of a button a “brighter” dimming telegram is sent via the corrseponding object and on the next operation of the same button a “darker” dimming telegram is sent. On each following long operation the dimming direction (brighter / darker) is changed. After a switching on command the dimming direction is preset to „darker“ and after a switching off command the dimming direction is preset to “brighter”. A short press of a button generates a switching command and a long press of a button generates a dimming command.				

IR decoder functions, single buttons *
Door bell function: drücken = On, loslassen = Off

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, bell function	On / Off	1 Bit	CT
30	C00/16/32/48 <<0, bell function	On / Off	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, bell function	On / Off	1 Bit	CT
135	C15/31/47/63 <<0, bell function	On / Off	1 Bit	CT
On pressing a button a switching „On“ telegram is sent via the corresonding object and on releasing the button a telegram “Off” is sent.				

IR decoder functions, single buttons *
Door bell function: press = Off, release = On

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, bell function	Off /On	1 Bit	CT
30	C00/16/32/48 <<0, bell function	Off /On	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, bell function	Off /On	1 Bit	CT
135	C15/31/47/63 <<0, bell function	Off /On	1 Bit	CT
On pressing a button a switching „Off“ telegram is sent via the corresonding object and on releasing the button a telegram “On” is sent.				

IR decoder functions, single buttons *
Solar protection, Slats: up / down / stop
(1*button solar protection control)

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, slats	stop / open / close	1 Bit	CT
29	C00/16/32/48 >>1, venetian blind	up/ down	1 Bit	CWT
30	C00/16/32/48 <<0, slats	stop / open / close	1 Bit	CT
31	C00/16/32/48 <<0, venetian blind	up/ down	1 Bit	CWT
...	...	...	...	...
133	C15/31/47/63 >>1, slats	stop / open / close	1 Bit	CT
134	C15/31/47/63 >>1, venetian blind	up/ down	1 Bit	CWT
135	C15/31/47/63 <<0, slats	stop / open / close	1 Bit	CT
136	C15/31/47/63 <<0, solar protection	up/ down	1 Bit	CWT
On the first long operation of a button a move solar protection „Down“ telegram is sent via the corresponding object and on the next long operation of the same button a move solar protection “Up” telegram is sent. On each following long operation the motion direction (Up/Down) is changed. On each short operation of a button a command “stop / slats open” is sent via the corresponding object if previously the solar protection was moved down. If previously the solar protection was moved up, on each short operation of a button a command “stop / slat close” is sent. The motion direction of the slat command (open / close) is always opposite to the direction of the last motion (down / up) command. A long press of a button generates a command to move the solar protection and a short press of a button generates a command stopping the motion of the solar protection or adjusting the slats by a step.				

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IR decoder functions, single buttons *
Roller shutter control: up / down / stop
(1 –button roller shutter control)

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, roller shutter	stop	1 Bit	CT
29	C00/16/32/48 >>1, roller shutter	up/ down	1 Bit	CT
30	C00/16/32/48 <<0, roller shutter	stop	1 Bit	CT
31	C00/16/32/48 <<0, roller shutter	up/ down	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, roller shutter	stop	1 Bit	CT
134	C15/31/47/63 >>1, roller shutter	up/ down	1 Bit	CT
135	C15/31/47/63 <<0, roller shutter	stop	1 Bit	CT
136	C15/31/47/63 <<0, roller shutter	up/ down	1 Bit	CT
On the first long operation of a button a move roller shutter „Down" telegram is sent via the corresponding object and on the next long operation of the same button a move roller shutter "Up" telegram is sent. On each following long opera1 tion the motion direction (Up/Down) is changed. On each short operation of a button a command "stop" is sent via the corresponding object. A long press of a button generates a command to move the roller shutter and a short press of a button generates a command stopping the motion of the roller shutter.				

IR decoder functions, single buttons *
1*bit scene 1: recall / save

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, scene 1	recall	1 Bit	CT
29	C00/16/32/48 >>1, scene 1	save	1 Bit	CT
30	C00/16/32/48 <<0, scene 1	recall	1 Bit	CT
31	C00/16/32/48 <<0, scene 1	save	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, scene 1	recall	1 Bit	CT
134	C15/31/47/63 >>1, scene 1	save	1 Bit	CT
135	C15/31/47/63 <<0, scene 1	recall	1 Bit	CT
136	C15/31/47/63 <<0, scene 1	save	1 Bit	CT
On short operation of a button a telegram „scene 1 recall" is sent via the corresponding object and on long operation of the button a telegram "scene 1 save" (object value = 0) is sent. A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.				

IR decoder functions, single buttons *
1*bit scene 2: recall / save

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, scene 2	recall	1 Bit	CT
29	C00/16/32/48 >>1, scene 2	save	1 Bit	CT
30	C00/16/32/48 <<0, scene 2	recall	1 Bit	CT
31	C00/16/32/48 <<0, scene 2	save	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, scene 2	recall	1 Bit	CT
134	C15/31/47/63 >>1, scene 2	save	1 Bit	CT
135	C15/31/47/63 <<0, scene 2	recall	1 Bit	CT
136	C15/31/47/63 <<0, scene 2	save	1 Bit	CT
On short operation of a button a telegram „scene 2 recall" is sent via the corresponding object and on long operation of the button a telegram "scene 2 save" (object value = 1) is sent. A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.				

IR decoder functions, single buttons *
8*bit scene: recall respectively recall or save

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, 81bit scene	recall / save	1 Byte	CT
30	C00/16/32/48 <<0, 81bit scene	recall / save	1 Byte	CT
...	...	...	...	...
133	C15/31/47/63 >>1, 81bit scene	recall / save	1 Byte	CT
135	C15/31/47/63 <<0, 81bit scene	recall / save	1 Byte	CT
On operation of a button the scene with the configured scene number (scene 1 …. scene 64) is recalled or saved via the corresponding object. Bits 0 through 5 of the 81bit scene object contain the scene number (1…64). The most significant bit 7 determines if a scene is recalled (bit value = 0) or saved (bit value = 1). Bit 6 is not used.				

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IR decoder functions, single buttons *
Send 8*bit value: percentage value

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, 81bit value	value	1 Byte	CT
30	C00/16/32/48 <<0, 81bit value	value	1 Byte	CT
...	...	...	...	...
133	C15/31/47/63 >>1, 81bit value	value	1 Byte	CT
135	C15/31/47/63 <<0, 81bit value	value	1 Byte	CT
On operation of a button the percentage value (0 ... 100%) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

IR decoder functions, single buttons *
Send 8*bit value: decimal value

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, 81bit value	value	1 Byte	CT
30	C00/16/32/48 <<0, 81bit value	value	1 Byte	CT
...	...	...	...	...
133	C15/31/47/63 >>1, 81bit value	value	1 Byte	CT
135	C15/31/47/63 <<0, 81bit value	value	1 Byte	CT
On operation of a button the 81bit value (0 ... 255) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

IR decoder functions, single buttons *
Send 16*bit value: temperature value

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, temperature	value	2 Byte	CT
30	C00/16/32/48 <<0, temperature	value	2 Byte	CT
...	...	...	...	...
133	C15/31/47/63 >>1, temperature	value	2 Byte	CT
135	C15/31/47/63 <<0, temperature	value	2 Byte	CT
On operation of a button the temperature value (0 ... 40°C) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

IR decoder functions, single buttons *
Send 16*bit value: brightness value

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, Brightness	value	2 Byte	CT
30	C00/16/32/48 <<0, Brightness	value	2 Byte	CT
...	...	...	...	...
133	C15/31/47/63 >>1, Brightness	value	2 Byte	CT
135	C15/31/47/63 <<0, Brightness	value	2 Byte	CT
On operation of a button the brightness value (0 ... 2000 lux) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

IR decoder functions, single buttons *
Send 16*bit value: decimal value

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, 161bit value	value	2 Byte	CT
30	C00/16/32/48 <<0, 161bit value	value	2 Byte	CT
...	...	...	...	...
133	C15/31/47/63 >>1, 161bit value	value	2 Byte	CT
135	C15/31/47/63 <<0, 161bit value	value	2 Byte	CT
On operation of a button the percentage value (0 ... + 65535) configured for this button is sent via the corresponding object.				

For each button with this function an additonal function may be configured. For more information about the additional objects see description under “Functions second telegram”.

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IR decoder functions, single buttons *
Forced on, inactive / off, inactive

For each button with this function an additonal function may be configured. These are described in this section as the possible objects only appear in this context and are different from those described under "Functions second telegram".

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, forced control	On / Off / inactive	2 Bit	CT
29	C00/16/32/48 >>1, 2nd telegram, Switching	On / Off	1 Bit	CT
30	C00/16/32/48 <<0, forced control	On / Off / inactive	2 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, Switching	On / Off	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, forced control	On / Off / inactive	2 Bit	CT
134	C15/31/47/63 >>1, 2nd telegram, Switching	On / Off	1 Bit	CT
135	C15/31/47/63 <<0, forced control	On / Off / inactive	2 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, Switching	On / Off	1 Bit	CT

On short operation of the IR channel button „>>1" a "forced on" (binary value = 11) telegram and on short operation of the IR channel button „<<0" a "forced off" (binary value = 10) is sent via the corresponding object.
Additionally, depending on the configuration an "On" or "Off" switching command is sent via the corresponding object for the second telegram of each button.
On long operation of the IR channel button „>>1" a "deactivate forced control" (binary value = 01) telegram and on long operation of the IR channel button „<<0" a "deactivate forced control" (binary value = 00) is sent via the corresponding object.
Additionally, depending on the configuration an "On" or "Off" switching command is sent via the corresponding object for the second telegram of each button.
The second telegram can be activated with the following settings:
short button operation = On long button operation = On
short button operation = On long button operation = Off
short button operation = Off long button operation = On
short button operation = Off long button operation = Off
E.g. when forced control is activated (short operation of button) then switching "On" and when forced control is deactivated (long operation of button) then switching "Off" can be sent via the corresponding object for the second telegram.
These switching commands can be used to control actuators without 21bit forced control object.
A short button operation generates a command activating and a long button operation generates a command deactivat1 ing forced control.

IR decoder functions, single buttons *
Forced off, inactive / on, inactive

For each button with this function an additonal function may be configured. These are described in this section as the possible objects only appear in this context and are different from those described under "Functions second telegram".

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, forced control	On / Off / inactive	2 Bit	CT
29	C00/16/32/48 >>1, 2nd telegram, Switching	On / Off	1 Bit	CT
30	C00/16/32/48 <<0, forced control	On / Off / inactive	2 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, Switching	On / Off	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, forced control	On / Off / inactive	2 Bit	CT
134	C15/31/47/63 >>1, 2nd telegram, Switching	On / Off	1 Bit	CT
135	C15/31/47/63 <<0, forced control	On / Off / inactive	2 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, Switching	On / Off	1 Bit	CT

On short operation of the IR channel button „>>1" a "forced off" (binary value = 10) telegram and on short operation of the IR channel button „<<0" a "forced on" (binary value = 11) is sent via the corresponding object.
Additionally, depending on the configuration an "On" or "Off" switching command is sent via the corresponding object for the second telegram of each button.
On long operation of the IR channel button „>>1" a "deactivate forced control" (binary value = 00) telegram and on long operation of the IR channel button „<<0" a "deactivate forced control" (binary value = 01) is sent via the corresponding object.
Additionally, depending on the configuration an "On" or "Off" switching command is sent via the corresponding object for the second telegram of each button.
The second telegram can be activated with the following settings:
short button operation = On long button operation = On
short button operation = On long button operation = Off
short button operation = Off long button operation = On

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Obj	Name	Function	Length	Flag
short button operation = Off long button operation = Off E.g. when forced control is activated (short operation of button) then switching "On" and when forced control is deactivated (long operation of button) then switching "Off" can be sent via the corresponding object for the second telegram. These switching commands can be used to control actuators without 21bit forced control object. A short button operation generates a command activating and a long button operation generates a command deactivat1 ing forced control.				

IR decoder functions, button pairs * Switching, dimming: On, brighter / Off, darker

Obj	Name	Function	Length	Flag
28	C00/16/32/48, switching	On / Off	1 Bit	CT
30	C00/16/32/48, dimming	brighter / darker	4 Bit	CT
...	...	...	...	...
133	C15/31/47/63, switching	On / Off	1 Bit	CT
135	C15/31/47/63, dimming	brighter / darker	4 Bit	CT
On a short operation of the buttons A1, B1, C1 or D1 an "On" switching telegram is sent via the corresponding object and on long operation a dimming "brighter" telegram is sent via the corresponding object. On a short operation of the buttons A2, B2, C2 or D2 an "Off" switching telegram is sent via the corresponding object and on long operation a dimming "darker" telegram is sent via the corresponding object. A short button operation generates a command for switching and a long button operation one for dimming the lighting.				

IR decoder functions, button pairs * Switching, dimming: Off, darker / On, brighter

Obj	Name	Function	Length	Flag
28	C00/16/32/48, switching	Off /On	1 Bit	CT
30	C00/16/32/48, dimming	darker / brighter	4 Bit	CT
...	...	...	...	...
133	C15/31/47/63, switching	Off /On	1 Bit	CT
135	C15/31/47/63, dimming	darker / brighter	4 Bit	CT
On a short operation of the buttons A1, B1, C1 or D1 an "Off" switching telegram is sent via the corresponding object and on long operation a dimming "darker" telegram is sent via the corresponding object. On a short operation of the buttons A2, B2, C2 or D2 an "On" switching telegram is sent via the corresponding object and on long operation a dimming "brighter" telegram is sent via the corresponding object. A short button operation generates a command for switching and a long button operation one for dimming the lighting.				

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IR decoder functions, button pairs *
Switching, dimming: Toggle, brighter / Toggle, darker

Obj	Name	Function	Length	Flag
28	C00/16/32/48, switching	Toggle	1 Bit	CWT
30	C00/16/32/48, dimming	brighter / darker	4 Bit	CT
...	...	...	...	...
133	C15/31/47/63, switching	Toggle	1 Bit	CWT
135	C15/31/47/63, dimming	brighter / darker	4 Bit	CT

On the first short operation of a button an „On" telegram is sent via the corresponding object and on the next short operation of the same button an "Off" telegram is sent. On each following short operation the value is inverted and then sent (toggle function).
On a long operation of a button A1, B1, C1 or D1 a "brighter" dimming telegram is sent via the corrseponding object and likewise on long operation of a button A2, B2, C2 or D2 a "darker" dimming telegram is sent.
A short press of a button generates a command switching and a long press of a button a command dimming the lighting.

IR decoder functions, button pairs *
Switching, dimming: Toggle, darker / Toggle, brighter

Obj	Name	Function	Length	Flag
28	C00/16/32/48, switching	Toggle	1 Bit	CWT
30	C00/16/32/48, dimming	darker / brighter	4 Bit	CT
...	...	...	...	...
133	C15/31/47/63, switching	Toggle	1 Bit	CWT
135	C15/31/47/63, dimming	darker / brighter	4 Bit	CT

On the first short operation of a button an „On" telegram is sent via the corresponding object and on the next short operation of the same button an "Off" telegram is sent. On each following short operation the value is inverted and then sent (toggle function).
On a long operation of a button A1, B1, C1 or D1 a "darker" dimming telegram is sent via the corrseponding object and likewise on long operation of a button A2, B2, C2 or D2 a "brighter" dimming telegram is sent.
A short press of a button generates a command switching and a long press of a button a command dimming the lighting.

IR decoder functions, button pairs *
Solar protection, slats: up / down

Obj	Name	Function	Length	Flag
28	C00/16/32/48, slats	stop / open / close	1 Bit	CT
30	C00/16/32/48, venetian blind	up/ down	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63, slats	stop / open / close	1 Bit	CT
135	C15/31/47/63, venetian blind	up/ down	1 Bit	CT

On long operation of buttons A1, B1, C1 or D1 a move solar protection „Up" telegram is sent via the corresponding object and on short operation a command "stop / slats open".
On long operation of buttons A2, B2, C2 or D2 a move solar protection „Down" telegram is sent via the corresponding object and on short operation a command "stop / slats close".
A long press of a button generates a command to move the solar protection and a short press of a button generates a command stopping the motion of the solar protection or adjusting the slats by a step.

IR decoder functions, button pairs *
Solar protection, slats: down / up

Obj	Name	Function	Length	Flag
28	C00/16/32/48, slats	stop / close / open	1 Bit	CT
30	C00/16/32/48, venetian blind	down / up	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63, slats	stop / close / open	1 Bit	CT
135	C15/31/47/63, venetian blind	down / up	1 Bit	CT

On long operation of buttons A1, B1, C1 or D1 a move solar protection „Down" telegram is sent via the corresponding object and on short operation a command "stop / slats close".
On long operation of buttons A2, B2, C2 or D2 a move solar protection „Up" telegram is sent via the corresponding object and on short operation a command "stop / slats open".
A long press of a button generates a command to move the solar protection and a short press of a button generates a command stopping the motion of the solar protection or adjusting the slats by a step.

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IR decoder functions, button pairs * roller shutter: up, stop / down, stop

Obj	Name	Function	Length	Flag
28	C00/16/32/48, roller shutter	stop	1 Bit	CT
30	C00/16/32/48, roller shutter	up/ down	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63, roller shutter	stop	1 Bit	CT
135	C15/31/47/63, roller shutter	up/ down	1 Bit	CT

On long operation of buttons A1, B1, C1 or D1 a move roller shutter „Down" telegram is sent via the corresponding object and on short operation a command "stop".
On long operation of buttons A2, B2, C2 or D2 a move roller shutter „Up" telegram is sent via the corresponding object and on short operation a command "stop".
A long press of a button generates a command to move the roller shutter and a short press of a button generates a command stopping the motion of the roller shutter.

IR decoder functions, button pairs * roller shutter: down, stop / up, stop

Obj	Name	Function	Length	Flag
28	C00/16/32/48, roller shutter	stop	1 Bit	CT
30	C00/16/32/48, roller shutter	down / up	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63, roller shutter	stop	1 Bit	CT
135	C15/31/47/63, roller shutter	down / up	1 Bit	CT

On long operation of buttons A1, B1, C1 or D1 a move roller shutter „Up" telegram is sent via the corresponding object and on short operation a command "stop".
On long operation of buttons A2, B2, C2 or D2 a move roller shutter „Down" telegram is sent via the corresponding object and on short operation a command "stop".
A long press of a button generates a command to move the roller shutter and a short press of a button generates a command stopping the motion of the roller shutter.

IR decoder functions, button pairs * Send percent value variable (increment / decrement)

Obj	Name	Function	Length	Flag
28	C00/16/32/48, percentage (variable)	value	1 Byte	CWTU
...	...	...	...	...
133	C15/31/47/63, percentage (variable)	value	1 Byte	CWTU

On short operation of buttons A1, B1, C1 or D1 a telegram is sent via the corresponding object with a percentage value (0…100%) incremented by the configured percentage step.
On short operation of buttons A2, B2, C2 or D2 a telegram is sent via the corresponding object with a percentage value (0…100%) decremented by the configured percentage step.
On long operation of buttons A1, B1, C1 or D1 the percentage value is incremented step by step and sent cyclically via the corresponding object as long as the button is pressed.
On long operation of buttons A2, B2, C2 or D2 the percentage value is decremented step by step and sent cyclically via the corresponding object as long as the button is pressed.

IR decoder functions, button pairs * Send percent value variable (decrement / increment)

Obj	Name	Function	Length	Flag
28	C00/16/32/48, percentage (variable)	value	1 Byte	CWTU
...	...	...	...	...
133	C15/31/47/63, percentage (variable)	value	1 Byte	CWTU

On short operation of buttons A1, B1, C1 or D1 a telegram is sent via the corresponding object with a percentage value (0…100%) decremented by the configured percentage step.
On short operation of buttons A2, B2, C2 or D2 a telegram is sent via the corresponding object with a percentage value (0…100%) incremented by the configured percentage step.
On long operation of buttons A1, B1, C1 or D1 the percentage value is decremented step by step and sent cyclically via the corresponding object as long as the button is pressed.
On long operation of buttons A2, B2, C2 or D2 the percentage value is incremented step by step and sent cyclically via the corresponding object as long as the button is pressed.

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IR decoder functions, button pairs *
Send 8*bit value variable (increment / decrement)

Obj	Name	Function	Length	Flag
28	C00/16/32/48, 81bit value (variable)	value	1 Byte	CWTU
...	...	...	...	...
133	C15/31/47/63, 81bit value (variable)	value	1 Byte	CWTU

On short operation of buttons A1, B1, C1 or D1 a telegram is sent via the corresponding object with an 81bit value (0…255) incremented by the configured step.
On short operation of buttons A2, B2, C2 or D2 a telegram is sent via the corresponding object with an 81bit value (0…255) decremented by the configured step.
On long operation of buttons A1, B1, C1 or D1 the 81bit value is incremented step by step and sent cyclically via the corre1 sponding object as long as the button is pressed.
On long operation of buttons A2, B2, C2 or D2 the 81bit value is decremented step by step and sent cyclically via the corre1 sponding object as long as the button is pressed.

IR decoder functions, button pairs *
Send 8*bit value variable (decrement / increment)

Obj	Name	Function	Length	Flag
28	C00/16/32/48, 81bit value (variable)	value	1 Byte	CWTU
...	...	...	...	...
133	C15/31/47/63, 81bit value (variable)	value	1 Byte	CWTU

On short operation of buttons A1, B1, C1 or D1 a telegram is sent via the corresponding object with an 81bit value (0…255) decremented by the configured step.
On short operation of buttons A2, B2, C2 or D2 a telegram is sent via the corresponding object with an 81bit value (0…255) incremented by the configured step.
On long operation of buttons A1, B1, C1 or D1 the 81bit value is decremented step by step and sent cyclically via the corre1 sponding object as long as the button is pressed.
On long operation of buttons A2, B2, C2 or D2 the 81bit value is incremented step by step and sent cyclically via the corre1 sponding object as long as the button is pressed.

IR decoder functions, button pairs *
1*bit scene 1 / 2 recall / save

Obj	Name	Function	Length	Flag
28	C00/16/32/48, scene 1 / 2	recall	1 Bit	CT
30	C00/16/32/48, scene 1 / 2	save	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63, scene 1 / 2	recall	1 Bit	CT
135	C15/31/47/63, scene 1 / 2	save	1 Bit	CT

On short operation of buttons A1, B1, C1 or D1 a telegram „scene 1 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 1 save” (object value = 0) is sent.
On short operation of buttons A2, B2, C2 or D2 a telegram „scene 2 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 2 save” (object value = 1) is sent.
A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.

IR decoder functions, button pairs *
1*bit scene 2 / 1 recall / save

Obj	Name	Function	Length	Flag
28	C00/16/32/48, scene 2 / 1	recall	1 Bit	CT
30	C00/16/32/48, scene 2 / 1	save	1 Bit	CT
...	...	...	...	...
133	C15/31/47/63, scene 2 / 1	recall	1 Bit	CT
135	C15/31/47/63, scene 2 / 1	save	1 Bit	CT

On short operation of buttons A1, B1, C1 or D1 a telegram „scene 2 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 2 save” (object value = 1) is sent.
On short operation of buttons A2, B2, C2 or D2 a telegram „scene 1 recall“ is sent via the corresponding object and on long operation of the button a telegram “scene 1 save” (object value = 0) is sent.
A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.

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**IR decoder functions, button pairs *
8*bit scene recall and save**

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, 81bit scene	recall / save	1 Byte	CT
30	C00/16/32/48 <<0, 81 bit scene	recall / save	1 Byte	CT
...	...	...	...	...
133	C15/31/47/63 >>1, 81bit scene	recall / save	1 Byte	CT
135	C15/31/47/63 <<0, 81 bit scene	recall / save	1 Byte	CT

On short operation of a button the scene with the configured scene number (scene 1 …. scene 64) is recalled and on long operation of the button the scene is saved via the correspond1 ing object.
Bits 0 through 5 of the 81bit scene object contain the scene number (1…64). The most significant bit 7 determines if a scene is recalled (bit value = 0) or saved (bit value = 1).
Bit 6 is not used.
A short operation of a button generates a command recalling a preset scene and a long operation of a button generates a command saving the current settings of a scene.

**IR decoder functions, button pairs *
Forced on, inactive / off, inactive**

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, forced control	forced On / inactive	2 Bit	CT
30	C00/16/32/48 <<0, forced control	forced Off / inactive	2 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, forced control	forced On / inactive	2 Bit	CT
135	C15/31/47/63 <<0, forced control	forced Off / inactive	2 Bit	CT

On short operation of the IR channel button „>>1“ a “forced on” (binary value = 11) telegram and on short operation of the IR channel button „<<0“ a “forced off” (binary value = 10) is sent via the corresponding object.
On long operation of the IR channel button „>>1“ a “deactivate forced control” (binary value = 01) telegram and on long operation of the IR channel button „<<0“ a “deactivate forced control” (binary value = 00) is sent via the corresponding object.
A short button operation generates a command activating and a long button operation generates a command deactivat1 ing forced control.

**IR decoder functions, button pairs *
Forced off, inactive / on, inactive**

Obj	Name	Function	Length	Flag
28	C00/16/32/48 >>1, forced control	forced Off / inactive	2 Bit	CT
30	C00/16/32/48 <<0, forced control	forced On / inactive	2 Bit	CT
...	...	...	...	...
133	C15/31/47/63 >>1, forced control	forced Off / inactive	2 Bit	CT
135	C15/31/47/63 <<0, forced control	forced On / inactive	2 Bit	CT

On short operation of the IR channel button „>>1“ a “forced off” (binary value = 10) telegram and on short operation of the IR channel button „<<0“ a “forced on” (binary value = 11) is sent via the corresponding object.
On long operation of the IR channel button „>>1“ a “deactivate forced control” (binary value = 00) telegram and on long operation of the IR channel button „<<0“ a “deactivate forced control” (binary value = 01) is sent via the corresponding object.
A short button operation generates a command activating and a long button operation generates a command deactivat1 ing forced control.

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Functions/Objects for an additional button function (send additional or second telegram) for IR channels

If an additional function per button can be selected when configuring single buttons or button pairs, then one of these additional functions may be sent after a time delay or on long operation of a button via a second communi1 cation object per button:

- Switching On
- Switching Off
- Send percentage
- Send 81bit value
- Send temperature value
- Send brightness value
- Send 161bit value
- 11bit scene: recall / save scene 1
- 11bit scene: recall / save scene 2
- 81bit scene: recall
- Forced on
- Forced off
- Forced control off

IR decoder functions, additional button functions – Switching: On

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, switching	On	1 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, switching	On	1 Bit	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, switching	On	1 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, switching	On	1 Bit	CT
On operation of one of the buttons the switching "on" com1 mand configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

IR decoder functions, additional button functions – Switching: Off

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, switching	Off	1 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, switching	Off	1 Bit	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, switching	Off	1 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, switching	Off	1 Bit	CT
On operation of one of the buttons the switching "off" com1 mand configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

IR decoder functions, additional button functions – Send percentage

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, Percentage value	value	1 Byte	CT
31	C00/16/32/48 <<0, 2nd telegram, Percentage value	value	1 Byte	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, Percentage value	value	1 Byte	CT
136	C15/31/47/63 <<0, 2nd telegram, Percentage value	value	1 Byte	CT
On operation of one of the buttons the percent value (0...100%) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

IR decoder functions, additional button functions – Send 8*bit value

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, 81bit value	value	1 Byte	CT
31	C00/16/32/48 <<0, 2nd telegram, 81bit value	value	1 Byte	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, 81bit value	value	1 Byte	CT
136	C15/31/47/63 <<0, 2nd telegram, 81bit value	value	1 Byte	CT
On operation of one of the buttons the 81bit value (0...255) configured as second telegram for this button is sent immedi1 ately or time delayed via the corresponding second object.				

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IR decoder functions, additional button functions – Send temperature value

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, temperature	value	2 Byte	CT
31	C00/16/32/48 <<0, 2nd telegram, temperature	value	2 Byte	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, temperature	value	2 Byte	CT
136	C15/31/47/63 <<0, 2nd telegram, temperature	value	2 Byte	CT
On operation of one of the buttons the temperature value (0...40°C) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

IR decoder functions, additional button functions – Send brightness value

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, Brightness	value	2 Byte	CT
31	C00/16/32/48 <<0, 2nd telegram, Brightness	value	2 Byte	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, Brightness	value	2 Byte	CT
136	C15/31/47/63 <<0, 2nd telegram, Brightness	value	2 Byte	CT
On operation of one of the buttons the brightness value (0...1000 Lux) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

IR decoder functions, additional button functions – Send 16*bit value

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, 161bit value	value	2 Byte	CT
31	C00/16/32/48 <<0, 2nd telegram, 161bit value	value	2 Byte	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, 161bit value	value	2 Byte	CT
136	C15/31/47/63 <<0, 2nd telegram, 161bit value	value	2 Byte	CT
On operation of one of the buttons the 161bit value (0…65535) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

IR decoder functions, additional button functions – 1*bit scene: recall / save scene 1

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, scene 1	recall / save	1 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, scene 1	recall / save	1 Bit	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, scene 1	recall / save	1 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, scene 1	recall / save	1 Bit	CT
On operation of one of the buttons the scene 1 (object value = 0) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object. Scene 1 is recalled if this object is connected to a 11bit scene object for recalling a scene. Scene 1 is saved if this object is connected to a 11bit scene object for saving a scene.				

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IR decoder functions, additional button functions – 1*bit scene: recall / save scene 2

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, scene 2	recall / save	1 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, scene 2	recall / save	1 Bit	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, scene 2	recall / save	1 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, scene 2	recall / save	1 Bit	CT
On operation of one of the buttons the scene 2 (object value = 1) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object. Scene 2 is recalled if this object is connected to a 11bit scene object for recalling a scene. Scene 2 is saved if this object is connected to a 11bit scene object for saving a scene.				

IR decoder functions, additional button functions – 8*bit scene recall

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, 81bit scene	recall / save	1 Byte	CT
31	C00/16/32/48 <<0, 2nd telegram, 81bit scene	recall / save	1 Byte	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, 81bit scene	recall / save	1 Byte	CT
136	C15/31/47/63 <<0, 2nd telegram, 81bit scene	recall / save	1 Byte	CT
On operation of one of the buttons the scene with the preset number (scene 1 ... scene 64) configured as second telegram for this button is recalled or saved immediately or time delayed via the corresponding second object. Bits 0 through 5 of the 81bit scene object contain the scene number (1…64). The most significant bit 7 determines if a scene is recalled (bit value = 0) or saved (bit value = 1). Bit 6 is not used.				

IR decoder functions, additional button functions – forced on

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, forced control	forced On	2 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, forced control	forced On	2 Bit	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, forced control	forced On	2 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, forced control	forced On	2 Bit	CT
On operation of one of the buttons the “forced on” command (binary value = 11) configured as second telegram for this button is sent immediately or time delayed via the correspond1 ing second object.				

IR decoder functions, additional button functions – forced off

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, forced control	forced Off	2 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, forced control	forced Off	2 Bit	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, forced control	forced Off	2 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, forced control	forced Off	2 Bit	CT
On operation of one of the buttons the “forced on” command (binary value = 10) configured as second telegram for this button is sent immediately or time delayed via the correspond1 ing second object.				

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IR decoder functions, additional button functions – forced control off

Obj	Name	Function	Length	Flag
29	C00/16/32/48 >>1, 2nd telegram, forced control	forced control off	2 Bit	CT
31	C00/16/32/48 <<0, 2nd telegram, forced control	forced control off	2 Bit	CT
...	...	...	...	...
134	C15/31/47/63 >>1, 2nd telegram, forced control	forced control off	2 Bit	CT
136	C15/31/47/63 <<0, 2nd telegram, forced control	forced control off	2 Bit	CT
On operation of one of the buttons the "forced control off" command (binary value = 00) configured as second telegram for this button is sent immediately or time delayed via the corresponding second object.				

IR decoder functions – IR temperature

Obj	Name	Function	Length	Flag
32	C00/16/32/48, temperature	value	2 Byte	CRT
39	C01/17/33/49, temperature	value	2 Byte	CRT
46	C02/18/34/50, temperature	value	2 Byte	CRT
53	C03/19/35/51, temperature	value	2 Byte	CRT
60	C04/20/36/52, temperature	value	2 Byte	CRT
67	C05/21/37/53, temperature	value	2 Byte	CRT
74	C06/22/38/54, temperature	value	2 Byte	CRT
81	C07/23/39/55, temperature	value	2 Byte	CRT
88	C08/24/40/56, temperature	value	2 Byte	CRT
95	C09/25/41/57, temperature	value	2 Byte	CRT
102	C10/26/42/58, temperature	value	2 Byte	CRT
109	C11/27/43/59, temperature	value	2 Byte	CRT
116	C12/28/44/60, temperature	value	2 Byte	CRT
123	C13/29/45/61, temperature	value	2 Byte	CRT
130	C14/30/46/62, temperature	value	2 Byte	CRT
137	C15/31/47/63, temperature	value	2 Byte	CRT
On reception of the respective IR signals a telegram with the temperature value received is sent onto the bus.				

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IR decoder functions – IR brightness

Obj	Name	Function	Length	Flag
33	C00/16/32/48, Brightness	value	2 Byte	CRT
40	C01/17/33/49, Brightness	value	2 Byte	CRT
47	C02/18/34/50, Brightness	value	2 Byte	CRT
54	C03/19/35/51, Brightness	value	2 Byte	CRT
61	C04/20/36/52, Brightness	value	2 Byte	CRT
68	C05/21/37/53, Brightness	value	2 Byte	CRT
75	C06/22/38/54, Brightness	value	2 Byte	CRT
82	C07/23/39/55, Brightness	value	2 Byte	CRT
89	C08/24/40/56, Brightness	value	2 Byte	CRT
96	C09/25/41/57, Brightness	value	2 Byte	CRT
103	C10/26/42/58, Brightness	value	2 Byte	CRT
110	C11/27/43/59, Brightness	value	2 Byte	CRT
117	C12/28/44/60, Brightness	value	2 Byte	CRT
124	C13/29/45/61, Brightness	value	2 Byte	CRT
131	C14/30/46/62, Brightness	value	2 Byte	CRT
138	C15/31/47/63, Brightness	value	2 Byte	CRT
On reception of the respective IR signals a telegram with the brightness value received is sent onto the bus.				

IR decoder functions – IR presence

Obj	Name	Function	Length	Flag
34	C00/16/32/48, presence	1 = presence	1 Bit	CRT
41	C01/17/33/49, presence	1 = presence	1 Bit	CRT
48	C02/18/34/50, presence	1 = presence	1 Bit	CRT
55	C03/19/35/51, presence	1 = presence	1 Bit	CRT
62	C04/20/36/52, presence	1 = presence	1 Bit	CRT
69	C05/21/37/53, presence	1 = presence	1 Bit	CRT
76	C06/22/38/54, presence	1 = presence	1 Bit	CRT
83	C07/23/39/55, presence	1 = presence	1 Bit	CRT
90	C08/24/40/56, presence	1 = presence	1 Bit	CRT
97	C09/25/41/57, presence	1 = presence	1 Bit	CRT
104	C10/26/42/58, presence	1 = presence	1 Bit	CRT
111	C11/27/43/59, presence	1 = presence	1 Bit	CRT
118	C12/28/44/60, presence	1 = presence	1 Bit	CRT
125	C13/29/45/61, presence	1 = presence	1 Bit	CRT
132	C14/30/46/62, presence	1 = presence	1 Bit	CRT
139	C15/31/47/63, presence	1 = presence	1 Bit	CRT
On reception of the respective IR signals a telegram with the presence value received is sent onto the bus.				

IR decoder functions – IR ID

Obj	Name	Function	Length	Flag
157	IR1ID	Nummer	2 Byte	CRWT
On reception of the respective IR signals a telegram with the ID number received is sent onto the bus.				

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Objects Scene control

Note

Scene control can only be activated for wallswitches with IR receiver decoder or with temperature sensor.

The following communication objects are only present when "scene control" is selected on the parameter tab "Device selection".

Obj	Name	Function	Length	Flag
140	81bit scene, Scene channel A1H	recall/ save	1 Byte	CRWT
Scenes for scene channels A1H of the scene control are recalled and saved via the group address assigned to this object. Bits 0 through 5 of the 81bit scene object contain the scene number (1…64). The most significant bit 7 determines if a scene is recalled (bit value = 0) or saved (bit value = 1). Bit 6 is not used. The scene control module integrated in the wall switch interprets the scene number (1164) received via telegram according to the configuration. If a scene is recalled then the associated values are sent via the objects "scene channel x, recall". If a scene shall be saved the current status values are read from the actuators via the objects "scene channel x, save".				

8*bit scenenfunktion, switching

Obj	Name	Function	Length	Flag
141	Scene channel A, switching	save	1 Bit	CRWTU
142	Scene channel B, switching	save	1 Bit	CRWTU
143	Scene channel C, switching	save	1 Bit	CRWTU
144	Scene channel D, switching	save	1 Bit	CRWTU
145	Scene channel E, switching	save	1 Bit	CRWTU
146	Scene channel F, switching	save	1 Bit	CRWTU
147	Scene channel G, switching	save	1 Bit	CRWTU
148	Scene channel H, switching	save	1 Bit	CRWTU
When an 81bit scene save command is received the associated value of the 81bit scene for scene channel A (B…H) is read from the actuator via the group address assigned to this object. The group address must also be assigned depending				

Obj	Name	Function	Length	Flag
on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the corresponding objects in the target actuators or sensors.				
149	Scene channel A, switching	recall	1 Bit	CRWT
150	Scene channel B, switching	recall	1 Bit	CRWT
151	Scene channel C, switching	recall	1 Bit	CRWT
152	Scene channel D, switching	recall	1 Bit	CRWT
153	Scene channel E, switching	recall	1 Bit	CRWT
154	Scene channel F, switching	recall	1 Bit	CRWT
155	Scene channel G, switching	recall	1 Bit	CRWT
156	Scene channel H, switching	recall	1 Bit	CRWT
When an 81bit scene recall command is received the associ1 ated value of the 81bit scene for scene channel A (B…H) is sent to the actuators via the group address assigned to this object. The group address must also be assigned depending on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the correspond1 ing objects in the target actuators.				

8*bit scene function, solar protection

Obj	Name	Function	Length	Flag
141	Scene channel A, solarprotection	save	1 Bit	CRWTU
142	Scene channel B, solar protection	save	1 Bit	CRWTU
143	Scene channel C, solarprotection	save	1 Bit	CRWTU
144	Scene channel D, solarprotection	save	1 Bit	CRWTU
145	Scene channel E, solarprotection	save	1 Bit	CRWTU
146	Scene channel F, solarprotection	save	1 Bit	CRWTU
147	Scene channel G, solarprotection	save	1 Bit	CRWTU
148	Scene channel H, solarprotection	save	1 Bit	CRWTU
When an 81bit scene save command is received the associated				

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Obj	Name	Function	Length	Flag
value of the 81bit scene for scene channel A (B…H) is read from the actuator via the group address assigned to this object. The group address must also be assigned depending on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the corresponding objects in the target actuators or sensors.				
149	Scene channel A, solarprotection	recall	1 Bit	CRWT
150	Scene channel B, solar protection	recall	1 Bit	CRWT
151	Scene channel C, solarprotection	recall	1 Bit	CRWT
152	Scene channel D, solarprotection	recall	1 Bit	CRWT
153	Scene channel E, solarprotection	recall	1 Bit	CRWT
154	Scene channel F, solarprotection	recall	1 Bit	CRWT
155	Scene channel G, solarprotection	recall	1 Bit	CRWT
156	Scene channel H, solarprotection	recall	1 Bit	CRWT
When an 81bit scene recall command is received the associ1 ated value of the 81bit scene for scene channel A (B…H) is sent to the actuators via the group address assigned to this object. The group address must also be assigned depending on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the correspond1 ing objects in the target actuators.				

8*bit scene function, forced control

Obj	Name	Function	Length	Flag
141	Scene channel A, forced control	save	2 Bit	CRWTU
142	Scene channel B, forced control	save	2 Bit	CRWTU
143	Scene channel C, forced control	save	2 Bit	CRWTU
144	Scene channel D, forced control	save	2 Bit	CRWTU
145	Scene channel E, forced control	save	2 Bit	CRWTU
146	Scene channel F, forced control	save	2 Bit	CRWTU
147	Scene channel G, forced control	save	2 Bit	CRWTU
148	Scene channel H, forced control	save	2 Bit	CRWTU
When an 81bit scene save command is received the associated value of the 81bit scene for scene channel A (B…H) is read from the actuator via the group address assigned to this object. The group address must also be assigned depending on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the corresponding objects in the target actuators or sensors.				
149	Scene channel A, forced control	recall	2 Bit	CRWT
150	Scene channel B, forced control	recall	2 Bit	CRWT
151	Scene channel C, forced control	recall	2 Bit	CRWT
152	Scene channel D, forced control	recall	2 Bit	CRWT
153	Scene channel E, forced control	recall	2 Bit	CRWT
154	Scene channel F, forced control	recall	2 Bit	CRWT
155	Scene channel G, forced control	recall	2 Bit	CRWT
156	Scene channel H, forced control	recall	2 Bit	CRWT
When an 81bit scene recall command is received the associ1 ated value of the 81bit scene for scene channel A (B…H) is sent to the actuators via the group address assigned to this object. The group address must also be assigned depending on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the correspond1 ing objects in the target actuators.				

8*bit scenenfunktion, 8*bit value

Obj	Name	Function	Length	Flag
141	Scene channel A, 81bit value	save	1 Byte	CRWTU
142	Scene channel B, 81bit value	save	1 Byte	CRWTU
143	Scene channel C, 81bit value	save	1 Byte	CRWTU
144	Scene channel D, 81bit value	save	1 Byte	CRWTU
145	Scene channel E, 81bit value	save	1 Byte	CRWTU

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Obj	Name	Function	Length	Flag
146	Scene channel F, 81bit value	save	1 Byte	CRWTU
147	Scene channel G, 81bit value	save	1 Byte	CRWTU
148	Scene channel H, 81bit value	save	1 Byte	CRWTU
When an 81bit scene save command is received the associated value of the 81bit scene for scene channel A (B…H) is read from the actuator via the group address assigned to this object. The group address must also be assigned depending on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the corresponding objects in the target actuators or sensors.				
149	Scene channel A, 81bit value	recall	1 Byte	CRWT
150	Scene channel B, 81bit value	recall	1 Byte	CRWT
151	Scene channel C, 81bit value	recall	1 Byte	CRWT
152	Scene channel D, 81bit value	recall	1 Byte	CRWT
153	Scene channel E, 81bit value	recall	1 Byte	CRWT
154	Scene channel F, 81bit value	recall	1 Byte	CRWT
155	Scene channel G, 81bit value	recall	1 Byte	CRWT
156	Scene channel H, 81bit value	recall	1 Byte	CRWT
When an 81bit scene recall command is received the associ1 ated value of the 81bit scene for scene channel A (B…H) is sent to the actuators via the group address assigned to this object. The group address must also be assigned depending on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the correspond1 ing objects in the target actuators.				

8*bit scenenfunktion, 16*bit value (Temp / Lux)

Obj	Name	Function	Length	Flag
141	Scene channel A, 161Bit value	save	2 Byte	CRWTU
142	Scene channel B, 161Bit value	save	2 Byte	CRWTU
143	Scene channel C, 161Bit value	save	2 Byte	CRWTU

Obj	Name	Function	Length	Flag
144	Scene channel D, 161Bit value	save	2 Byte	CRWTU
145	Scene channel E, 161Bit value	save	2 Byte	CRWTU
146	Scene channel F, 161Bit value	save	2 Byte	CRWTU
147	Scene channel G, 161Bit value	save	2 Byte	CRWTU
148	Scene channel H, 161Bit value	save	2 Byte	CRWTU
When an 81bit scene save command is received the associated value of the 81bit scene for scene channel A (B…H) is read from the actuator via the group address assigned to this object. The group address must also be assigned depending on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the corresponding objects in the target actuators or sensors.				
149	Scene channel A, 161Bit value	recall	2 Byte	CRWT
150	Scene channel B, 161Bit value	recall	2 Byte	CRWT
151	Scene channel C, 161Bit value	recall	2 Byte	CRWT
152	Scene channel D, 161Bit value	recall	2 Byte	CRWT
153	Scene channel E, 161Bit value	recall	2 Byte	CRWT
154	Scene channel F, 161Bit value	recall	2 Byte	CRWT
155	Scene channel G, 161Bit value	recall	2 Byte	CRWT
156	Scene channel H, 161Bit value	recall	2 Byte	CRWT
When an 81bit scene recall command is received the associ1 ated value of the 81bit scene for scene channel A (B…H) is sent to the actuators via the group address assigned to this object. The group address must also be assigned depending on the data type (e.g. switching, venetian blind up/down, forced control, 81bit value (decimal or percent value), 161bit value (brightness, temperature, decimal value)) to the correspond1 ing objects in the target actuators.				

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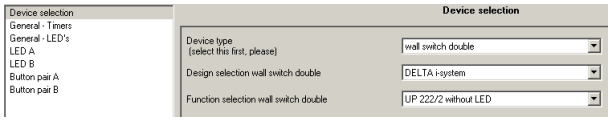
Parameter

Note

The number of parameter tabs presented in the ETS menu and their names may vary as they are controlled by the parameter settings.

Device selection



Parameter	Settings
Device type (select this first, please)	Wall switch single **Wall switch double** Wall switch triple / quadruple
With this parameter the number of button pairs for the wall switch is selected. With the selection "Wall switch single" these parameters are present Design selection Wall switch single Function selection Wall switch single With the selection "Wall switch double" these parameters are present Design selection Wall switch double Function selection Wall switch double With the selection "Wall switch triple / quadruple" these parameters are present Design selection Wall switch triple / quadruple Function selection Wall switch triple / quadruple Scene control	
Design selection Wall switch single	DELTA profil / style **DELTA i*system**
Design selection Wall switch double	DELTA profil / style **DELTA i*system**
Design selection Wall switch triple / quadru* ple	DELTA profil / style (quadru1 ple) **DELTA i*system (triple)**
This parameter determines the selection options with the parameter „Function selection" and the number of parameter tabs for status LED and button pairs.	

Parameter	Settings
Function selection Wall switch single (Design: DELTA i1system)	**UP 221/2 (without LED)** UP 221/3 (with LED)
Function selection Wall switch single (Design: DELTA profil / style)	**UP 241/2 (profil) / UP 285/2 (style), without LED** UP 241/3 (profil) / UP 285/3 (style), with LED
Function selection Wall switch double (Design: DELTA i1system)	**UP 222/2 (without LED)** UP 222/3 (with LED)
Function selection Wall switch double (Design: DELTA profil / style)	**UP 243/2 (profil) / UP 286/2 (style), without LED** UP 243/3 (profil) / UP 286/3 (style), with LED
Function selection Wall switch triple (Design: DELTA i1system)	**UP 223/2 (i*system) without LED** UP 223/3 with LED UP 223/4 with LED and Temp. UP 223/5 with LED and IR
Function selection Taster quadruple (Design: DELTA profil / style)	**UP 241/2 (profil) / UP 285/2 (style), without LED** UP 241/3 / UP 285/3, with LED UP 241/3; UP 285/3, with LED and Temp. UP 241/3; UP 285/3, with LED and IR
This parameter determines the device type and thus the device function. When the wall switch UP 2xx/4 (with temperature sensor) is selected the parameter tab for configuration of the tempera1 ture sensor appears. When the wall switch UP 2xx/5 (with IR) is selected the parameter tab for configuration of the IR receiver decoder appears.	
scene control **(only available for wall switches with IR or Temp)**	**No** Yes
This parameter determines if the scene control module for the wall switches UP 2xx/4 and 2xx/5 is activated. When „Yes" is selected the parameter tab „General – scene" and possibly further parameter tabs for configuration of scene control appear.	

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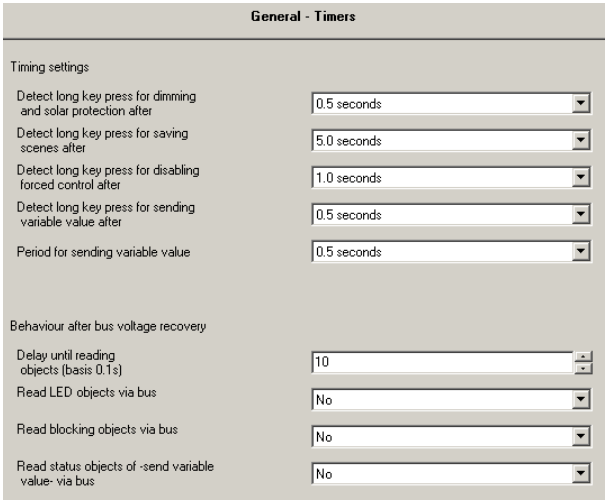
General – Timers



Timing Settings

Parameter	Settings
Detect long key press for dimming and solar protec* tion after	**0.5**; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0; 10.0 seconds
This parameter determines the time for distinguishing be1 tween short / long button operation for switching / dimming respectively solar protection control. If a button is pressed shorter than the configured time then a switching respectively slat control command is executed. If pressed longer a dimming respectively venetian blind or roller shutter control command is executed.	
Detect long key press for saving scenes after	0.5; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; **5.0**; 6.0; 7.0; 10.0 seconds
This parameter determines the time for distinguishing be1 tween short / long button operation for recalling / saving a scene. If a button is pressed shorter than the configured time then the corresponding scene is recalled. If pressed longer the scene is saved. When the command for saving a scene is executed the status LED of the button flashes for the duration of about 2 seconds.	
Detect long key press for disabling forced control after	0.5; 0.6; 0.8; **1.0**; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0; 10.0 seconds
This parameter determines the time for distinguishing be1 tween short / long button operation for activating / deactivat1 ing forced control. If a button is pressed shorter than the configured time then the corresponding forced control command (forced on respectively forced off) is sent. If pressed longer a forced control off command is sent.	

Parameter	Settings
Detect long key press for sending variable value after	**0.5**; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0; 10.0 seconds
This parameter determines the time for distinguishing be1 tween short / long button operation for sending variable values. If a button is pressed shorter than the configured time then the current value of the communication object is sent. If pressed longer the current value is sent first and subsequently, for as long as the button is pressed, the current value incre1 mented or decremented by the configured step value is sent cyclically.	
Period for sending variable value	**0.5**; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0; 10.0 seconds
This parameter determines the cycle time for sending the variable value incremented respectively decremented by the configured step value.	

Behavior after bus voltage recovery

Parameter	Settings
Delay until reading objects (basis 0.1s)	**10** 0...255
This parameter determines the period after bus voltage recovery while the device does not send status read requests to avoid high bus load after bus voltage recovery.	
Read LED objects via bus	**No** Yes
This parameter determines if the status values required for LED status display respectively value dependent display shall be read after bus voltage recovery. If the status values are automatically sent by the actuators then this parameter can be set to “No”. If the status values are not automatically sent and not read then after bus voltage recovery the LED displays “off”.	
Read blocking objects via bus	**No** Yes
This parameter determines if the value for the blocking object shall be read after bus voltage recovery. If the status values for the blocking objects are automatically sent by the actuators then this parameter can be set to “No”. If the status values are not automatically sent and not read then after bus voltage recovery the starting value for the blocking object is “0”.	
Read status objects of send variable value via bus	**No** Yes
This parameter determines for the functions “send variable value” if the values for the status objects shall be read after bus voltage recovery. If the status values are automatically sent by the actuators then this parameter can be set to “No”. If the status values are not automatically sent and not read then after bus voltage recovery the starting value for the variable value object is “0”.	

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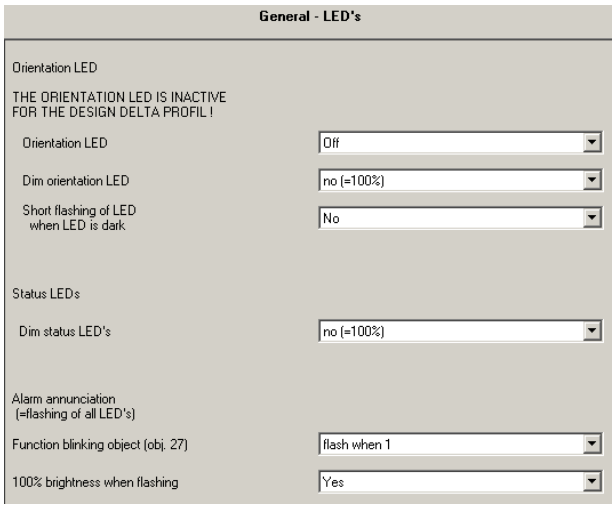
General – LED's



Orientation LED

Parameter	Settings
Orientation LED	**Off** On Status object IR activity (only for wall switches with IR) operation feedback dependent on value ON on long keypress

This parameter determines the function of the orientation LED. Depending on the selection further parameters may appear.

When "Off" is selected the orientation LED is permanently off.
When "On" is selected the orientation LED is permanently on.
When "Status object" is selected the display of the orientation LED depends on a 11bit status value, for which an object appears.
When "IR activity" is selected the orientation LED signals when an IR telegram is received.
When "operation feedback" is selected the orientation LED signals when any of the buttons is pressed.
When "dependent on value" is selected the display of the orientation LED depends on an 81bit or 161bit status value, for which an object appears. With two configurable threshold values the object value range can be divided into three display ranges. For each display range one of the LED states "On", "Off" or "flashing" can be configured. This allows displaying if a received value is below the lower threshold value, is between both thresholds, or is above the upper threshold value.
When "ON on long keypress" is selected then while a button is pressed the associated status LED signals when the condition for a long button operation is fulfilled.

Parameter	Settings
Short flashing of LED when LED is dark	**No** Yes

When „Yes" is selected the orientation LED flashes cyclically (0.5Hz) for about 50ms allowing for orientation that is not disturbing like a permanently lit LED.

Setting „Status object"

Parameter	Settings
Behavior of LED when ON (1)	Off **On** flash slowly (0.3 Hz) flash moderately (1 Hz) flash fast (5 Hz)
Behavior of LED when Off (0)	**Off** On flash slowly (0.3 Hz) flash moderately (1 Hz) flash fast (5 Hz)
This parameter determines the behavior of the orientation LED dependent on the value (ON or OFF) of the status object.	

Setting „Dependent on value"

Parameter	Settings
Display is dependent on	percentage value 81bit value brightness value temperature value **16*bit value**
Upper limit value	
(0...100%)	70
(0...255)	200
(0 . . . 2000 Lux)	900 Lux
(0 ... 40°C)	2°C
(0 ... 65535)	0
Lower limit value	
(0...100%)	10
(0...255)	10
(0 . . . 2000 Lux)	4 Lux
(0 ... 40°C)	2°C
(0 ... 65535)	0
Behavior of LED when value is greater than upper threshold value	Off On **flash slowly (0.3 Hz)** flash moderately (1 Hz) flash fast (5 Hz)

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Parameter	Settings
Behavior of LED when value is between the threshold values	Off **On** flash slowly (0.3 Hz) flash moderately (1 Hz) flash fast (5 Hz)
Behavior of LED when value is lower than lower thresh* old value	**Off** On flash slowly (0.3 Hz) flash moderately (1 Hz) flash fast (5 Hz)
This parameter determines the behavior of the orientation LED for the setting “Dependent on value”.	

Note

Following are the possible settings of value dependent LED display for status and orientation LED’s
Temperature:
0°C ... 40°C, in 0.5K steps
Brightness:
0; 1; 2; 3, 4; 5; 7; 10; 20; 50; 100; 150; 200; 250; 300; 350; 400; 450; 500; 550; 600; 650; 700; 750; 800; 850; 900; 950; **1000;** 2000 (Lux)

Parameter	Settings
Dim orientation LED	**no (=100%)** Yes, constant value Yes, variable value (via object)
These parameters determine the brightness of the orientation light. When “no (=100%)” is selected the orientation LED output is set to maximum brightness. When “Yes, constant value” is selected the orientation LED output can be set to fixed percentage of the maximum brightness. This allows for adapting the orientation LED brightness to the ambient brightness. When “Yes, variable value (via object)” is selected the orienta1 tion LED output can be set to two different percentages of the maximum brightness for On and Off. This allows for choosing a lower brightness at night than during the day.	
Brightness value (5...100%)	**90** 5...100
This parameter appears when the parameter „Dim orientation LED“ is set to „Yes, constant value“.	
Brightness value when On (5...100%)	**90** 5...100
Brightness value when Off (5...100%)	**20** 5...100
These parameters appear when the parameter „Dim orienta1 tion LED“ is set to „Yes, variable value (via object)“.	

Status LED’s

Parameter	Settings
Dim status LED’s	**no (=100%)** Yes, constant value Yes, variable value (via object)
These parameters determine the brightness of the status LED’s. When “no (=100%)” is selected the status LED output is set to maximum brightness. When “Yes, constant value” is selected the status LED output can be set to fixed percentage of the maximum brightness. This allows for adapting the status LED brightness to the ambient brightness. When “Yes, variable value (via object)” is selected the status LED output can be set to two different percentages of the maximum brightness for On and Off. This allows for choosing a lower brightness at night than during the day.	
Brightness value (5...100%)	**90** 5...100
This parameter appears when the parameter „Dim status LED’s“ is set to „Yes, constant value“.	
Brightness value when On (5...100%)	**90** 5...100
Brightness value when Off (5...100%)	**20** 5...100
These parameters appear when the parameter „Dim status LED’s“ is set to „Yes, variable value (via object)“.	

Alarm annunciation (flashing of all LED’s)

Parameter	Settings
Function blinking object (obj. 27)	**flash when 1** flash when 0
This parameter determines which value received by the object 27 “LED flashing” triggers flashing of all LED’s.	
100% brightness when flashing	**Yes** No
This parameter determines whether the LED’s flash with full brightness or not.	

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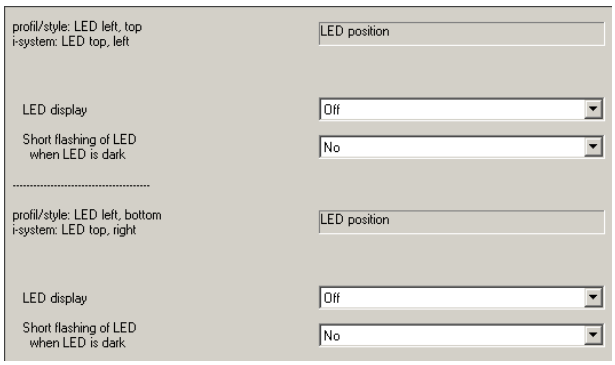
LED A (B, C, D)

Note

The parameter tabs for setting the functions of the LED's associated with buttons A1, A2, B1, B2, C1, C2, D1 and D2 are identical. Hence, only the settings for LED A1 are described here.



LED A1

Parameter	Settings
LED display	**Off** On Status object IR activity (only for wall switches with IR) operation feedback dependent on value ON on long keypress
This parameter determines the function of the status LED. Depending on the selection further parameters may appear. Off The status LED is permanently off. On The status LED is permanently on. Status object The display of the status LED depends on a 11bit status value, for which an object appears. IR activity The status LED signals when an IR telegram is received. Operation feedback The status LED signals when any of the buttons is pressed. Dependent on value The display of the status LED depends on an 81bit or 161bit status value, for which an object appears. With two configur1 able threshold values the object value range can be divided into three display ranges. For each display range one of the LED states "On", "Off" or "flashing" can be configured. This allows displaying if a received value is below the lower threshold value, is between both thresholds, or is above the upper threshold value. ON on long keypress	

Parameter	Settings
While a button is pressed the associated status LED signals when the condition for a long button operation is fulfilled.	

Setting „Status object"

Parameter	Settings
Behavior of LED when ON (1)	Off **On** flash slowly (0.3 Hz) flash moderately (1 Hz) flash fast (5 Hz)
Behavior of LED when Off (0)	**Off** On flash slowly (0.3 Hz) flash moderately (1 Hz) flash fast (5 Hz)
This parameter determines the behavior of the status LED dependent on the value (ON or OFF) of the status object. After bus voltage recovery the current state of the status LED is recovered by reading the status via the bus.	

Setting „Dependent on value"

Parameter	Settings
Display is dependent on	percentage value 81bit value brightness value temperature value **16*bit value**
Upper limit value	
(0...100%)	70
(0...255)	200
(0 . . . 2000 Lux)	900 Lux
(0 ... 40°C)	2°C
(0 ... 65535)	0
Lower limit value	
(0...100%)	10
(0...255)	10
(0 . . . 2000 Lux)	4 Lux
(0 ... 40°C)	0,5°C
(0 ... 65535)	0
Behavior of LED when value is greater than upper threshold value	Off On **flash slowly (0.3 Hz)** flash moderately (1 Hz) flash fast (5 Hz)

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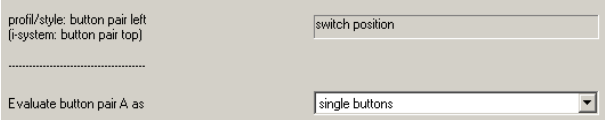
Parameter	Settings
Behavior of LED when value is between the threshold values	Off **On** flash slowly (0.3 Hz) flash moderately (1 Hz) flash fast (5 Hz)
Behavior of LED when value is lower than lower thresh* old value	**Off** On flash slowly (0.3 Hz) flash moderately (1 Hz) flash fast (5 Hz)
This parameter determines the behavior of the status LED for the setting “Dependent on value”. The parameters “Upper limit value” and “Lower limit value” determine the two thresholds that divide the object value range into three display ranges. “Display range 1” is the range with values, which are below the lower value of the two limit values. “Display range 2” is the range with values, which are between and including both limit values. “Display range 3” is the range with values, which are above the higher value of the two limit values. After bus voltage recovery the current state of the status LED is recovered by reading the status via the bus.	

Parameter	Settings
Short flashing of LED when LED is dark	**No** Yes
When „Yes“ is selected the status LED flashes cyclically (0.5Hz) for about 50ms allowing for orientation that is not disturbing like a permanently lit LED.	

Button pair A (B, C, D)

Note

The parameter tabs for setting the functions of buttons A1, A2, B1, B2, C1, C2, D1 and D2 respectively of the button pairs A, B, C and D are identical. Hence, only the settings for button A1 respectively button pair A are described here.



Parameter	Settings
Evaluate button pair A as	disabled button pair **single buttons**
This parameter determines if the two buttons are disabled or shall be configured jointly as button pair or separately as single buttons each with its own function. The parameter window changes depending on the selection and dependent on the selected function the possible parame1 ters and settings are displayed. When “disabled” is selected the buttons cannot be configured further.	

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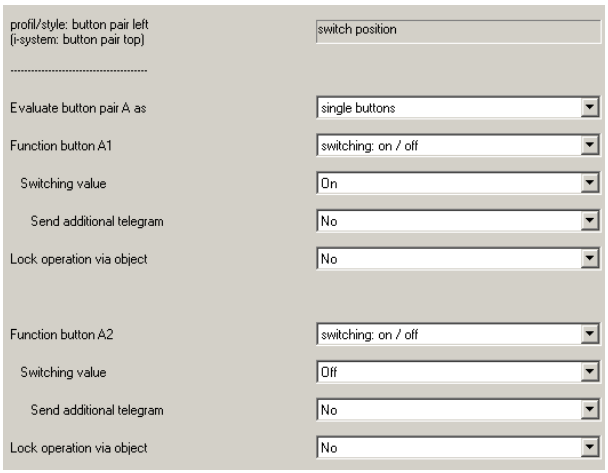
Button A1 (Settings for single buttons)

Note

In the following the parameter settings for single buttons are described.
The settings for buttons A1, A2, B1, B2, C1, C2, D1 and D2 are identical.



Parameter	Settings
Function Button A1	no function **Switching: On / Off** Switching: Toggle 11button dimming Bell function: press = On, release = Off Bell function: press = Off, release = On 11 button solar protection control 11 button roller shutter control 11bit scene 1: recall / save 11bit scene 2: recall / save 81bit scene: recall 81bit scene: recall, save send 81bit value send 161bit value forced control
This parameter determines the function assigned to the button. Depending on the selected function the parameter window changes and the associated parameters are presented with their default settings.	
Lock operation via object	**No** Yes, if blocking object = 0 Yes, if blocking object = 1
This parameter determines if and under which conditions the operation of a button is locked via the blocking object.	

Note

There are no further parameters for the following single1 button settings:
„Switching: Toggle“
„11button dimming“
„Door bell function: press = On, release = Off“
„Door bell function: press = Off, release = On“
„11 button solar protection control“
„11 button roller shutter control“
„11bit scene 1: recall / save“
„11bit scene 2: recall / save“

Single button, setting „Switching On / Off“

Parameter	Settings
Switching value	Off **On**
The configured value is sent on short button operation. Note: The default value for buttons A2, B2, C2 or D2 is „Off“.	
Send additional telegram	**No** Yes
When „Yes“ is selected the following parameters appear.	
Send	after delay (second telegram) **on long key press (alterna* tively)**
When „after delay (second telegram)“ is selected the parame1 ter „Transmission delay for the second telegram (factor 100ms)“ is visible. Otherwise, parameter „Long push button action min.“ is visible.	
Transmission delay for the second telegram (factor 100ms)	**1** 1...65500
Releasing the button starts the time delay (100ms ... 6550s). After the time delay expires a second telegram is sent. When the button is pressed again before the time delay expires the time delay is started over again. The second telegram is configured using the parameter „Function of the second telegram“ and maybe further parame1 ters.	
Long push button action min.	**0,5**; 0,6; 0,8; 1,0; 1,2; 1,5; 2,0; 2,5; 3,0; 4,0; 5,0; 6,0; 7,0; 10,0 seconds
This parameter determines how long at least the button has to be pressed before the alternative telegram is sent. The alternative telegram is configured using the parameter „Function of the second telegram“ and maybe further parame1 ters.	

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Parameter	Settings
Function of the second telegram	**Switching: On** Switching: Off Send percentage send 8 1bit value send temperature value send brightness value send 16 1bit value 11bit scene: scene 1 recall / save 11bit scene: scene 2 recall / save 81bit scene: recall forced on forced off forced control off
This parameter determines the function of the second tele1 gram.	
Percentage value (0...100%)	**0**
[Additional parameter for second telegramm „Send percent1 age“]	
8*bit value (0...255)	**0**
[Additional parameter for second telegramm „send 81bit value“]	
temperature value	**0.0 °C / 32F**
[Additional parameter for second telegramm „send tempera1 ture value“] The value can be set as 0°C ... 40°C in 0.5K steps.	
brightness value	**0 Lux**
[Additional parameter for second telegramm „send brightness value“] A brightness value can be selected from this list: **0**; 1; 2; 3, 4; 5; 7; 10; 20; 50; 100; 150; 200; 250; 300; 350; 400; 450; 500; 550; 600; 650; 700; 750; 800; 850; 900; 950; 1000; 2000 (Lux)	
16*bit value (0...65535)	**0**
[Additional parameter for second telegramm „send 161bit value“]	
Scene number	**scene 1 recall**
[Additional parameter for second telegramm „81bit scene recall“] A scene number out of 1 to 64 can be selected.	

Single button, setting „8*bit scene: recall“

Parameter	Settings
Scene number	**recall scene 1**
With this parameter a scene number is selected out of 64. The 81bit scene is recalled with a short operation of the button.	

Single button, setting „8*bit scene: recall / save“

Parameter	Settings
Scene number (save on long key press)	**scene 1**
With this parameter a scene number is selected out of 64. With a short operation of the button the 81bit scene is recalled. With a long operation of the button the 81bit scene is saved in the actuators belonging to this 81bit scene.	

Single button, setting „send 81bit value“

Parameter	Settings
Input	**Percentage value** Decimal value
Percentage value (0...100%)	**0**
8*bit value (0...255)	**0**
The 81bit value to be sent on short button operation can be entered as percentage value (0...100%) or as decimal value (0...255).	
send additional telegram	**No** Yes
When „Yes“ is selected the following parameters appear.	
Send	after delay (second telegram) **on long key press (alterna* tively)**
When „after delay (second telegram)“ is selected the parame1 ter „Transmission delay for the second telegram (factor 100ms)“ is visible. Otherwise, parameter „Long push button action min.“ is visible.	
Transmission delay for the second telegram (factor 100ms)	**1** 1...65500
Releasing the button starts the time delay (100ms ... 6550s). After the time delay expires a second telegram is sent. When the button is pressed again before the time delay expires the time delay is started over again. The second telegram is configured using the parameter „Function of the second telegram“ and maybe further parame1 ters.	
Long push button action min.	**0.5**; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0; 10.0 seconds
This parameter determines how long at least the button has to be pressed before the alternative telegram is sent. The alternative telegram is configured using the parameter „Function of the second telegram“ and maybe further parame1 ters.	

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Parameter	Settings
Function of the second telegram	**Switching: On** Switching: Off Send percentage send81bitvalue send temperature value send brightness value send 161bit value 11bit scene: scene 1 recall / save 11bit scene: scene 2 recall / save 81bit scene: recall forced on forced off forced control off
This parameter determines the function of the second tele1 gram.	
Percentage value (0...100%)	**0**
[Additional parameter for second telegramm „Send percent1 age“]	
8*bit value (0...255)	**0**
[Additional parameter for second telegramm „send 81bit value“]	
Temperature value	**0.0 °C / 32F**
[Additional parameter for second telegramm „send tempera1 ture value“] The value can be set as 0°C ... 40°C in 0.5K steps.	
Brightness value	**0 Lux**
[Additional parameter for second telegramm „send brightness value“] A brightness value can be selected from this list: **0**; 1; 2; 3, 4; 5; 7; 10; 20; 50; 100; 150; 200; 250; 300; 350; 400; 450; 500; 550; 600; 650; 700; 750; 800; 850; 900; 950; 1000; 2000 (Lux)	
16*bit value (0...65535)	**0**
[Additional parameter for second telegramm „send 161bit value“]	
Scene number	**recall scene 1**
[Additional parameter for second telegramm „81bit scene recall“] A scene number out of 1 to 64 can be selected.	

Single button, setting „161bit value senden“

Parameter	Settings
Input	**temperature value** brightness value Decimal value
Temperature value	**0.0 °C / 32F**
brightness value	**0 Lux**
16*bit value (0...65535)	**0**

Parameter	Settings
The 161bit value to be sent on short button operation can be entered as temperature value (0...40°C), as brightness value (0...2000 Lux) or as decimal value (0...65535).	
Send additional telegram	**No** Yes
When „Yes“ is selected the following parameters appear.	
Send	after delay (second telegram) **on long key press (alterna* tively)**
When „after delay (second telegram)“ is selected the parame1 ter „Transmission delay for the second telegram (factor 100ms)“ is visible. Otherwise, parameter „Long push button action min.“ is visible.	
Transmission delay for the second telegram (factor 100ms)	**1** 1...65500
Releasing the button starts the time delay (100ms ... 6550s). After the time delay expires a second telegram is sent. When the button is pressed again before the time delay expires the time delay is started over again. The second telegram is configured using the parameter „Function of the second telegram“ and maybe further parame1 ters.	
Long push button action min.	**0.5**; 0.6; 0.8; 1.0; 1.2; 1.5; 2.0; 2.5; 3.0; 4.0; 5.0; 6.0; 7.0; 10.0 seconds
This parameter determines how long at least the button has to be pressed before the alternative telegram is sent. The alternative telegram is configured using the parameter „Function of the second telegram“ and maybe further parame1 ters.	
Function of the second telegram	**Switching: On** Switching: Off Send percentage send81bitvalue send temperature value send brightness value 161bit value senden 11bit scene: scene 1 recall / save 11bit scene: scene 2 recall / save 81bit scene: recall forced on forced off forced control off
This parameter determines the function of the second tele1 gram.	
Percentage value (0...100%)	**0**
[Additional parameter for second telegramm „Send percent1 age“]	
8*bit value (0...255)	**0**
[Additional parameter for second telegramm „send 81bit value“]	

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Parameter	Settings
Temperature value	**0.0 °C / 32F**
[Additional parameter for second telegramm „send tempera1 ture value“] The value can be set as 0°C ... 40°C in 0.5K steps.	
Brightness value	**0 Lux**
[Additional parameter for second telegramm „send brightness value“] A brightness value can be selected from this list: **0**; 1; 2; 3, 4; 5; 7; 10; 20; 50; 100; 150; 200; 250; 300; 350; 400; 450; 500; 550; 600; 650; 700; 750; 800; 850; 900; 950; 1000; 2000 (Lux)	
16*bit value (0...65535)	**0**
[Additional parameter for second telegramm „send 161bit value“]	
Scene number	**recall scene 1**
[Additional parameter for second telegramm „81bit scene recall“] A scene number out of 1 to 64 can be selected.	

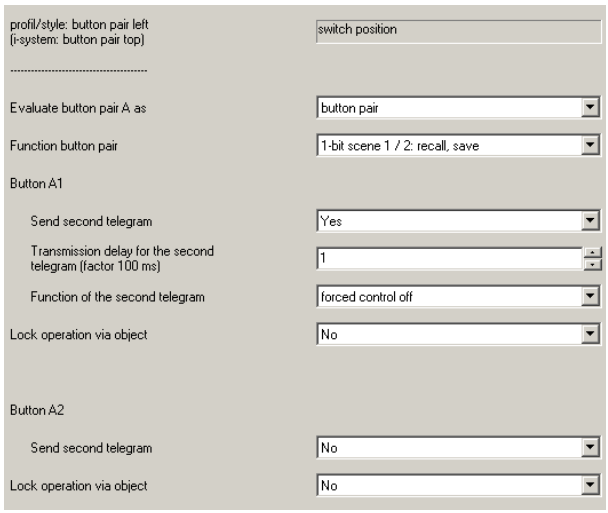
Single button, setting „forced control“

Parameter	Settings
Type of forced control	forced Off / inactive; **forced On / inactive**
This parameter determines the forced controlcommand to be sent on short button operation. On long button operation forced control is deactivated.	
Send additional telegrams	No **Yes**
When „Yes“ is selected the following parameter appears.	
Behaviour of sending	short: Off / long: Off **short: Off / long: On** short: On / long: Off short: On / long: On
The additional telegrams are sent with the respective forced control telegram without time delay. This allows for a 11bit blocking object to be controlled parallel to the forced control. The default setting “short: Off / long:On” set the blocking object to “0” on activated forced control and sets it to “1” on deactivated forced control.	

Button pair A (Settings for button pairs)

Note

This section describes the parameter settings for button pair A. The settings for button pairs A, B, C and D are identical.



Parameter	Settings
Function button pair	**Switching, dimming: On, brighter / Off, darker** Switching, dimming: Off, darker / On, brighter Switching, dimming: Toggle, brighter / Toggle, darker Switching, dimming: Toggle, darker / Toggle, brighter Solar protection, Slats: up/ down Solar protection, Slats: down / up Roller shutters: up/ down Roller shutters: down / up Send percentage [variable] (top/left increment) Send percentage [variable] (bottom/right increment) Send 81bit value [variable] (top/left increment) Send 81bit value [variable] (bottom/right increment) 11bit scene 1 / 2: recall / save 11bit scene 2 / 1: recall / save 81bit scene: recall, save Forced on, inactive / off, inactive Forced off, inactive / forced on,

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Parameter	Settings
	inactive
This parameter determines the function of the button pair. Depending on the selected function the parameter window changes and the corresponding default parameters are displayed. Those parameter settings that are identical for all functions are following immediately below. The parameters are identical for button A1 [upper (left)] and button A2 [lower (right)] so that these are displayed only once. If these exist, function specific settings are listed individually after the general settings.	

Independent settings for button A1
(this also applies to the parameters with the same name for button A2)

Parameter	Settings
Send second telegram	**No** Yes
When „Yes“ is selected the following parameters appear.	
Transmission delay for the second telegram (factor 100ms)	**1** [1...65500]
Releasing the button starts the time delay (100ms ... 6550s). After the time delay expires a second telegram is sent. When the button is pressed again before the time delay expires the time delay is started over again. The second telegram is configured using the parameter „Function of the second telegram“ and maybe further parame1 ters.	
Function of the second telegram	**Switching: On** Switching: Off Send percentage Send 81bit value Send temperature value Send brightness value Send 161bit value 11bit scene: scene 1 recall / save 11bit scene: scene 2 recall / save 81bit scene: recall Forced on Forced off Forced control off
This parameter determines the function of the second tele1 gram.	
Percentage value (0...100%)	**0**
[Additional parameter for second telegramm „Send percent1 age“]	
8*bit value (0...255)	**0**
[Additional parameter for second telegramm „send 81bit value“]	

Parameter	Settings
temperature value	**0.0 °C / 32F**
[Additional parameter for second telegramm „send tempera1 ture value“] The value can be set as 0°C ... 40°C in 0.5K steps.	
brightness value	**0 Lux**
[Additional parameter for second telegramm „send brightness value“] A brightness value can be selected from this list: **0**; 1; 2; 3, 4; 5; 7; 10; 20; 50; 100; 150; 200; 250; 300; 350; 400; 450; 500; 550; 600; 650; 700; 750; 800; 850; 900; 950; 1000; 2000 (Lux)	
16*bit value (0...65535)	**0**
[Additional parameter for second telegramm „send 161bit value“]	
Scene number	**recall scene 1**
[Additional parameter for second telegramm „81bit scene recall“] A scene number out of 1 to 64 can be selected.	
Lock operation via object	**No** Yes, if blocking object = 0 Yes, if blocking object = 1
This parameter determines if and under which conditions the operation of a button is locked via the blocking object.	

Note

There are no further parameters for the following button pair settings:
„Switching, dimming: On, brighter / Off, darker“
„Switching, dimming: Off, darker / On, brighter „
„Switching, dimming: Toggle, brighter / Toggle, darker“
„Switching, dimming: Toggle, darker / Toggle, brighter“
„Solar protection, Slats: up/ down“
„Solar protection, Slats: down / up“
„Roller shutters: up/ down“
„Roller shutters: down / up“
„11bit scene 1 / 2: recall / save“
„11bit scene 2 / 1: recall / save“
„Forced on, inactive / off, inactive“
„Forced off, inactive / forced on, inactive“

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Button pair, setting „Send percentage [variable] (top/left increment)“

Settings Button A1

Parameter	Settings
Upper threshold (0...100%)	100
Step (0...100%)	1
On long operation of button A1 a percentage value, starting with the last status value and incremented by the step value until reaching the upper threshold, is sent cyclically onto the bus. If the last status value is already higher than the upper threshold then nothing is sent.	

Settings Button A2

Parameter	Settings
Lower threshold (0...100%)	0
Step (0...100%)	1
On long operation of button A2 a percentage value, starting with the last status value and decremented by the step value until reaching the lower threshold, is sent cyclically onto the bus. If the last status value is already lower than the upper thresh1 old then nothing is sent.	

Button pair, setting „Send percentage [variable] (bottom/right incre* ment)“

Settings Button A1

Parameter	Settings
Lower threshold (0...100%)	0
Step (0...100%)	1
On long operation of button A1 a percentage value, starting with the last status value and decremented by the step value until reaching the lower threshold, is sent cyclically onto the bus. If the last status value is already lower than the upper thresh1 old then nothing is sent.	

Settings Button A2

Parameter	Settings
Upper threshold (0...100%)	100
Step (0...100%)	1
On long operation of button A2 a percentage value, starting with the last status value and incremented by the step value until reaching the upper threshold, is sent cyclically onto the bus. If the last status value is already higher than the upper threshold then nothing is sent.	

Button pair, setting „Send 8*bit value [variable] (top/left increment)“

Settings Button A1

Parameter	Settings
Upper threshold (0...255)	255
Step (0...255)	1
On long operation of button A1 an 81bit value, starting with the last status value and incremented by the step value until reaching the upper threshold, is sent cyclically onto the bus. If the last status value is already higher than the upper threshold then nothing is sent.	

Settings Button A2

Parameter	Settings
Lower threshold (0...255)	0
Step (0...255)	1
On long operation of button A2 an 81bit value, starting with the last status value and decremented by the step value until reaching the lower threshold, is sent cyclically onto the bus. If the last status value is already lower than the upper thresh1 old then nothing is sent.	

Button pair, setting „Send 8*bit value [variable] (bottom/right increment)“

Settings Button A1

Parameter	Settings
Lower threshold (0...255)	0
Step (0...255)	1
On long operation of button A1 an 81bit value, starting with the last status value and decremented by the step value until reaching the lower threshold, is sent cyclically onto the bus. If the last status value is already lower than the upper thresh1 old then nothing is sent.	

Settings Button A2

Parameter	Settings
Upper threshold (0...255)	255
Step (0...255)	1
On long operation of button A2 an 81bit value, starting with the last status value and incremented by the step value until reaching the upper threshold, is sent cyclically onto the bus. If the last status value is already higher than the upper threshold then nothing is sent.	

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Button pair, setting
„8*bit scene: recall / save“

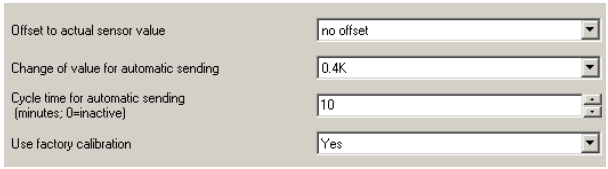
Settings Button A1

Parameter	Settings
Scene number	**scene 1**
With this parameter a scene number is selected out of 64. With a short operation of the button the 81bit scene is recalled. With a long operation of the button the 81bit scene is saved in the actuators belonging to this 81bit scene.	

Settings Button A2

Parameter	Settings
Scene number	**scene 1**
With this parameter a scene number is selected out of 64. With a short operation of the button the 81bit scene is recalled. With a long operation of the button the 81bit scene is saved in the actuators belonging to this 81bit scene.	

Temperature



Parameter	Settings
Offset to actual*sensor value	+10K; +8.0K; +7.0K; +6.5K; +6.0K; +5.5K; +5.0K; +4.5K; +4.0K; +3.5K; +3.0K; +2.5K; +2.0K; +1.5K; +1.2K; +1.0K; +0.8K; +0.6K; +0.5K; +0.4K; +0.3K; +0.2K; 0.1K; **no offset** 1 0.1K; 10.2K; 10.3K; 10.4K; 10.5K; 10.6K; 10.8K; 111.0K; 11.5K; 12.0K; 12.5K; 13.0K; 13.5K; 14.0K; 14.5K; 15.0K; 15.5K; 16.0K; 16.5K; 17.0K; 18.0K; 110K;
This parameter determines an offset for the temperature measurement for adjustment to local conditions.	
Change of value for auto* matic sending	0.1K; 0.2K; 0.3K; 0.4K; 0.5K; 0.6K; 0.7K; 0.8K; 0.9K; 1.0K; 1.2K; 1.5K; 1.8K; 2.0K; 2.5K; 3.0K; 3.5K; 4.0K; 4.5K; 5.0K; **deactivated**
Cycletime for automatic sending (minutes; 0 = inactive)	**10** [0...115]
These parameters determine the send conditions change1of1 value and cycle time for sending of temperature.	

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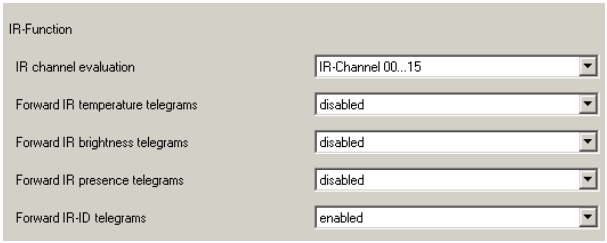
General – IR



Parameter	Settings
IR channel evaluation	**IR channel 00...15** IR channel 16...31 IR channel 32...47 IR channel 48...63
This parameter determines the IR channels, which shall be decoded in the wall switch with IR receiver decoder. Select from 4channel blocks, each with up to 16 IR channels that can be used.	
Forward IR temperature telegrams	**disabled** enabled
This parameter determines whether IR temperature telegrams are decoded and sent onto the bus.	
Forward IR brightness telegrams	**disabled** enabled
This parameter determines whether IR brightness telegrams are decoded and sent onto the bus.	
Forward IR presence tele* grams	**disabled** enabled
This parameter determines whether IR presence telegrams are decoded and sent onto the bus.	
Lock IR presence telegrams via object	**No** Yes, if blocking object = 0 Yes, if blocking object = 1
This parameter determines if and under which conditions sending of IR presence telegrams is disabled via the blocking object.	
Forward IR ID telegrams	**disabled** enabled
This parameter determines whether IR ID telegrams are decoded and sent onto the bus.	

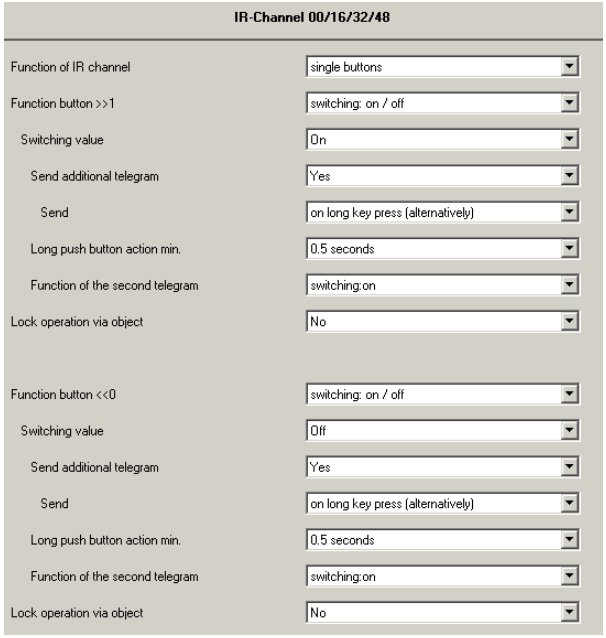
Setting IR channels

Note

The parameter windows for configuration of the func1 tions of the IR channels are identical with those for the single buttons A1, A2, B1, B2, C1, C2, D1 and D2 respec1 tively the button pairs A, B, C and D.
Button A1 corresponds with the upper IR button of the IR wall switch and with the button of the IR hand1held remote with an upward1pointing arrow respectively a „1“ .
Button A2 corresponds with the lower IR button of the IR wall switch and with the button of the IR hand1held remote with a downward1pointing arrow respectively a „0“.

Parameter	Settings
Function of IR channel	disabled button pair **single buttons**
This parameter determines whether both buttons of an IR channel are either disabled, configured as a button pair , or configured as single buttons each with a separate function. Depending on the selected function the parameter window changes and the corresponding default parameters are displayed. When disabled is selected no parameters can be set for the buttons.	

When „single buttons“ is selected this parameter window appears for IR channel 00, 16, 32 or 48.



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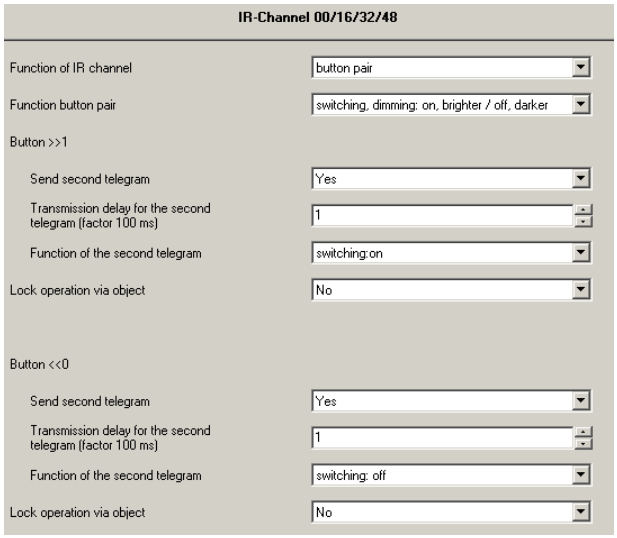
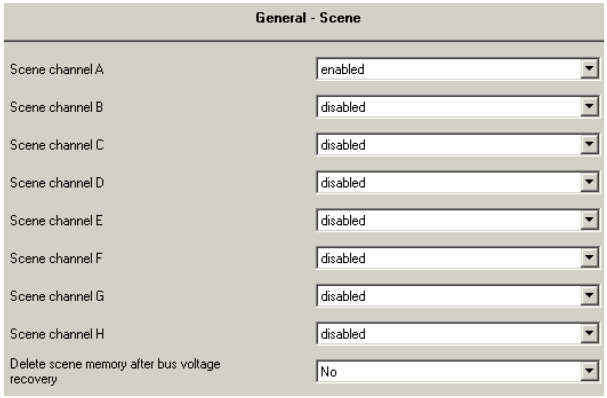
Further settings are identical to those for single buttons and arenot repeated here.

When „button pair“ is selected this parameter window appears for IR channel 00, 16, 32 or 48.



Further settings are identical to those for button pairs and are not repeated here.

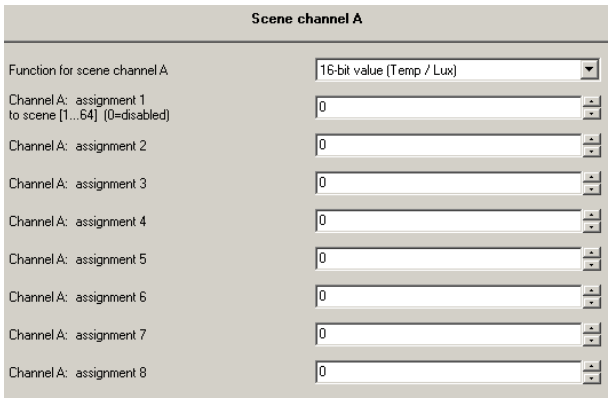
General – Scene



Parameter	Settings
Scene channel A	**disabled** enabled
Scene channel B	**disabled** enabled
Scene channel C	**disabled** enabled
Scene channel D	**disabled** enabled
Scene channel E	**disabled** enabled
Scene channel F	**disabled** enabled
Scene channel G	**disabled** enabled
Scene channel H	**disabled** enabled
These parameters determine the activated scene channels. For each activated scene channel a parameter window appears for configuration of the scene channel.	
Delete scene memory after bus voltage recovery	**No** Yes
This parameter determines whether the scene settings saved in memory are deleted after bus voltage recovery.	

25 C0 BTM Wall Switch 909301

Setting scene channels



Note

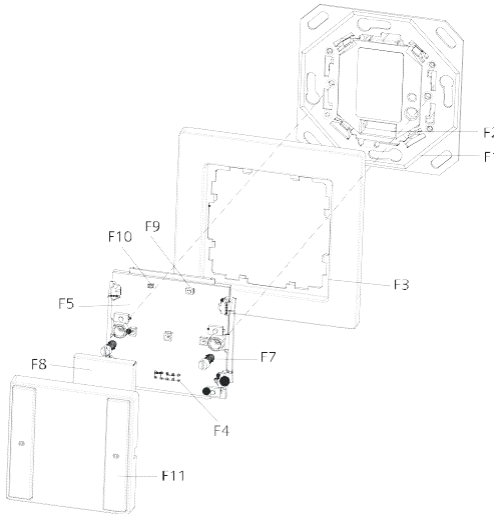
The parameter window for configuration of scene channel A is identical with the parameter windows for scene channels B, C, D, E, F, G and H.

Parameter	Settings
Function for Scene channel A	**Switching** shutter forced control 81bit value 161bit value (Temp / Lux)
This parameter determines the function of the scene channel. Saving of 81bit scene values is executed during device opera1 tion.	
Channel A: assignment 1 to scene [1...64] (0=disabled)	**0** [1...64]
Channel A: assignment 2	**0** [1...64]
Channel A: assignment 3	**0** [1...64]
Channel A: assignment 4	**0** [1...64]
Channel A: assignment 5	**0** [1...64]
Channel A: assignment 6	**0** [1...64]
Channel A: assignment 7	**0** [1...64]
Channel A: assignment 8	**0** [1...64]
This parameter determines, which 81bit scenes are assigned to channel A.	

Space for notes

DELTA i-system	**wall switch single**	**UP 221/2**	**5WG1 221-2AB_2**
		UP 221/3,with status LED	**5WG1 221-2AB_3**
	wall switch double	**UP 222/2,**	**5WG1 222-2AB_2**
		UP 222/3,with status LED	**5WG1 222-2AB_3**
	wall switch triple	**UP 223/2,**	**5WG1 223-2AB_2**
		UP 223/3,with status LED	**5WG1 223-2AB_3**
		UP 223/4,with temperature sensor	**5WG1 223-2AB_4**
		UP 223/5,with IR receiver decoder	**5WG1 223-2AB_5**

Product		**wall switch, single**	**wall switch, double**	**wall switch, triple**
without status LED	electro white	5WG1 221-2AB02	5WG1 222-2AB02	5WG1 223-2AB02
	titanium white	5WG1 221-2AB12	5WG1 222-2AB12	5WG1 223-2AB12
	carbon metallic	5WG1 221-2AB22	5WG1 222-2AB22	5WG1 223-2AB22
	aluminum metallic	5WG1 221-2AB32	5WG1 222-2AB32	5WG1 223-2AB32
with status LED	electro white	5WG1 221-2AB03	5WG1 222-2AB03	5WG1 223-2AB03
	titanium white	5WG1 221-2AB13	5WG1 222-2AB13	5WG1 223-2AB13
	carbon metallic	5WG1 221-2AB23	5WG1 222-2AB23	5WG1 223-2AB23
	aluminum metallic	5WG1 221-2AB33	5WG1 222-2AB33	5WG1 223-2AB33
with status LED, scene controller, and room temperature sensor	electro white			5WG1 223-2AB04
	titanium white			5WG1 223-2AB14
	carbon metallic			5WG1 223-2AB24
	aluminum metallic			5WG1 223-2AB34
with status LED, scene controller, and IR receiver decoder	electro white			5WG1 223-2AB05
	titanium white			
	carbon metallic			5WG1 223-2AB25
	aluminum metallic			5WG1 223-2AB35



F1 Bus coupling unit (BTM) UP 117
F2 Bus Transceiver Interface (BTI) on Bus coupling unit (BTM)
F3 Design frame (DELTA line, vita, miro)
F4 Bus Transceiver Interface (BTI) on wall switch module
F5 Basic push button module
F6 Transparent frame with buttons
F7 Mounting screws
F8 Back cover (white) for labeling insert
F9 Learning button for switching between normal operating mode and addressing mode for receiving the physical address
F10 LED for indicating normal operating mode (LED off) and addressing mode (LED on); upon receiving the physical address the device automatically returns to normal operating mode
F11 switch button

Figure 1: Mounting wall switch DELTA i-system

GAMMA *instabus*

Technical product information

April 2010

DELTA i-system **wall switch single**
wall switch double
wall switch triple

Product and Applications Description

The wall switches for the DELTA i-system (DELTA line, DELTA vita, DELTA miro) have one, two or three horizontally arranged pairs of buttons. A labelling field is placed in the middle between these buttons.

These types of wall switches are available:

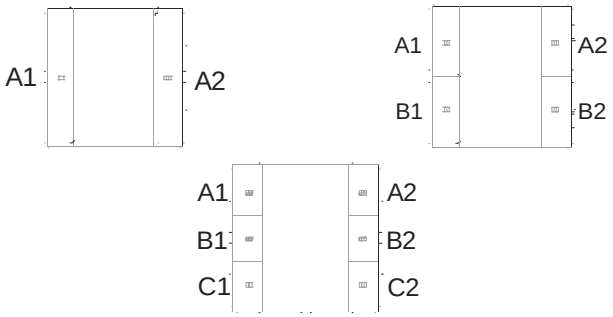
- Wall switch single, double and triple, with one orientation LED, without status LED.
- Wall switch single, double and triple, with one orientation LED and with one status LED per button.
- Wall switch triple, with one orientation LED, with one status LED per button, scene controller, and room temperature sensor.
- Wall switch triple, with one orientation LED, with one status LED per button, scene controller, and IR receiver-decoder.

The wall switches are mounted together with the design frame "DELTA line", "DELTA vita", or "DELTA miro" onto a bus coupling unit (BTM). At the same time the electrical connection between the wall switch and the bus coupling unit (BTM) is established via the Bus Transceiver Interface (BTI).
Bus coupling unit (BTM) and the design frame "DELTA line", "DELTA vita", or "DELTA miro" are not included and therefore have to be ordered separately (see current catalog).

Common functions

Switch buttons

Depending on the model a switch provides two to six switch buttons (figure 1: A1, A2, B1, B2, C1, C2), which horizontally function as a switch pair (A to C).



Horizontally aligned buttons may be used as a pair of buttons (e.g. for defined switching/dimming, or control of shutters and blinds, i.e. with the left button light is turned on and with the right button light is turned off), or as single buttons for sending values, single-button switching/dimming or single button control of blinds.

Each individual switch button (A1, A2, B1, B2, C1, C2) may be assigned one of the following functions:

- Switching (on, off, toggle)
- door bell function
- single button dimming
- single button control of solar protection (blinds, roller shades)
- 1-bit scene control (scene 1 or 2: recall / save)
- 8-bit scene / effect control (recall, recall / save)
- Send value (8-bit value, percent)
- Send value (16-bit value, temperature value, brightness value)
- Forced control

Depending on the selected main function another function may be executed either additionally after a time delay (time delay configurable from 100ms to 655s) or alternatively when the button is pressed for a longer period.

When switch buttons are configured as a pair then this button pair may be assigned one of the following functions:

- Dual-button dimming with stop telegram
- Dual-button control of solar protection (blinds, roller shades)
- Send variable percent value
- Send variable 8-bit value
- 1-bit scene control (scene 1 and 2: recall / save)
- 8-bit scene / effect control (recall / save)
- Forced control

Depending on the selected main function another function may be executed additionally after a time delay (time delay configurable from 100ms to 655s).

These options are available as additional or alternative functions for single buttons or button pairs:

- Switching (on)
- Switching (off)
- Send percent value
- Send 8-bit value (0…255)
- Send temperature value
- Send brightness value
- Send 16-bit value (0…65535)

DELTA i-system wall switch, single
wall switch, double
wall switch, triple

- 1-bit scene control (scene 1: recall / save)
- 1-bit scene control (scene 2: recall / save)
- 8-bit scene / effect control: recall
- Forced on
- Forced off
- Deactivate forced control

Orientation lighting

The orientation light (LED) of the device may be turned on or off continuously or depending on a status object. These configuration options are available for the orientation light (LED):

- LED permanently off
- LED permanently on
- LED indicates IR activity (only for switch with IR receiver)
- LED indicates user operation
- LED indicates long button press
- A binary status object controls the LED for each status value on (=1) or off (=0) respectively to either
  - on
  - off
  - flash, slowly (0,3 Hz)
  - flash, moderately (1 Hz)
  - flash, fast (5 Hz)
- An analog status object (8-bit value [0...255], percent value, 16-bit value [0...65535], temperature value [0°C....40°C], brightness value [0...2000 lux] controls the LED for each of up to three value ranges respectively to either
  - on
  - off
  - flash, slowly (0,3 Hz)
  - flash, moderately (1 Hz)
  - flash, fast (5 Hz)

The brightness of the orientation light is configurable and may be controlled via object (e.g. for night operation).

Additional functions of devices with status LED

Status LED

The same configuration options as for the orientation LED are available for the status LED's of a device.

- LED permanently off
- LED permanently on
- LED indicates IR activity (only for switch with IR receiver)
- LED indicates user operation
- LED indicates long button press
- A binary status object controls the LED for each status value on (=1) or off (=0) respectively to either
  - on
  - off
  - flash, slowly (0,3 Hz)
  - flash, moderately (1 Hz)
  - flash, fast (5 Hz)
- An analog status object (8-bit value [0...255], percent value, 16-bit value [0...65535], temperature value [0°C....40°C], brightness value [0...2000 lux] controls the LED for each of up to three value ranges respectively to either
  - on
  - off
  - flash, slowly (0,3 Hz)
  - flash, moderately (1 Hz)
  - flash, fast (5 Hz)

The brightness of the status LED can be configured mutually for all status LED's and can be influenced via object (e.g. for night operation).

To find a switch when its associated status LED is turned off and it is dark, this LED may be configured to cyclically flash briefly.

Scene controller

[applies only to UP 22x/4 and UP 22x/5]

The scene controller enables integration of those actuators, which themselves do not provide 8-bit scene control, into 8-bit scene control schemes. Up to eight scene channels (A … H) are controlled via a single 8-bit scene object. For each channel one of these functions may be selected:

- Switching
- Solar protection control
- Forced control
- 8-bit value
- 16-bit value

Each channel may be assigned to up to eight different scene numbers (1...64).

Scenes are recalled with a short button press and saved with a long button press.

Before saving a scene the actuators belonging to that scene must be set to the desired light levels and switching states.

When receiving a save telegram for an 8-bit scene via the 8-bit scene object the scene controller interrogates the current values and states of the actuators via the corresponding objects and saves these values and states as scene settings for the associated scene number. Saved scene values are only deleted by a new configuration of the device if the parameter "Delete scene memory after bus voltage recovery" is set to "Yes".

DELTA i-system wall switch single
wall switch double
wall switch triple

Room temperature sensor
[applies only to UP 22x/4]
The room temperature may be transmitted cyclically or on change of value. To accommodate local circumstances the measured room temperature may be offset by a configurable value.

IR receiver
[applies only to UP 22x/5]
The device offers a 16 channel IR receiver-decoder.
As described for the single buttons / button pairs above, each of the 16 IR channels may be either configured for functions associated with single buttons or a button pair. Likewise, dependent on the selected main functions additional functions may be selected. The 16 channel IR hand-held remote S425/72 allows to fully exploit these possibilities.

The application program already has been loaded in the factory. With the ETS (Engineering Tool Software) the specific parameters and addresses are assigned appropriately, and downloaded into the device.

Function ex factory:
All switch button pairs are pre-configured for the building site function for switching (left on, right off).

Application program

25 C0 BTM wall switch 909301

- Single, double or triple wall switch for
  - switching on / off / toggle
  - bell function (press on, release off)
  - dimming (with one or two buttons)
  - solar protection control (with one or two buttons)
  - send value (8-bit and 16-bit)
  - send variable value (8-Bit)
  - 1-bit and 8-bit scene control
  - forced control
  - second transmission object
- 8 channel scene controller with 8 scenes per channel
- 1 LED as orientation light
- 1 LED per switch button for status annunciation
- room temperature sensor
- IR receiver-decoder for 16 IR channels

This application program applies to all *instabus* wall switches that are mounted on a bus coupling unit (BTM) UP 117.
When expanding the number of switch buttons or the functionality (e.g. from UP 221/_2 to UP 223/_5) the prior configuration remains and must only be expanded.
In the same simple fashion switching between design lines (DELTA line / vita / miro, DELTA profil oder DELTA style) is possible.
Configuration and operation of all *instabus* wall switches is identical independent of design and the number of switch buttons

DELTA i-system **wall switch, single**
wall switch, double
wall switch, triple

Installation notes

- The device can be used for permanent installation in dry interior rooms and for insertion in distribution boards or miniature housings.

V WARNING

- The device must be mounted and commissioned by an authorised electrician.
- The device may be mounted in switch and socket combinations if VDE-certified devices are used exclusively.
- The prevailing safety rules must be heeded.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.

Technical data

Power suply
- KNX bus voltage: via bus coupling unit (BTM) UP117
- KNX bus current: 9mA

Operating elements
- 1, 2 or 3 pairs of horizontally arranged switch buttons
- Number of switching operations: > 20000 per button
- 1 learning push button:
  for toggling between normal mode / addressing mode

Display elements
- 1 red LED:
  for checking the bus voltage and for displaying normal mode / addressing mode
- 1 LED
  as orientation light in the dark

UP 22x/3, UP 22x/4 and UP 22x/5:
- 1 red LED per switch button for status annunciation

IR receiver (UP 22x/5)
- Range of IR transmission: approx. 25 m under these conditions:
  - with IR hand-held remote S 425/72 (5WG1 425-7AB72)
  - directed in optical direct line-of-sight
  - up to max. 500 Lux diffuse day-light at reception location

Connections
10-pin connector (BTI):
for connection to a bus coupling unit (BTM) UP 117

Physical specifications
- Housing: plastic
- dimensions (L x W x D):
  55 x 55 x 24 mm (incl. spring)
- weight: approx. 30 g
- Fire load: approx. 740kJ
- installation:
  mounted on bus coupling unit (BTM) UP 117

Electrical safety
- Degree of pollution (according to IEC 60664-1): 2
- Type of protection (according to EN 60529): IP 20
- Class of protection (according to IEC 61140): III
- Overvoltage category (according to IEC 60664-1): III
- Bus: safety extra-low voltage SELV DC 24 V
- Device complies with: EN 50090-2-2 and IEC 60664-1

EMC requirements
complies with EN 50090-2-2

Environmental specifications
- climatic conditions: EN 50090-2-2
- ambient temperature operating: - 5 ... + 45 °C
- ambient temperature non-op.: - 25 ... + 70 ° C
- relative humidity (non-condensing): 5 % to 93 %

Reliability
UP221/x and UP222/x
- Failure rate: 152 fit at 40°C

UP223/x
- Failure rate: 251 fit at 40°C

Markings
KNX, *EIB*, CE

CE mark
In accordance with the EMC guideline (residential and functional buildings), low voltage guideline

DELTA i-system	**wall switch single** **wall switch double** **wall switch triple**

Location and function of the display and operating elements

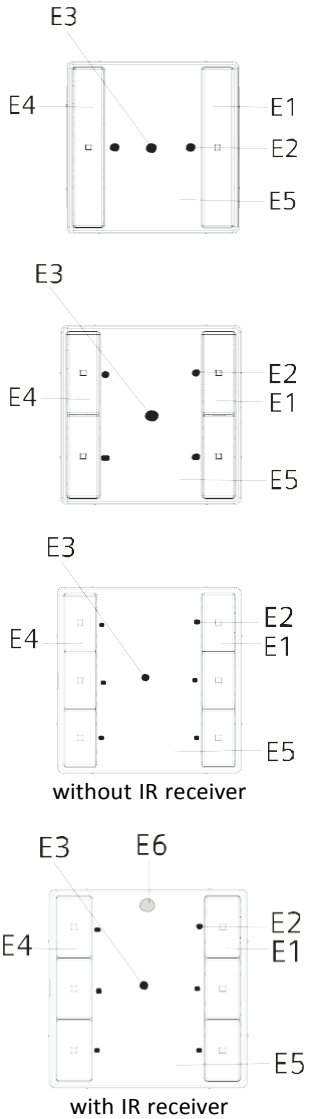


Figure 2: Display and operating elements

E1 Right button(s)
E2 LED's for status annunciation (not available with UP 22x/2)
E3 LED for orientation lighting
E4 Left button(s)
E5 Labeling field
E6 IR receiver (UP 22x/5 only)

Installation and wiring

General description

The wall switch is slid onto the bus coupling unit (BTM) (F1) together with its design frame (DELTA line / vita / miro) (F3).

The bus coupling unit (BTM) UP 117 (F1) is already mounted into a flush-mount box (see installation instruction of the bus coupling unit (BTM) UP 117).

Bus coupling unit (BTM) and the design frame "DELTA line", "DELTA vita", or "DELTA miro" are not included and therefore have to be ordered separately (see current catalog).

Mounting

- Remove the transparent frame with the buttons (F6) from the wall switch's main module (F5) by inserting a screwdriver laterally into the recesses and lifting the transparent frame upwards from the main module.
- Slip the wall switch's main module (F5) together with the design frame (F3) onto the bus coupling unit (BTM) (F1).
  The electrical connection between the wall switch and the bus coupling unit (BTM) is established via a Bus Transceiver Interface (BTI) (F2 and F4).
- Securely attach the wall switch's main module to the bus coupling unit (BTM) with the screws (F7) delivered in the package. Slip the transparent frame with the buttons back onto the main module.

Unmounting

- Remove the transparent frame with the switch buttons (F6) from the wall switch's main module (F5) by inserting a screwdriver laterally into the recesses and lifting the transparent frame upwards from the main module (figure 4).
- Loosen the screws (F7) securing the wall switch's main module to the bus coupling unit (BTM) (F1).
- Remove the wall switch's main module (F5) together with the design frame (F3) from the bus coupling unit (BTM).

DELTA i-system	**wall switch, single** **wall switch, double** **wall switch, triple**

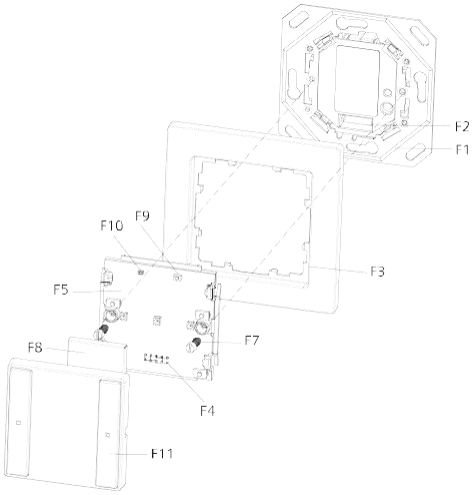


Figure 3: Mounting sequence

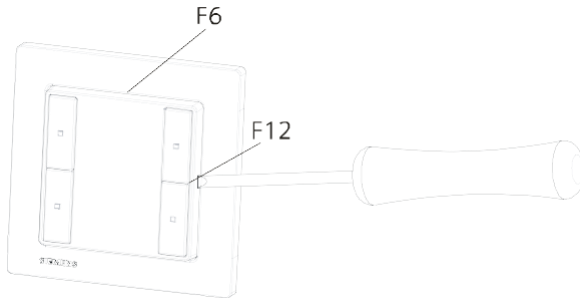
F1 Bus coupling unit (BTM) UP 117
F2 Bus Transceiver Interface (BTI) on Bus coupling unit (BTM)
F3 Design frame (DELTA line, vita, miro)
F4 Bus Transceiver Interface (BTI) on wall switch module
F5 Basic push button module
F6 Transparent frame with buttons
F7 Mounting screws
F8 Back cover (white) for labeling insert
F9 Learning button for switching between normal operating mode and addressing mode for receiving the physical address
F10 LED for indicating normal operating mode (LED off) and addressing mode (LED on); upon receiving the physical address the device automatically returns to normal operating mode
F11 switch buttons
F12 notch
F13 Orientation light (LED)

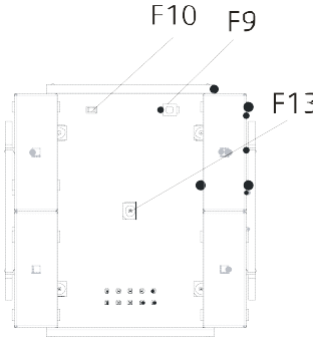
Labeling

- To insert a label remove the transparent frame with the switch buttons (F6) from the main module (F5). Separate the white label holder (F8) from the transparent frame (F6). Label a transparent plastic labeling medium (e.g. Avery Zweckform No. J4720 for inkjet printers or Avery Zweckform No. L4770 for laser printers) that you insert into the transparent frame (F6) with the white label holder (F8). Slide the transparent frame back onto the main module (F5).

Address assignment

- Remove the transparent frame with the switch buttons (F6) from the base module (F5) by inserting a screwdriver laterally into the recesses and lifting the transparent frame upwards from the base module.
- Press the learning button (F9) on the device to initiate the assignment of the physical address to the device.
- The programming LED (F10) turns on to indicate the programming mode. Upon receiving the physical address the device automatically returns to normal operating mode and the LED turns off.





GAMMA *instabus*

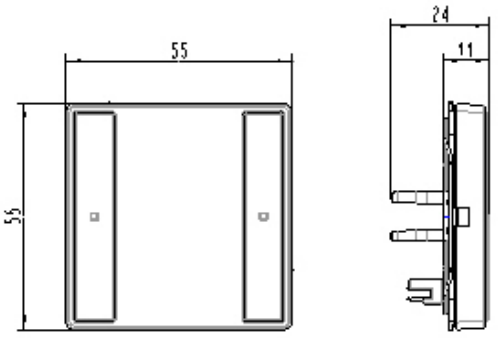
Technical product information

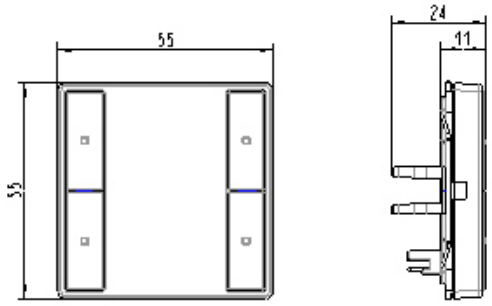
April 2010

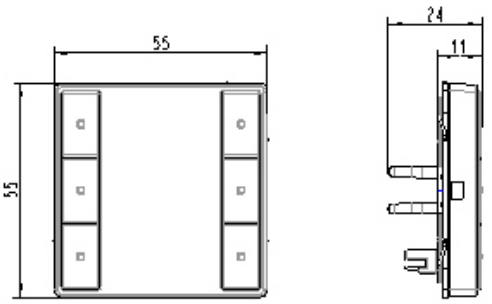
DELTA i-system	**wall switch single** **wall switch double** **wall switch triple**

Dimension drawing

Dimensions in mm.







General Notes

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- The device may be mounted in switch and socket combinations if VDE-certified devices are used exclusively.
- The prevailing safety rules must be heeded.

For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered

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110016735 02/2011 Technische Änderungen vorbehalten.

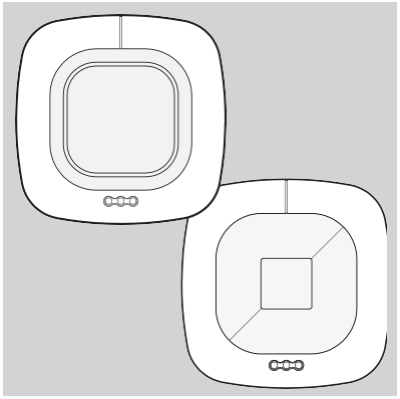
STEINEL®
German Quality

Presence Control PRO

IR Quattro KNX
IR Quattro HD KNX

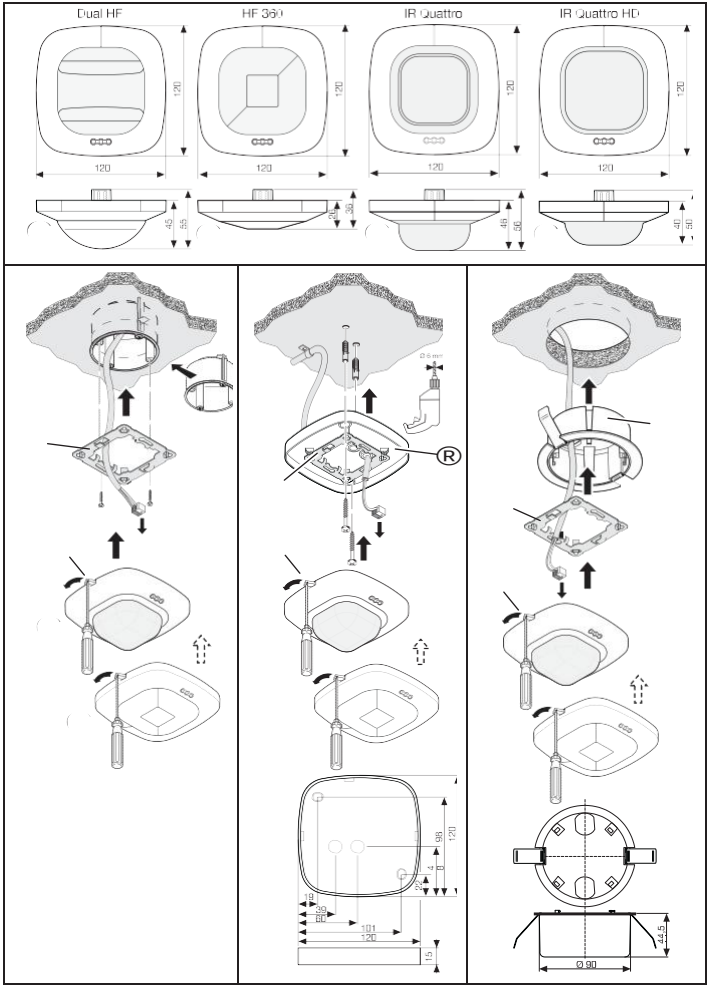
HF 360 KNX
DUAL HF KNX

i

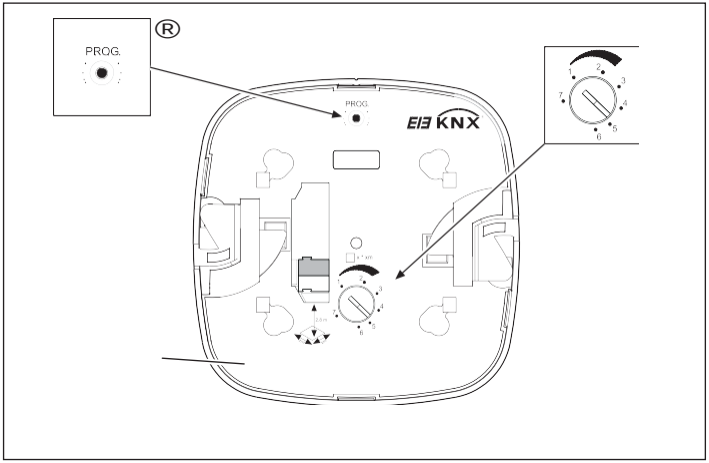


EIB KNX®

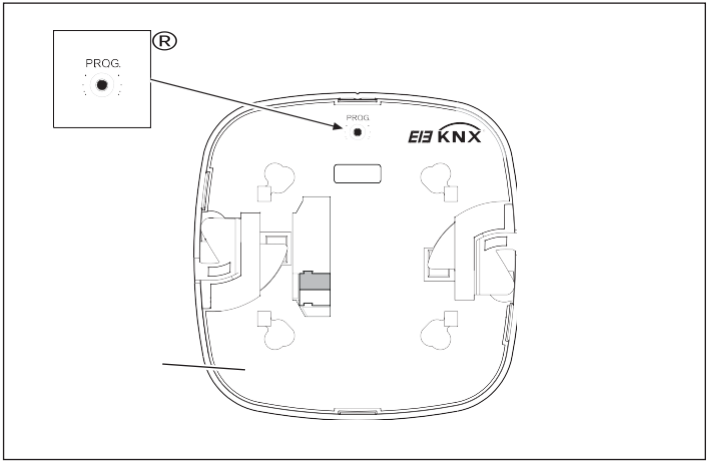
CONTROL PRO SYSTEM



IR Quattro / IR Quattro HD

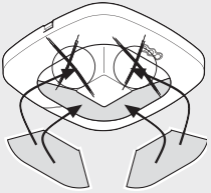


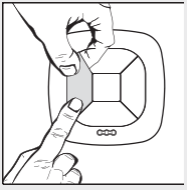
HF 360 / DUAL HF

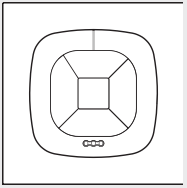


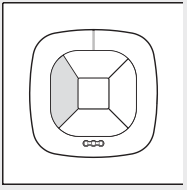
		IR Quattro KNX			IR Quattro HD KNX		
		Presence	Radial	Tangential	Presence	Radial	Tangential
2,50 m	**1**	2,6 m x 2,6 m	2,6 m x 2,6 m	2,8 m x 2,8 m	3,6 m x 3,6 m	3,6 m x 3,6 m	4 m x 4 m
	2	2,9 m x 2,9 m	2,9 m x 2,9 m	2,8 m x 2,8 m	4 m x 4 m	4 m x 4 m	4 m x 4 m
	3	3,2 m x 3,2 m	3,2 m x 3,2 m	2,8 m x 2,8 m	4,6 m x 4,6 m	4,6 m x 4,6 m	5 m x 5 m
	4	3,4 m x 3,4 m	3,4 m x 3,4 m	3,8 m x 3,8 m	5,2 m x 5,2 m	5,2 m x 5,2 m	6 m x 6 m
	5	3,6 m x 3,6 m	3,8 m x 3,8 m	4,7 m x 4,7 m	5,8 m x 5,8 m	5,8 m x 5,8 m	8 m x 8 m
	6	4,1 m x 4,1 m	4,2 m x 4,2 m	5,6 m x 5,6 m	6,8 m x 6,8 m	6,8 m x 6,8 m	13 m x 13 m
	7	4,7 m x 4,7 m	4,7 m x 4,7 m	6,6 m x 6,6 m	7,8 m x 7,8 m	7,8 m x 7,8 m	18 m x 18 m
2,80 m	**1**	2,8 m x 2,8 m	2,8 m x 2,8 m	2,8 m x 2,8 m	3,8 m x 3,8 m	3,8 m x 3,8 m	4 m x 4 m
	2	3,1 m x 3,1 m	3,1 m x 3,1 m	3 m x 3 m	4,4 m x 4,4 m	4,4 m x 4,4 m	4,5 m x 4,5 m
	3	3,5 m x 3,5 m	3,5 m x 3,5 m	3,8 m x 3,8 m	5,1 m x 5,1 m	5,1 m x 5,1 m	5,5 m x 5,5 m
	4	3,9 m x 3,9 m	3,9 m x 3,9 m	4,5 m x 4,5 m	5,5 m x 5,5 m	5,5 m x 5,5 m	6,5 m x 6,5 m
	5	4,2 m x 4,2 m	4,2 m x 4,2 m	5,4 m x 5,4 m	5,9 m x 5,9 m	5,9 m x 5,9 m	8,5 m x 8,5 m
	6	4,4 m x 4,4 m	4,4 m x 4,4 m	6,1 m x 6,1 m	6,9 m x 6,9 m	6,9 m x 6,9 m	17 m x 17 m
	7	4,7 m x 4,7 m	4,7 m x 4,7 m	7,1 m x 7,1 m	7,9 m x 7,9 m	7,9 m x 7,9 m	20 m x 20 m
3,00 m	**1**	2,8 m x 2,8 m	2,8 m x 2,8 m	2,8 m x 2,8 m	4 m x 4 m	4 m x 4 m	4 m x 4 m
	2	3,2 m x 3,2 m	3,3 m x 3,3 m	3,3 m x 3,3 m	4,8 m x 4,8 m	4,8 m x 4,8 m	5 m x 5 m
	3	3,6 m x 3,6 m	3,8 m x 3,8 m	4,7 m x 4,7 m	5,6 m x 5,6 m	5,6 m x 5,6 m	6 m x 6 m
	4	3,7 m x 3,7 m	4,2 m x 4,2 m	5,4 m x 5,4 m	5,8 m x 5,8 m	5,8 m x 5,8 m	7 m x 7 m
	5	3,8 m x 3,8 m	4,7 m x 4,7 m	6,1 m x 6,1 m	6 m x 6 m	6 m x 6 m	9 m x 9 m
	6	4,2 m x 4,2 m	4,7 m x 4,7 m	6,6 m x 6,6 m	7 m x 7 m	8 m x 8 m	20 m x 20 m
	7	4,2 m x 4,2 m	4,8 m x 4,8 m	7 m x 7 m	8 m x 8 m	8 m x 8 m	22 m x 22 m
3,50 m	**1**	2,8 m x 2,8 m	4,7 m x 4,7 m	4,7 m x 4,7 m	4,8 m x 4,8 m	5 m x 5 m	6 m x 6 m
	2	3,2 m x 3,2 m	5,2 m x 5,2 m	5,6 m x 5,6 m	5 m x 5 m	5,5 m x 5,5 m	6 m x 6 m
	3	3,6 m x 3,6 m	5,6 m x 5,6 m	7,5 m x 7,5 m	5,4 m x 5,4 m	6 m x 6 m	6 m x 6 m
	4	3,7 m x 3,7 m	6,6 m x 6,6 m	9,1 m x 9,1 m	5,8 m x 5,8 m	7 m x 7 m	9,5 m x 9,5 m
	5	3,8 m x 3,8 m	7,1 m x 7,1 m	9,9 m x 9,9 m	6,2 m x 6,2 m	8 m x 8 m	13 m x 13 m
	6	4,2 m x 4,2 m	7,5 m x 7,5 m	11 m x 11 m	7,2 m x 7,2 m	9,5 m x 9,5 m	20,5 m x 20,5 m
	7	4,2 m x 4,2 m	8,6 m x 8,6 m	12 m x 12 m	8,2 m x 8,2 m	11 m x 11 m	28 m x 28 m

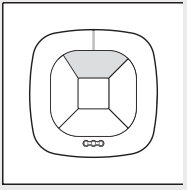
		IR Quattro KNX			IR Quattro HD KNX		
		Presence	Radial	Tangential	Presence	Radial	Tangential
4,00 m	**1**	—	3,8 m x 3,8 m	3,8 m x 3,8 m	—	6 m x 6 m	7 m x 7 m
	2	—	3,8 m x 3,8 m	4,7 m x 4,7 m	—	6 m x 6 m	7,5 m x 7,5 m
	3	—	3,8 m x 3,8 m	5,6 m x 5,6 m	—	6 m x 6 m	8 m x 8 m
	4	—	4,7 m x 4,7 m	7,5 m x 7,5 m	—	7 m x 7 m	12 m x 12 m
	5	—	4,7 m x 4,7 m	7,5 m x 7,5 m	—	8 m x 8 m	15 m x 15 m
	6	—	5,6 m x 5,6 m	8,5 m x 8,5 m	—	8 m x 8 m	20 m x 20 m
	7	—	7,5 m x 7,5 m	10 m x 10 m	—	8,4 m x 8,4 m	24 m x 24 m
5,00 m	**1**	—	—	—	—	6 m x 6 m	8 m x 8 m
	2	—	—	—	—	6,3 m x 6,3 m	11 m x 11 m
	3	—	—	—	—	6,7 m x 6,7 m	14 m x 14 m
	4	—	—	—	—	7 m x 7 m	17 m x 17 m
	5	—	—	—	—	7,4 m x 7,4 m	20 m x 20 m
	6	—	—	—	—	7,7 m x 7,7 m	24 m x 24 m
	7	—	—	—	—	8,1 m x 8,1 m	27 m x 27 m
6,00 m	**1**	—	—	—	—	7 m x 7 m	9 m x 9 m
	2	—	—	—	—	7,1 m x 7,1 m	12 m x 12 m
	3	—	—	—	—	7,3 m x 7,3 m	16 m x 16 m
	4	—	—	—	—	7,4 m x 7,4 m	19 m x 19 m
	5	—	—	—	—	7,5 m x 7,5 m	23 m x 23 m
	6	—	—	—	—	7,7 m x 7,7 m	26 m x 26 m
	7	—	—	—	—	7,8 m x 7,8 m	30 m x 30 m
8,00 m	**1**	—	—	—	—	7,4 m x 7,4 m	11 m x 11 m
	2	—	—	—	—	7,5 m x 7,5 m	15 m x 15 m
	3	—	—	—	—	7,7 m x 7,7 m	19 m x 19 m
	4	—	—	—	—	7,8 m x 7,8 m	24 m x 24 m
	5	—	—	—	—	7,9 m x 7,9 m	28 m x 28 m
	6	—	—	—	—	8,1 m x 8,1 m	32 m x 32 m
	7	—	—	—	—	8,2 m x 8,2 m	36 m x 36 m

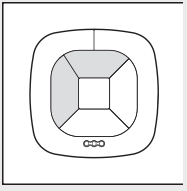


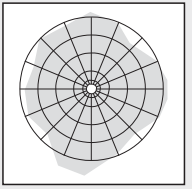


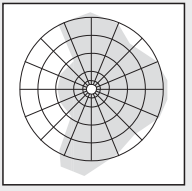


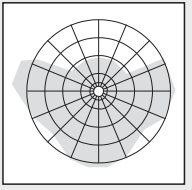


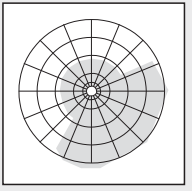












(S) Montageanvisning

Bäste kund!

Vi tackar för det förtroende du har visat oss genom köpet av din IR-sensor från STEINEL. Du har bestämt dig för en förstklassig kvalitetsprodukt, som har tillverkats, provats och förpackats med största omsorg.

Vi ber dig att noga läsa igenom denna montageanvisning innan du installerar sensorn. Korrekt installation och idriftagning är en förutsättning för långvarig, tillförlitlig och störningsfri drift.

Vi hoppas att du får stor nytta av din nya IR-sensor från STEINEL.

⚠ Säkerhetsanvisningar

- Innan installation och montage påbörjas måste spänningen kopplas bort.
- Inkoppling måste utföras i spänningsfritt tillstånd. Bryt strömmen och kontrollera med spänningsprovare att alla parter är spänningslösa.
- Eftersom sensorn installeras till nätspänningen måste arbetet utföras på ett fackmannamässigt sätt och enligt gällande installationsföreskrifter

Produktbeskrivning

a Sensormodul
b Montageram av metall
c Baksida sensor
d Infällnadsdosa för undertak
e Förhöjningsram
f Låsmekanism
g Inställning av räckvidd
h Tryckknapp för programmering
i Montage Installation
j Täckfolie för dämpning av räckvidden (endast HF 360 KNX)

Montage/Installation i

Sensorn är avsedd för montage infälld i dosa. Dosa för infällnad i tak eller förhöjningsram för utanpåliggande montage ingår ej.

Sensormodulen frigöres med två låsmekanismer (12) på sidan av sensormodulen. Vi rekommenderar att man använder en spårskruvmejsel för att frigöra låsmekanismen.

Tillbehör

Infällnadsdosa för undertak - E13 120 34
Förhöjningsram för KNX - E17 403 11
Skyddsgaller metall - E13 120 32
Fjärrkontroll installation RC6 - E17 403 09
Fjärrkontroll slutanvändare RC7 - E17 403 10

Funktionsbeskrivning

Serie Control Pro med IR- och HF-sensor styr belysning men även värme, ventilation och air-condition.

Modell med IR-sensor har ett kvadratiskt bevakningsområde. Modell IR HD (High Definition) är lämplig att använda i större lokaler som klassrum, gymnastiksalar, konferensrum.

För kontor och mindre konferensrum (<16m²) rekommenderas modell Control Pro IR. HF 360 är försedd med en modern högfrekvensteknik detekteras alla rörelser oavsett omgivningstemperatur. HF DUAL är tack vare sitt långsmala bevakningsområde mycket lämplig att använda för att detektera rörelse i korridorer och kulvertar.

Serie Pro Control kan användas för kontroll/styrning av:
- Närvarvo-rörelse
- Ljusreglering-konstantljus
- Styrning av värme-ventilation-kyla

Inställning av sensorns funktioner med hjälp mjukvaran för KNX ETS.

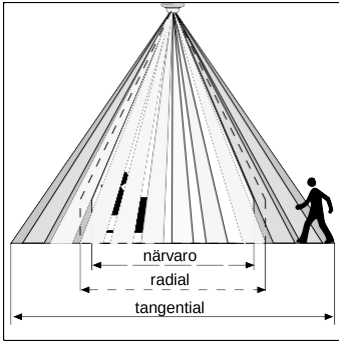
Driftsättning

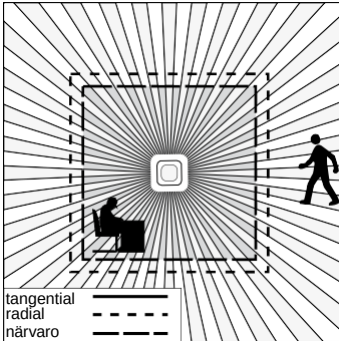
Notera:
Applikationsbeskrivning finns på **www.knx.steinel.de**

1. Ställ in sensorns adress i applikationsprogrammet ETS
2. Tryck på programmeringsknappen (8) för att kunna ställa in sensorns adress och funktioner i applikationsprogrammet ETS.
3. Sensorn bekräftar med fast sken på blå LED-lampa att programmering är genomförd

Detekteringsområde

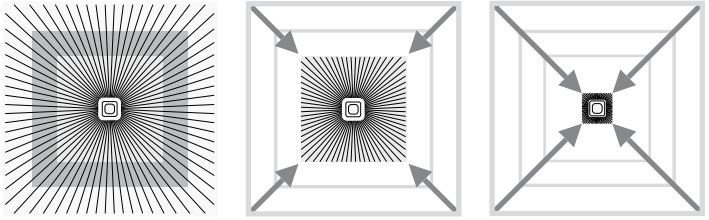
IR Quattro KNX / IR Quattro HD KNX





Control Pro IR finns i två olika utföranden där modell HD (High Definition) lämpar sig för närvarodetektering av större lokaler. Sensorns bevakningsområde kan enkelt reduceras med en potentiometer. Control Pro har ett kvadratiskt bevakningsområde vilket gör det enkelt att säkerställa att hela rummet närvarodetekteras. Det kvadratiska bevakningsområdet gör det även enkelt att planera sensorns Modell Control Pro IR har 1760 bevakningszoner och lämpar sig för närvarodetektering av ytor upp till 16 m². Modell Control Pro IR HD (High Definition) har hela 4800 bevakningszoner och detekterar närvaro på en yta av 8x8 meter dvs 64 m².

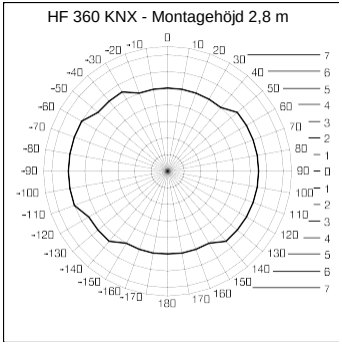
Inställning av bevakningsområde (PC IR Quattro / IR Quattro HD KNX)

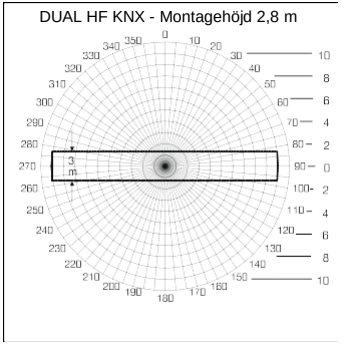


Potentiometer g

Anpassning av bevakningsområde. Se även tabell på sidan 4-5

Inställning av bevakningsområde (HF 360 KNX / DUAL HF KNX)

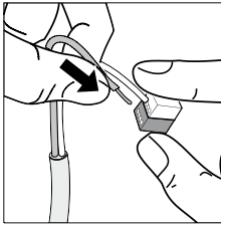


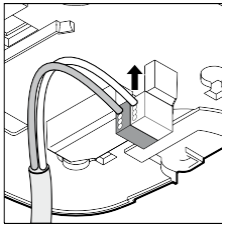


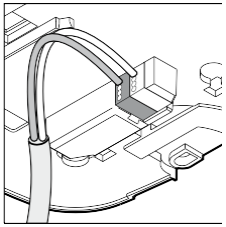
Räckvidden för Control Pro HF 360 kan justeras elektroniskt med hjälp av fjärrkontroll RC 6 (tillbehör) men också direkt i ETS programvaran (se applikationsbeskrivning på www.knx.steinel.de). Sensorn kan också avskärmas i en eller två detekteringsriktningar om så önskas. Detektering i 360° med maximal räckvidd 8 m Ø. Control Pro DUAL HF KNX har två stycken riktade HF-sensorer som detekterar rörelse åt var sitt håll.

Installation

Dimensionering av anslutningskablar skall göras enl. gällande installationsföreskrifter (se även sid. 7).







Tekniska data

Anslutning KNX:	24 V via KNX-buss	
Inställning av funktioner:	ETS-mjukvara eller fjärrkontroll	
Ljuskanal: Ljus 1 – 4	Tänd-släck, dimring, konstantsljusreglering	
Efterlystid	1-30 min alt. IQ-mode dvs dynamisk efterlystid.	
Ljusmätning	Blandat ljus	
Grundljus	Av, 10-50%	
Efterlystid för grundljus	Konstant grundljus, 1-30 min.	
Utgång VVK	Beroende på närvaro	
Tillslagsfördröjning	Rumsövervakning, 1-30 min.	
Eftergångstid	1 – 120 min.	
Utgång för närvaro	1 – 255 sek.	
Fler utgångar	Scenarier, ljusmätning	
Bevakningsområde för IR sensor	**IR Quattro KNX**	**IR Quattro HD KNX**
Närvaro:	max. 4 x 4 m (16 m²)	max. 8 x 8 m (64 m²)
Radial riktning gående person:	max. 5 x 5 m (25 m²)	max. 8 x 8 m (64 m²)
Tangen. riktning gående person:	max. 7 x 7 m (49 m²)	max. 20 x 20 m (400 m²)
Bevakningsvinkel för HF-sensor	**HF 360 KNX** 360° med 140° öppningsvinkel, känner genom tunna material som glas, trä- och gipsvägg. För anpassning till rummet kan sensorn dämpas i en eller två riktningar.	**DUAL HF KNX** se diagram sidan 10. Känner genom tunna material som glas, trä- och gipsvägg.
Räckvidd – inställning HF-sensor	**HF 360 KNX** Max Ø 8 meter, Min, 1/3, 2/3, max steglöst inställbar. (ETS-mjukvara, KNX buss, Fjärrkontroll RC 6)	**DUAL HF KNX** Min, 1/3, 2/3, max steglöst inställbar. (ETS-mjukvara, KNX buss, Fjärrkontroll RC 6)

Fjärrkontroll

Med hjälp av fjärrkontroll kan ställas in många inställningar enkelt och snabbt Det finns två olika fjärrkontroller till Control Pro DALI:

Fjärrkontroll service RC7 – art nr. E17 403 10
Fjärrkontroll slutanvändare RC6 – art nr. E17 403 09
(se även tillbehör sidan 8)

Driftstörningar

Störning	Orsak	Åtgärd
Ljuset tänds inte	L Ingen spänning ansluten L Skymningsvärdet för lågt ställt L Ingen rörelse i sensorns bevakningsområde	L Kontrollera anslutningar L Öka långsamt skymnings-värdet tills ljuset tänds L Kontrollera så att sensorn kan känna av önskat bevakningsområde L Kontrollera bevaknings-området
Ljuset släcks inte	L Skymningsvärdet för högt L Efterlystiden har inte löpt ut L Påverkan från värmekällor t.ex. värmefläkt, öppna dörrar/fönster, djur, varma ljuskällor	L Sänk skymningsnivån L Vänta till efterlystiden har löpt ut, reducera efterlysti-den om det behövs L Använd avskärmningar för att ta bort objekt som påverkar sensorn
Sensorn släcker av ljuset trots rörelse i bevaknings-området	L Efterlystiden för kort inställd L Skymningsnivån för lågt inställd	L Öka efterlystiden L Ändra skymningsnivån
Sensorn släcker inte ljuset tillräckligt snabbt	L Efterlystiden för lång	L Minska efterlystiden
Belysningen tänds inte snabbt nog när man går rakt mot sensorn	L Räckvidden är reducerad vid rörelse rakt emot sensorn	L Anslut ytterligare sensorer L Minska avståndet mellan två sensorer
Sensorn tänder inte ljuset trots rörelse och lågt med omgivande ljus	L För lågt skymningsvärde inställt L Sensorn ställd för semi-automatisk drift	L Öka skymningsvärdet L Frånvarofunktion (semi-automatisk) aktiverad

-överensstämmelseförsäkran

Produkten uppfyller:
- EMC-direktivet 2004/108/EG och
- RoHS-direktivet 2002/95/EG.

Funktionsgaranti

Denna STEINEL produkt är tillverkad med största noggrannhet. Den är funktions- och säkerhetstestad enligt gällande föreskrifter och har därefter genomgått en stickprovskontroll. Steinel garanterar felfri funktion.

Garantin gäller i 36 månader från inköpsdagen. Vi återgärdar fel som beror på material- eller tillverkningsfel. Garantin innebär att varan repareras eller att defekt del byts ut enligt vårt val. Garantin omfattar inte slitage och skador orsakade av felaktig hantering och bristande underhåll och skötsel av produkten. Följdskador på främmande föremål ersätts ej.

Garantin gäller endast då produkten, som inte får vara isärtaget, lämnas väl förpackat med fakturakopia eller kvitto (inköpsdatum och stämpel) till vår återförsäljare för återgärd.

Reparationsservice:
Efter garantin är utgången kan produkten ev. repareras. Kontakta din återförsäljare eller Steinels svenska generalagent.

STEINEL PROFESSIONAL

German Quality

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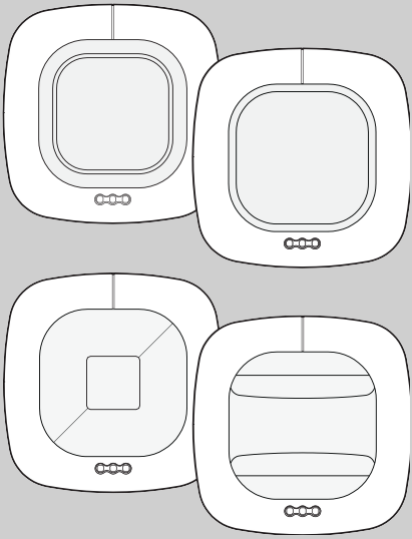

IR Quattro KNX
IR Quattro HD KNX

HF 360 KNX
DUAL HF KNX

KNX®

CONTROL PRO SYSTEM

i

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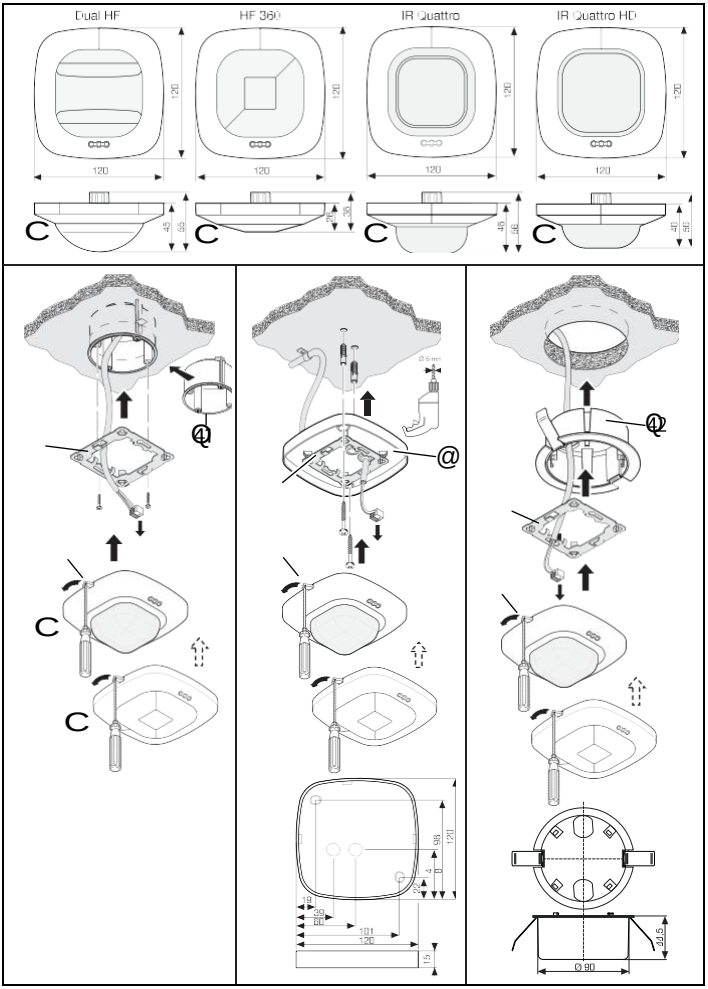
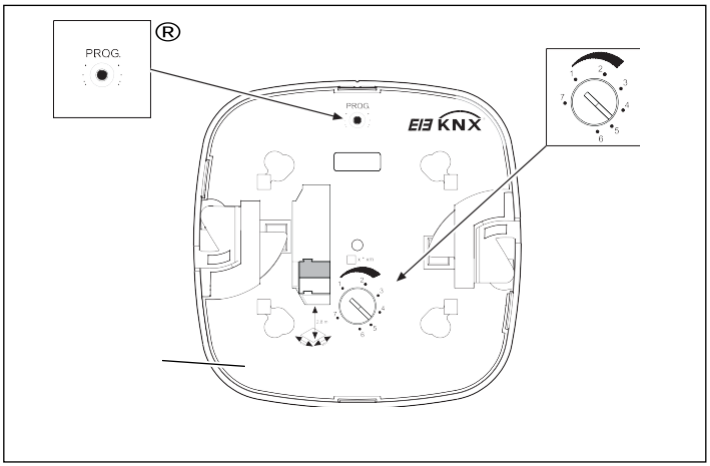
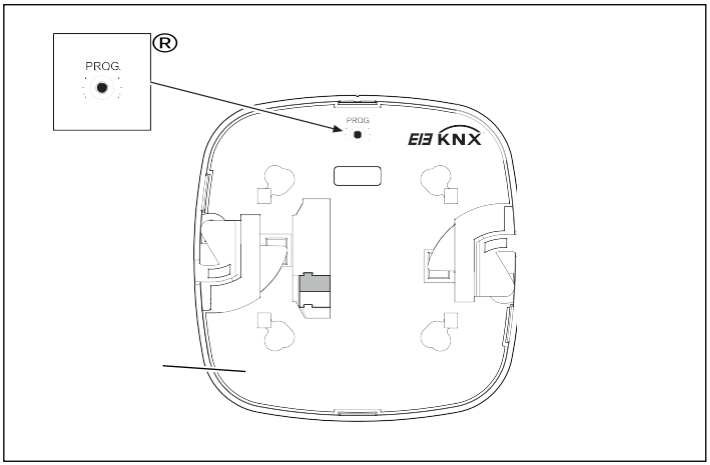

Dual HF
HF 360
IR Quattro
IR Quattro HD
120
C
45
55
Ø 6 mm
Ø 80
49,5
15

IR Quattro KNX / IR Quattro HD KNX

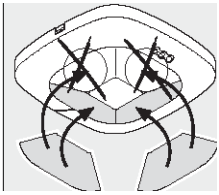


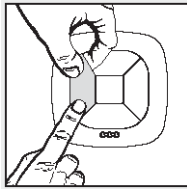
HF 360 KNX / DUAL HF KNX

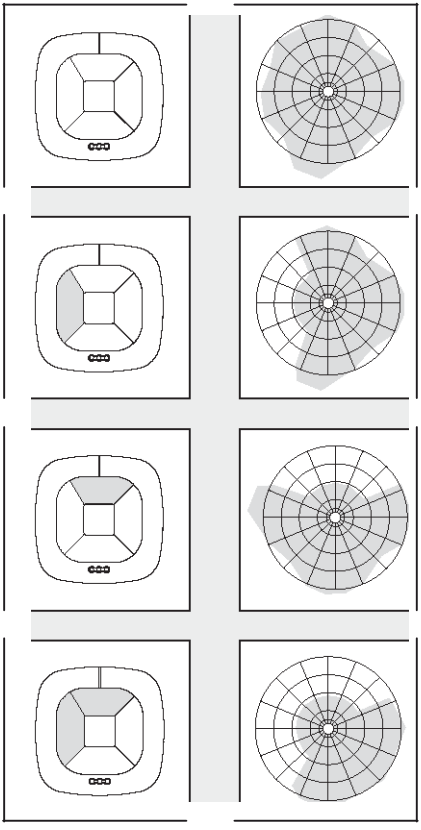


		IR Quattro KNX			IR Quattro HD KNX		
		Presence	Radial	Tangential	Presence	Radial	Tangential
2,50 m	**1**	2,6 m x 2,6 m	2,6 m x 2,6 m	2,8 m x 2,8 m	3,6 m x 3,6 m	3,6 m x 3,6 m	4 m x 4 m
	2	2,9 m x 2,9 m	2,9 m x 2,9 m	2,8 m x 2,8 m	4 m x 4 m	4 m x 4 m	4 m x 4 m
	3	3,2 m x 3,2 m	3,2 m x 3,2 m	2,8 m x 2,8 m	4,6 m x 4,6 m	4,6 m x 4,6 m	5 m x 5 m
	4	3,4 m x 3,4 m	3,4 m x 3,4 m	3,8 m x 3,8 m	5,2 m x 5,2 m	5,2 m x 5,2 m	6 m x 6 m
	5	3,6 m x 3,6 m	3,8 m x 3,8 m	4,7 m x 4,7 m	5,8 m x 5,8 m	5,8 m x 5,8 m	8 m x 8 m
	6	4,1 m x 4,1 m	4,2 m x 4,2 m	5,6 m x 5,6 m	6,8 m x 6,8 m	6,8 m x 6,8 m	13 m x 13 m
	7	4,7 m x 4,7 m	4,7 m x 4,7 m	6,6 m x 6,6 m	7,8 m x 7,8 m	7,8 m x 7,8 m	18 m x 18 m
2,80 m	**1**	2,8 m x 2,8 m	2,8 m x 2,8 m	2,8 m x 2,8 m	3,8 m x 3,8 m	3,8 m x 3,8 m	4 m x 4 m
	2	3,1 m x 3,1 m	3,1 m x 3,1 m	3 m x 3 m	4,4 m x 4,4 m	4,4 m x 4,4 m	4,5 m x 4,5 m
	3	3,5 m x 3,5 m	3,5 m x 3,5 m	3,8 m x 3,8 m	5,1 m x 5,1 m	5,1 m x 5,1 m	5,5 m x 5,5 m
	4	3,9 m x 3,9 m	3,9 m x 3,9 m	4,5 m x 4,5 m	5,5 m x 5,5 m	5,5 m x 5,5 m	6,5 m x 6,5 m
	5	4,2 m x 4,2 m	4,2 m x 4,2 m	5,4 m x 5,4 m	5,9 m x 5,9 m	5,9 m x 5,9 m	8,5 m x 8,5 m
	6	4,4 m x 4,4 m	4,4 m x 4,4 m	6,1 m x 6,1 m	6,9 m x 6,9 m	6,9 m x 6,9 m	17 m x 17 m
	7	4,7 m x 4,7 m	4,7 m x 4,7 m	7,1 m x 7,1 m	7,9 m x 7,9 m	7,9 m x 7,9 m	20 m x 20 m
3,00 m	**1**	2,8 m x 2,8 m	2,8 m x 2,8 m	2,8 m x 2,8 m	4 m x 4 m	4 m x 4 m	4 m x 4 m
	2	3,2 m x 3,2 m	3,3 m x 3,3 m	3,3 m x 3,3 m	4,8 m x 4,8 m	4,8 m x 4,8 m	5 m x 5 m
	3	3,6 m x 3,6 m	3,8 m x 3,8 m	4,7 m x 4,7 m	5,6 m x 5,6 m	5,6 m x 5,6 m	6 m x 6 m
	4	3,7 m x 3,7 m	4,2 m x 4,2 m	5,4 m x 5,4 m	5,8 m x 5,8 m	5,8 m x 5,8 m	7 m x 7 m
	5	3,8 m x 3,8 m	4,7 m x 4,7 m	6,1 m x 6,1 m	6 m x 6 m	6 m x 6 m	9 m x 9 m
	6	4,2 m x 4,2 m	4,7 m x 4,7 m	6,6 m x 6,6 m	7 m x 7 m	8 m x 8 m	20 m x 20 m
	7	4,2 m x 4,2 m	4,8 m x 4,8 m	7 m x 7 m	8 m x 8 m	8 m x 8 m	22 m x 22 m
3,50 m	**1**	2,8 m x 2,8 m	4,7 m x 4,7 m	4,7 m x 4,7 m	4,8 m x 4,8 m	5 m x 5 m	6 m x 6 m
	2	3,2 m x 3,2 m	5,2 m x 5,2 m	5,6 m x 5,6 m	5 m x 5 m	5,5 m x 5,5 m	6 m x 6 m
	3	3,6 m x 3,6 m	5,6 m x 5,6 m	7,5 m x 7,5 m	5,4 m x 5,4 m	6 m x 6 m	6 m x 6 m
	4	3,7 m x 3,7 m	6,6 m x 6,6 m	9,1 m x 9,1 m	5,8 m x 5,8 m	7 m x 7 m	9,5 m x 9,5 m
	5	3,8 m x 3,8 m	7,1 m x 7,1 m	9,9 m x 9,9 m	6,2 m x 6,2 m	8 m x 8 m	13 m x 13 m
	6	4,2 m x 4,2 m	7,5 m x 7,5 m	11 m x 11 m	7,2 m x 7,2 m	9,5 m x 9,5 m	20,5 m x 20,5 m
	7	4,2 m x 4,2 m	8,6 m x 8,6 m	12 m x 12 m	8,2 m x 8,2 m	11 m x 11 m	28 m x 28 m

		IR Quattro KNX			IR Quattro HD KNX		
		Presence	Radial	Tangential	Presence	Radial	Tangential
4,00 m	**1**	—	3,8 m x 3,8 m	3,8 m x 3,8 m	—	6 m x 6 m	7 m x 7 m
	2	—	3,8 m x 3,8 m	4,7 m x 4,7 m	—	6 m x 6 m	7,5 m x 7,5 m
	3	—	3,8 m x 3,8 m	5,6 m x 5,6 m	—	6 m x 6 m	8 m x 8 m
	4	—	4,7 m x 4,7 m	7,5 m x 7,5 m	—	7 m x 7 m	12 m x 12 m
	5	—	4,7 m x 4,7 m	7,5 m x 7,5 m	—	8 m x 8 m	15 m x 15 m
	6	—	5,6 m x 5,6 m	8,5 m x 8,5 m	—	8 m x 8 m	20 m x 20 m
	7	—	7,5 m x 7,5 m	10 m x 10 m	—	8,4 m x 8,4 m	24 m x 24 m
5,00 m	**1**	—	—	—	—	6 m x 6 m	8 m x 8 m
	2	—	—	—	—	6,3 m x 6,3 m	11 m x 11 m
	3	—	—	—	—	6,7 m x 6,7 m	14 m x 14 m
	4	—	—	—	—	7 m x 7 m	17 m x 17 m
	5	—	—	—	—	7,4 m x 7,4 m	20 m x 20 m
	6	—	—	—	—	7,7 m x 7,7 m	24 m x 24 m
	7	—	—	—	—	8,1 m x 8,1 m	27 m x 27 m
6,00 m	**1**	—	—	—	—	7 m x 7 m	9 m x 9 m
	2	—	—	—	—	7,1 m x 7,1 m	12 m x 12 m
	3	—	—	—	—	7,3 m x 7,3 m	16 m x 16 m
	4	—	—	—	—	7,4 m x 7,4 m	19 m x 19 m
	5	—	—	—	—	7,5 m x 7,5 m	23 m x 23 m
	6	—	—	—	—	7,7 m x 7,7 m	26 m x 26 m
	7	—	—	—	—	7,8 m x 7,8 m	30 m x 30 m
8,00 m	**1**	—	—	—	—	7,4 m x 7,4 m	11 m x 11 m
	2	—	—	—	—	7,5 m x 7,5 m	15 m x 15 m
	3	—	—	—	—	7,7 m x 7,7 m	19 m x 19 m
	4	—	—	—	—	7,8 m x 7,8 m	24 m x 24 m
	5	—	—	—	—	7,9 m x 7,9 m	28 m x 28 m
	6	—	—	—	—	8,1 m x 8,1 m	32 m x 32 m
	7	—	—	—	—	8,2 m x 8,2 m	36 m x 36 m







(D) Bedienungsanleitung

Sehr geehrter Kunde,

vielen Dank für das Vertrauen, das Sie uns beim Kauf Ihres neuen STEINEL-Präsenzmelders entgegengebracht haben. Sie haben sich für ein hochwertiges Qualitätsprodukt entschieden, das mit größter Sorgfalt produziert, getestet und verpackt wurde.

Bitte machen Sie sich vor der Installation mit dieser Montageanleitung vertraut. Denn nur eine sachgerechte Installation und Inbetriebnahme gewährleistet einen langen, zuverlässigen und störungsfreien Betrieb.

Wir wünschen Ihnen viel Freude an Ihrem neuen STEINEL-Sensor.

Sicherheitshinweise

- Die Installation darf nur durch Fachpersonal nach den landesüblichen Installationsvorschriften VDE 08 29 (DIN EN 5000 90) durchgeführt werden.
- In einer Umgebung mit Niederspannungserzeugnissen kann eine nicht fachgerechte Montage schwerste gesundheitliche oder materielle Schäden verursachen.
- Dieses Gerät darf niemals an Niederspannung (230 V AC) angeschlossen werden, da es für den Anschluss an Kleinspannungskreise bestimmt ist.

Gerätebeschreibung

C Sensormodul
Blechrahmen
Sensorunterseite
Q1 Kaiser-Hohlwanddose, optional
Q2 Klammer-Deckenadapter UP Box
@ Aufputzadapter
Verschlussmechanismus
Reichweiteneinstellung
® Programmiertaster
® Montage Installation
@ Abdeckfolien zur Minimierung des Erfassungsbereiches (HF 360 KNX).

Montage/Installation ®

Der Sensor ist nur zur Unterputz-Deckenmontage in Räumen vorgesehen.
Ein entsprechender Klammer-Deckenadapter sowie ein Aufputz-Adapter ist im Lieferumfang nicht enthalten.

Zubehör

Kaiser-Hohlwanddose,
EAN-Nr.: 4007841 000370
Klammer-Deckenadapter,
EAN-Nr.: 4007841 002855
Aufputz-Adapter
AP Box KNX
EAN-Nr.: 4007841 003029
Schutzkorb
EAN-Nr.: 4007841003036

Service-Fernbedienung
RC6 KNX
EAN-Nr.: 4007841 593018
Nutzer-Fernbedienung
RC7 KNX
EAN-Nr.: 4007841 592912

Funktionsweise / Grundfunktion

Die Infrarot- und HF-Präsenzmelder der Control PRO Serie regeln die Beleuchtung und HLK-Steuerung z.B. in Büros, Schulen, öffentlichen oder privaten Gebäuden in Abhängigkeit von Umbebungshelligkeit und Anwesenheit.

Der IR Quatro ermöglicht mit der hochentwickelten Linse einen raumtypischen, quadratischen Erfassungsbereich, in dem kleinste Bewegungen erfasst werden.

Der HF 360 gewährleistet mit moderner Hochfrequenztechnologie eine vollkommen lückenlose temperaturunabhängige Bewegungserfassung. Der Dual HF Sensor eignet sich durch die doppelte Richtcharakteristik besonders für Gänge in Hotels und Fluren in Schul- und Bürogebäuden.

Der Präsenz Control zeichnet sich weiter durch seinen geringen Eigenstromverbrauch aus.

- Präsenzmeldung
- Beleuchtungs-Steuerung mit Helligkeits-Regelung
- HLK-Steuerung

Welche dieser Funktionen genutzt (aktiviert) werden soll, wird über das Parameter-Fenster „Allgemeine Einstellungen“ mit der Engineering Tool Software (ETS) ab Version ETS3.f eingestellt.

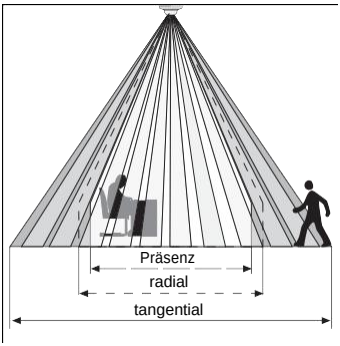
Inbetriebnahme

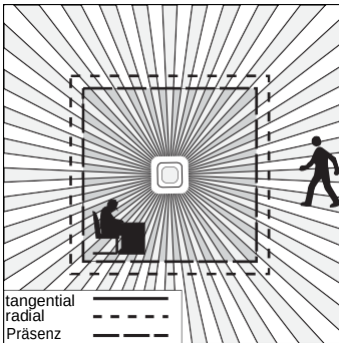
Hinweis: Die Applikationsbeschreibung finden Sie unter **www.knx.steinel.de**

1. Physikalische Adresse vergeben und Applikationsprogramm in der ETS erstellen.
2. Die Physikalische Adresse und das Applikationsprogramm in den Präsenzmelder laden. Wenn Sie dazu aufgefordert werden den Programmiertaster (8) drücken.
3. Nach erfolgreicher Programmierung erlischt die blaue LED.

Überwachungsbereich

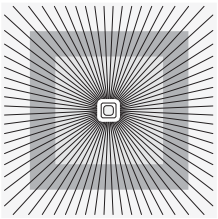
IR Quattro KNX / IR Quattro HD KNX

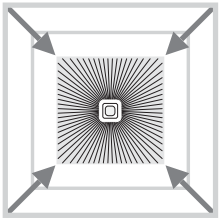


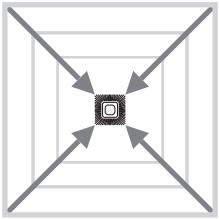


Eine sichere Anwesenheitserkennung hängt maßgeblich von der Anzahl, Beschaffenheit und Anordnung der Linsenelemente ab. Der IR Quattro KNX und das Erfassungsquadrat von 16 m², das sich in 13 Ebenen mit 1760 Schaltzonen darstellt, erfasst selbst kleinste Bewegungen. Der IR Quattro HD KNX und das Erfassungsquadrat von 64 m², verfügt über 4800 Schaltzonen und präsiziert das Leistungsspektrum. Durch die Einstellung am Poti besteht die Möglichkeit diese Reichweiten auf individuelle Ansprüche anzupassen. Aufgrund des quadratischen Erfassungsbereiches und die Möglichkeit der Vernetzung der Master/Slave Varianten ist eine einfache, schnelle und optimale Raumplanung möglich.

Reichweiteneinstellung (PC IR Quattro / IR Quattro HD KNX)







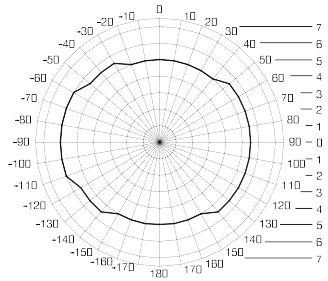
Poti

Anpassung der Reichweite auf individuelle Ansprüche. Vgl.

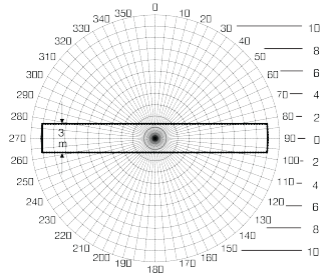
Tabelle Technische Daten und Einstellung individueller Ansprüche Seite 4/5.

Reichweiteneinstellung (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - Montagehöhe 2,8 m



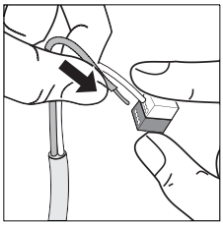
DUAL HF KNX - Montagehöhe 2,8 m

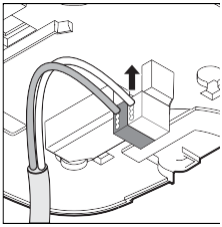


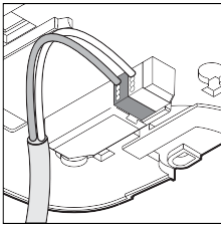
Die Reichweite des HF 360 KNX ist elektronisch über die Service-Fernbedienung RC 6 (vgl. Zubehör) sowie über die ETS Software/ KNX BUS (vgl. Applikationsbeschreibung, www.knx.steinel.de) einstellbar. Zur Raumanpassung lassen sich 1 oder 2 Erfassungsrichtungen ausblenden. Mit einem Erfassungswinkel von 360° ist eine Reichweite von max. 8 m möglich. Der DUAL HF KNX Sensor verfügt über 2 spezielle HF Sensoren die von der Decke aus beide Richtungen eines Ganges überwachen. Elektronisch kann die Reichweite in beide Richtungen eingestellt werden.

Elektrische Installation/Automatikbetrieb

Bei der Auswahl der Verdrahtungsleitungen sind grundsätzlich die Installationsvorschriften nach VDE 08 29 (DIN EN 5000 90) einzuhalten (siehe Sicherheitshinweise auf Seite 7).







Technische Daten

Netzanschluss KNX:	24 V über KNX Busspannung	
Einstellungen:	über ETS-Software, Fernbedienung oder Bus	
Lichtkanäle: Licht 1 – Licht 4	Schalten/Dimmen; Schaltbetrieb Konstantlichtregelung	
Nachlaufzeit:	IQ-Modus, 1 – 30 Min., präsenz- und helligkeitsabhängig	
Lichtmessung:	Mischlicht	
Grundhelligkeit:	AUS/10 % – 50 %	
Nachlaufzeit:	Grundhelligkeit Dauer-EIN, 1 – 30 Min.	
Ausgang HLK:	präsenzabhängig	
Einschaltverzögerung:	Raumüberwachung, 1 – 30 Min.	
Nachlaufzeit:	1 – 120 Min.	
Ausgang Präsenznachlaufzeit:	1 – 255 Sek.	
Weitere Ausgänge:	Helligkeitswert, Szenensteuerung	
Erfassungsquadrate:	**IR Quattro KNX** Präsenz: max. 4 x 4 m (16 qm) Radial: max. 5 x 5 m (25 qm) Tangential: max. 7 x 7 m (49 qm)	**IR Quattro HD KNX** max. 8 x 8 m (64 qm) max. 8 x 8 m (64 qm) max. 20 x 20 m (400 qm)
Erfassungswinkel:	**HF 360 KNX** 360° mit 140° Öffnungswinkel ggf. durch Glas, Holz und Leichtbauwände. Zur Raumanpassung lassen sich 1 oder 2 Erfassungsrichtungen ausblenden	**DUAL HF KNX** siehe Diagramm S. 10 ggf. durch Glas, Holz und Leichtbauwände.
Reichweite:	**HF 360 KNX** max. Ø 8 m , min., 1/3, 2/3, max. elektronisch einstellbar (ETS-Software, KNX Bus, Fernbedienung RC 6)	**DUAL HF KNX** min., 1/3, 2/3, max. in jede Richtung elektronisch einstellbar (ETS-Software, KNX Bus, Fernbedienung RC 6)

Fernbedienung

Über die Nutzer-Fernbedienung RC 7 (optional) lassen sich die Funktionen komfortabel vom Boden aus einschalten.

Die Service-Fernbedienung RC 6 (optional) ermöglicht die komfortable Konfiguration (vgl. Zubehör S. 8)

Betriebsstörungen

Störung	Ursache	Abhilfe
Licht schaltet nicht ein	• keine Anschlussspannung ➨ Dämmerungswert zu niedrig eingestellt ➨ keine Bewegungs-erfassung	➨ Anschlussspannung überprüfen ➨ Dämmerungswert langsam erhöhen bis Licht einschaltet ➨ Freie Sicht auf den Sensor herstellen ➨ Erfassungsbereich überprüfen
Licht schaltet nicht aus	➨ Raumhelligkeit für den eingestellten Dämmerungs-wert zu hoch ➨ Nachlaufzeit läuft ab ➨ Störende Wärmequellen (nur IR-Sensor) z.B.: Heiz-lüfter, offene Türen und Fenster, Haustiere, Glühbir-ne/Halogenstrahler, sich bewegende Objekte	➨ Dämmerungswert erhöhen ➨ Nachlaufzeit abwarten ggf. Nachlaufzeit kleiner stellen ➨ Stationäre Störquellen durch Aufkleber ausblen-den
Sensor schaltet trotz Anwesenheit ab	➨ Nachlaufzeit zu klein ➨ Lichtschwelle zu niedrig	➨ Nachlaufzeit erhöhen ➨ Dämmerungseinstellung ändern
Sensor schaltet zu spät ab	➨ Nachlaufzeit zu groß	• Nachlaufzeit verkleinern
Sensor schaltet bei frontaler Gehrichtung zu spät ein	➨ Reichweite bei frontaler Gehrichtung ist reduziert	➨ weitere Sensoren montieren ➨ Abstand zwischen zwei Sensoren reduzieren
Sensor schaltet trotz Dunkel-heit bei Anwesenheit nicht ein	➨ Dämmerungswert zu niedrig gewählt	➨ Sensor mit Schalter/Taster deaktiviert ? ➨ Halbautomatik ? ➨ Dämmerungswert erhöhen

Konformitätserklärung

Dieses Produkt erfüllt die:
- EMV-Richtlinie 2004/108/EG
- RoHS-Richtlinie 2002/95/EG.

Funktionsgarantie

Dieses Steinel-Produkt ist mit größter Sorgfalt hergestellt, funktions- und sicherheitsgeprüft nach geltenden Vorschriften und anschließend einer Stichprobenkontrolle unterzogen. Steinel übernimmt die Garantie für einwandfreie Beschaffenheit und Funktion.

Die Garantiefrist beträgt 36 Monate und beginnt mit dem Tag des Verkaufs an den Verbraucher. Wir beseitigen Mängel, die auf Material- oder Fabrikationsfehlern beruhen, die Garantieleistung erfolgt durch Instandsetzung oder Austausch mangelhafter Teile nach unserer Wahl. Eine Garantieleistung entfällt für Schäden an Verschleißteilen sowie für Schäden und Mängel, die durch unsachgemäße Behandlung oder Wartung auftreten. Weitergehende Folgeschäden an fremden Gegenständen sind ausgeschlossen.

Die Garantie wird nur gewährt, wenn das unzerlegte Gerät mit kurzer Fehlerbeschreibung, Kassenbon oder Rechnung (Kaufdatum und Händlerstempel), gut verpackt, an die zutreffende Servicestation eingesandt wird.

Reparaturservice:
Nach Ablauf der Garantiezeit oder Mängeln ohne Garantieanspruch repariert unser Werkservice. Bitte das Produkt gut verpackt an die nächste Servicestation senden.

GB Operating Instructions

Dear Customer,

Congratulations on purchasing your new STEINEL presence detector and thank you for the confidence you have shown in us. You have chosen a high-quality product that has been manufactured, tested and packed with the greatest care.

Please familiarise yourself with these instructions before attempting to install the presence detector because prolonged, reliable and trouble-free operation will only be ensured if it is fitted and used properly.

We hope your new STEINEL sensor will bring you lasting pleasure.

Safety Precautions

- The presence detector must only be installed by a qualified electrician in accordance with national wiring regulations as defined in VDE 08 29 (DIN EN 5000 90).
- Installed improperly, low-voltage products can cause extremely serious personal injury or damage to property.
- This product must never be connected to a 230 V AC power supply as it is intended for connection to an extra-low voltage power supply.

System Components

C Sensor module
Metal frame
Sensor base
Q1 Kaiser stud-wall junction box, optional
Q2 clamping-type ceiling adapter UP Box
@ Surface-mounting adapter
Catch mechanism
Reach setting
® Programming button
® Installation and wiring
@ Shrouds for minimising the detection zone (HF 360 KNX).

Installation / Wiring ®

The sensor is only suitable for recessed ceiling installation indoors. A clamping-type ceiling adapter or surface-mounting adapter is not included.

Accessories

Kaiser junction box for stud walls
EAN No.: 4007841 000370
Clamping-type ceiling adapter
EAN No. 4007841 002855
Surface-mounting adapter
AP Box KNX
EAN no.: 4007841 003029

Guard cage
EAN no.: 4007841003036
RC6 KNX service remote control
EAN no.: 4007841 593018
User remote control
RC7 KNX
EAN no.: 4007841 592912

How it Works / Basic Function

The infrared and HF presence detectors from the Control PRO range control lighting as well as HVAC, e.g. in offices, schools, public buildings or at home, in relation to ambient light level and the presence of persons.

The IR Quattro with highly advanced lens provides a square detection zone, as the typical shape of a room, in which the smallest of movements are sensed.

Using modern, high-frequency technology, the HF 360 guarantees detection of movement absolutely anywhere irrespective of radiated temperature.

Sensing movement in two directions, the DUAL HF-sensor is ideal for corridors in hotels, schools and office buildings.

Presence Control has a low intrinsic power consumption.

- Presence detection
- Controlling lighting with brightness control
- HVAC control

The function to be used (activated) is defined by the "General Settings" parameter window using the ETS3.f version of the Engineering Tool Software (ETS) and higher.

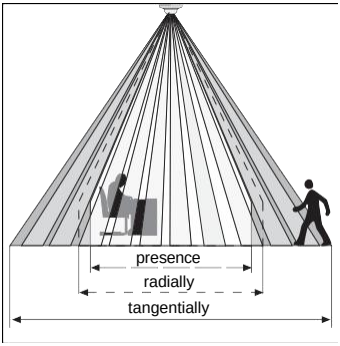
Operation

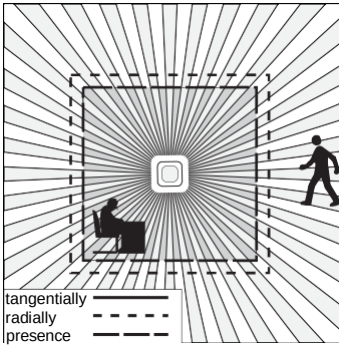
Note: To calibrate the presence detector, please go to **www.knx.steinel.de**

1. Issue Physical address and generate calibration programme in the ETS.
2. Load the Physical Address and Calibration Program into the presence detector. When you are prompted to press the programming button (8).
3. The blue LED goes out once programming has been successfully completed.

Detection Zone

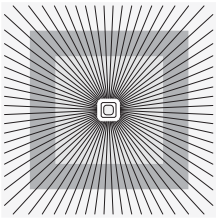
IR Quattro KNX / IR Quattro HD KNX

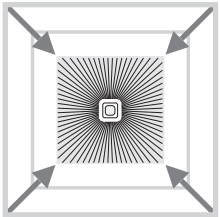


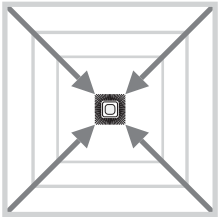


Reliable presence detection largely depends on the number, condition and arrangement of the lens segments. The IR Quattro KNX with its square detection zone of 16 m² divided up into 13 levels and 1760 switching zones senses the smallest of movements. With a square detection zone covering an area of 64 m², the IR Quattro HD KNX has 4800 switching zones that provide even greater precision. These reaches can be adjusted to suit specific requirements at the setting potentiometer. The square detection zone and the capability of interconnecting master/slave versions provide the basis for creating optimum configurations quickly and easily.

Reach Setting (PC IR Quattro / IR Quattro HD KNX)





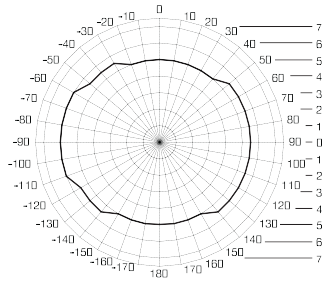


Potentiometer

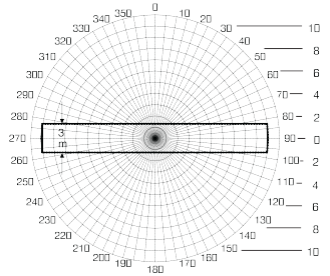
Adjusts reach to specific requirements. See table on pages 4/5 showing technical specifications for selecting settings to suit specific requirements.

Reach Setting (HF 360 KNX / DUAL HF KNX)

HF 360 KNX-mounting height 2.8 m



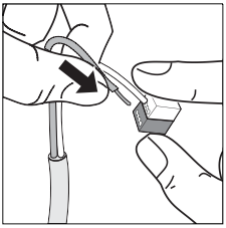
DUAL HF KNX-mounting height 2.8 m

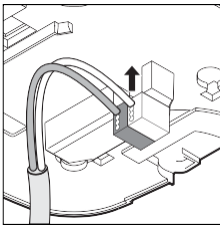


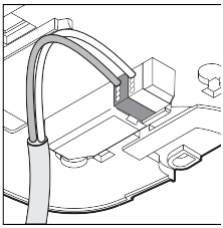
HF 360 KNX reach can be selected using the remote control RC 6 (see Accessories) as well as ETS Software/KNX BUS (refer to calibration description, www.knx.steinel.de). 1 or 2 detection directions can be masked out for adjustment to the room situation. An angle of coverage of 360° provides a max. reach of 8 m. The DUAL HF KNX sensor has 2 special HF sensors that detect movement from the ceiling in both directions. Reach is electronically selectable in either direction.

Electrical Installation / Automatic Mode

In selecting the wiring leads, it is important to meet the wiring regulations laid down in VDE 08 29 (DIN EN 5000 90) - (see Safety warnings on page 14).







Technical Specifications

KNX mains connection:	24 V via KNX bus voltage	
Settings:	by means of ETS software, remote control or bus	
Lighting channels: Light 1 – Light 4	Switching/dimming; switching mode - constant-lighting control	
Stay-'ON' time:	IQ mode, 1 – 30 min., depending on presence and light level	
Light measurement:	Mixed light	
Basic brightness :	OFF/ 10% – 50%	
Stay-'ON' time:	Basic brightness 'ON' duration, 1 – 30 min.	
HVAC output:	depending on presence	
Switch-on delay:	Room surveillance, 1 – 30 min.	
Stay-'ON' time:	1 – 120 min.	
Presence stay-'ON' time output:	1 – 255 sec.	
Further outputs:	Light level, scenario-controlled	
Square detection zones: Presence: Radially: Tangentially:	**IR Quattro KNX** no more than 4 x 4 m (16 sqm) no more than 5 x 5 m (25 sqm) no more than 7 x 7 m (49 sqm)	**IR Quattro HD KNX** no more than 8 x 8 m (64 sqm) no more than 8 x 8 m (64 sqm) no more than 20 x 20 m (400 sqm)
Angle of coverage:	**HF 360 KNX** 360° with 140° aperture angle also through glass, wood and stud walls. 1 or 2 detection directions can be masked out for adjustment to the room situation.	**DUAL HF KNX** refer to diagram on p. 17 also through glass, wood and stud walls.
Reach:	**HF 360 KNX** at most 8 m all-round, at least 1/3, 2/3, max. electronically selectable setting (ETS software, KNX bus, remote control RC 6)	**DUAL HF KNX** min., 1/3, 2/3, max. electronically selectable setting in either direction (ETS software, KNX bus, remote control RC 6)

Remote Control

Using the PC 7 user remote control (optional), functions can be conveniently activated from the floor.

Service remote control RC 6 (optional) permits convenient configuration (see Accessories on p. 15)

Troubleshooting

Malfunction	Cause	Remedy
Light does not switch 'ON'	• No supply voltage • Twilight level set too low • No movement being detected	• Check supply voltage • Slowly increase light threshold level until light switches 'ON' • Ensure unobstructed sensor vision • Check detection zone
Light does not switch 'OFF'	• Ambient brightness too high for selected light level • Stay-'ON' time running out • Interference from heat sources (IR sensor only), e.g.: fan heater, open doors and windows, pets, light bulb/halogen floodlight, moving objects	• Increase light level setting • Wait until stay-'ON' time elapses; reduce stay-'ON' time if necessary • Use stickers to mask out stationary sources of interference
Sensor switches 'OFF' in spite of persons being present	• Stay-'ON' time too short • Light-level threshold too low	• Increase stay-'ON' time • Change light threshold
Sensor does not switch 'OFF' quickly enough	• Stay-'ON' time too long	• Reduce stay-'ON' time
Sensor does not switch 'ON' quickly enough when approached from the front	• Reach is reduced when approached from the front too low	• Install additional sensors • Reduce distance between two sensors
Sensor does not switch 'ON' when persons are present in spite of it being dark	• Twilight level set	• Sensor deactivated by switch/button? • Semi-automatic mode? • Increase light level setting

Declaration of Conformity

This product complies with
- EMC Directive 2004/108/EC
- RoHS Directive 2002/95/EC.

Functional Warranty

This Steinel product has been manufactured with utmost care, tested for proper operation and safety and then subjected to random sample inspection. Steinel guarantees that it is in perfect condition and proper working order.

The warranty period is 36 months and starts on the date of sale to the consumer. We will remedy defects caused by material flaws or manufacturing faults. The warranty will be met by repair or replacement of the defective parts at our own discretion. The warranty shall not cover damage to wear parts, damage or defects caused by improper treatment or maintenance. Further consequential damage to other objects shall be excluded.

Claims under the warranty shall only be accepted if the product is sent fully assembled and well packed complete with a brief description of the fault, a receipt or invoice (date of purchase and dealer's stamp) to the appropriate Service Centre.

Repair service:
Our Customer Service Department will repair faults not covered by warranty or after the warranty period. Please send the product well packed to your nearest Service Centre.

(F) Mode d'emploi

Cher client,

Nous vous remercions de la confiance que vous avez témoignée à STEINEL en achetant ce détecteur de présence. Vous avez choisi un article de très grande qualité, fabriqué, testé et conditionné avec le plus grand soin.

Avant de l'installer, veuillez lire attentivement ces instructions de montage. En effet, seules une installation et une mise en service correctement effectuées garantissent durablement un fonctionnement impeccable et fiable.

Nous souhaitons que votre nouveau détecteur STEINEL vous apporte entière satisfaction.

F

Consignes de sécurité

- L'installation doit être effectuée par un professionnel conformément aux directives locales d'installation (VDE 08 29, NF-C 15100) (DIN EN 5000 90).
- Dans un environnement présentant des appareils basse tension, un montage incorrect est susceptible de causer de graves dommages matériels ou de mettre en danger la santé des personnes.
- Il est interdit de raccorder cet appareil à basse tension (230 V AC) prévu pour des circuits très basse tension.

Description de l'appareil

C Module du détecteur
Cadre de tôle
Partie inférieure du détecteur
Boîte pour parois creuses, Kaiser en option
Adaptateur de plafond à pinces UP Box
Adaptateur sur crépi
Mécanisme de fermeture
Réglage de la portée
® Touche de programmation
® Montage installation
@ Caches pour limitation de la zone de détection (HF 360 KNX).

Montage / Installation ®

Ce détecteur est prévu uniquement pour un montage au plafond, sous crépi. Un adaptateur de plafond à pinces correspondant et un adaptateur sur crépi ne sont pas compris dans la livraison.

Accessoires

Boîte pour parois creuses Kaiser,
N° EAN : 4007841 000370
Adaptateur de plafond à pinces,
N° EAN : 4007841 002855
Adaptateur sur crépi AP Box KNX
N° EAN : 4007841 003029

Corbeille de protection
N° EAN : 4007841003036
Télécommande service RC6 KNX
N° EAN : 4007841 593018
Télécommande utilisateur RC7 KNX
N° EAN : 4007841 592912

Fonctionnement / Fonction de base

Les détecteurs de présence infrarouge et HF de la série Control PRO commandent l'éclairage et les systèmes de chauffage, aération, climatisation par ex. dans les bureaux, les écoles, les bâtiments privés ou publics, en fonction de la luminosité ambiante et de la présence de personnes.

Le IR Quatro, grâce à une lentille hautement développée, permet d'obtenir une zone de détection carrée, adaptée à la pièce, à laquelle même les plus petits mouvements n'échapperont pas.

Le HF 360, doté d'une technologie hyper fréquence moderne, assure une détection de mouvement sans lacunes indépendante de la température.

Le détecteur Dual HF, à caractéristique de direction double, convient particulièrement pour les couloirs d'hôtels, d'écoles et de bureaux.

Le détecteur Présence Control se distingue par une consommation extrêmement faible d'électricité propre.

- Détection de présence
- Commande de l'éclairage avec réglage de l'intensité lumineuse
- Commande chauffage, aération, climatisation

L'activation des différentes fonctions est sélectionnée par le biais de la fenêtre paramètres « Réglages généraux » au moyen du logiciel Engineering Tool Software (ETS) à partir de la version ETS3.f.

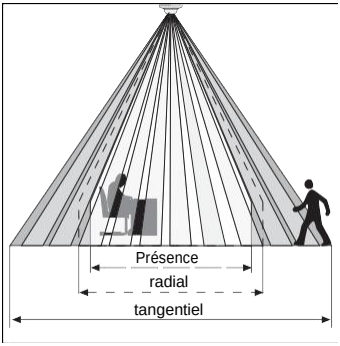
Mise en service

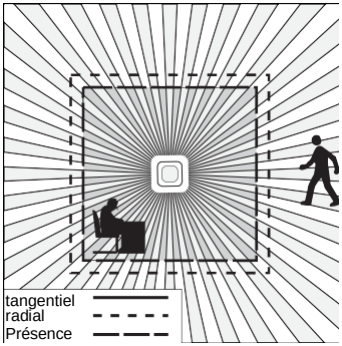
Remarque : Vous trouverez la description de l'application à l'adresse **www.knx.steinel.de**

1. Etablir adresse physique et programme d'application avec ETS.
2. Transmettre l'adresse physique et le programme d'application au détecteur de présence. Appuyer sur la touche de programmation (8).
3. Une fois la programmation terminée avec succès, la LED bleue s'éteint.

Zone de détection

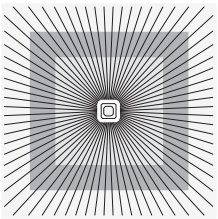
IR Quattro KNX / IR Quattro HD KNX

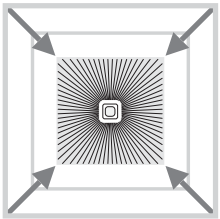


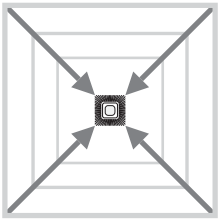


Une parfaite détection de présence dépend essentiellement du nombre, de la qualité et de la disposition des lentilles. Le IR Quattro KNX avec un carré de détection de 16 m², disposé sur 13 niveaux avec 1760 zones de commutation, détecte même les moindres mouvements. Le IR Quattro HD KNX, avec une surface de détection de 64 m², dispose de 4800 zones de commutation et précise le spectre de puissance. Le réglage de la portée permet de satisfaire à de multiples exigences et de créer des périmètres de détection précis (ex : Plateau de bureau). Grâce à la zone de détection carrée et à la possibilité de mise en réseau des variantes maître / esclave, une gestion d'éclairage rapide et optimale est réalisable.

Réglage de la portée (PC IR Quattro / IR Quattro HD KNX)





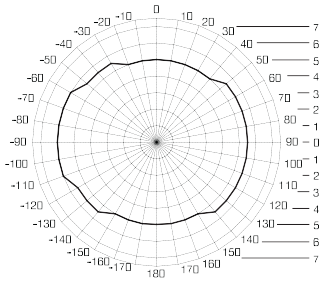


Potentiomètre

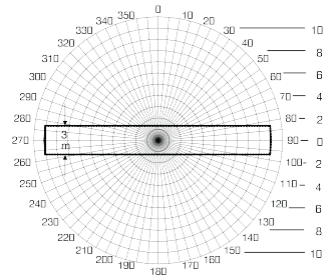
Adaptation de la portée aux besoins spécifiques. Cf. tableau caractéristiques techniques et réglage besoins spécifiques pages 4/5.

Réglage de la portée (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - hauteur d'installation 2,8 m



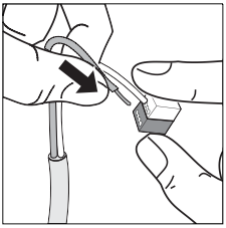
DUAL HF KNX - hauteur d'installation 2,8 m

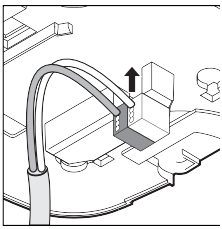


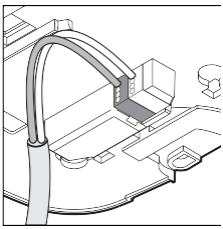
La portée du HF 360 KNX est réglable électroniquement au moyen de la télécommande RC 6 (cf. Accessoires) ainsi qu'avec le logiciel ETS / KNX BUS (cf. description application, www.knx.steinel.de). Pour l'adaptation à la pièce, il est possible de masquer 1 ou 2 directions de détection. Avec un angle de détection de 360°, une portée de 8 m max. est possible. Le détecteur DUAL HF KNX dispose de 2 détecteurs HF spéciaux pouvant surveiller un couloir dans deux directions à partir du plafond. La portée peut être réglée électroniquement dans les deux directions.

Installation électrique / commande automatique

Lors de la sélection du cablâge, respecter les directives d'installation de la norme NF-C 15100 (VDE 08 29) (DIN EN 5000 90) (cf. consignes de sécurité page 21).







Caractéristiques techniques

Raccordement au secteur KNX :	24 V par tension bus KNX	
Réglages :	par logiciel ETS, télécommande ou bus	
Canaux d'éclairage : lumière 1 – lumière 4	Commuter / varier ; mode interrupteur fonction éclairage permanent	
Temporisation :	Mode IQ, 1 – 30 min., en fonction de la présence et de la luminosité	
Mesure de la luminosité :	Lumière mixte	
Luminosité de base :	ARRÊT / 10 % – 50 %	
Temporisation :	Luminosité de base MARCHE en permanence, 1 – 30 min.	
Sortie HLK (CAC) :	en fonction de la présence	
Temporisation de démarrage :	Surveillance, 1 – 30 min.	
Temporisation :	1 – 120 min	
Sortie durée de poursuite en cas de présence :	1 – 255 s	
Autres sorties :	Valeur de luminosité, commande scène	
Carrés de détection : Présence : Radial : Tangentiel :	**IR Quattro KNX** 4 x 4 m max. (16 m²) 5 x 5 m max. (25 m²) 7 x 7 m max. (49 m²)	**IR Quattro HD KNX** 8 x 8 m max. (64 m²) 8 x 8 m max. (64 m²) 20 x 20 m max. (400 m²)
Angle de détection :	**HF 360 KNX** 360° avec 140° ouverture angulaire; le cas échéant à travers le verre, le bois et les cloisons légères. Pour l'adaptation à la pièce, il est possible de masquer 1 ou 2 directions de détection.	**DUAL HF KNX** cf. diagramme p. 24 le cas échéant à travers le verre, le bois et les cloisons légères.
Portée :	**HF 360 KNX** Ø 8 m max., min., 1/3, 2/3, max. réglage électronique (logiciel ETS, bus KNX, télécommande RC 6)	**DUAL HF KNX** min., 1/3, 2/3, max. dans chaque direction réglage électronique (logiciel ETS, bus KNX, télécommande RC 6)

Télécommande

La télécommande utilisateur RC 7 (en option) permet de commander les fonctions confortablement à partir du sol.

La télécommande service RC 6 (en option) permet une configuration tout en confort (cf. Accessoires p. 22)

Dysfonctionnements

Problème	Cause	Remède
La lumière ne s'allume pas	• Pas de tension de raccord • La valeur de crépuscularité est trop basse • Pas de détection de mouvement	• Vérifier la tension de raccord • Augmenter lentement la valeur de crépuscularité jusqu'à ce que la lumière s'allume • Assurer une vue libre sur le détecteur • Vérifier la zone de détection
La lumière ne s'éteint pas	• La luminosité de la pièce est trop élevée pour la valeur de crépuscularité sélectionnée • La temporisation touche à sa fin • Sources de chaleur perturbantes (uniquement détecteur IR) par ex. : radiateur soufflant, portes et fenêtres ouvertes, animaux domestiques, ampoule / projecteur halogène, objets mouvants	• Augmenter la valeur de crépuscularité • Attendre l'écoulement de la temporisation, la réduire le cas échéant • Masquer les sources de brouillage avec des autocollants
Le détecteur s'éteint malgré une présence	• Temporisation trop courte • Seuil de luminosité trop faible	• Augmenter la temporisation • Modifier le réglage de crépuscularité
Le détecteur s'éteint trop tard	• Temporisation trop longue	• Réduire la temporisation
Le détecteur s'allume trop tard en cas de sens de passage frontal	• En cas de sens de passage frontal, la portée est réduite	• Monter des détecteurs supplémentaires • Réduire l'écart entre deux détecteurs
Le détecteur ne s'allume pas malgré l'obsurité et présence	• La valeur de crépuscularité est trop basse	• Détecteur désactivé avec interrupteur / touche ? • Mode semi-automatique ? • Augmenter la valeur de crépuscularité

Déclaration de conformité

Ce produit est conforme aux directives suivantes :
- Directive compatibilité électromagnétique 2004/108/CE
- Directive RoHS 2002/95/CE

Garantie de fonctionnement

Ce produit Steinel a été fabriqué avec le plus grand soin. Son fonctionnement et sa sécurité ont été contrôlés conformément aux directives en vigueur et il a été soumis à un contrôle final par sondage. STEINEL garantit un état et un fonctionnement irréprochables.

La durée de garantie est de 36 mois et débute au jour de la vente au consommateur. Nous remédions aux défauts provenant d'un vice de matière ou de construction. La garantie sera assurée à notre discrétion par réparation ou échange des pièces défectueuses. La garantie ne s'applique ni aux pièces d'usure, ni aux dommages et défauts dus à une utilisation ou maintenance incorrectes. Les dommages consécutifs causés à d'autres objets sont exclus de la garantie.

La garantie ne s'applique que si l'appareil non démonté est retourné à la station de service après-vente la plus proche, dans un emballage adéquat, accompagné d'une brève description du défaut et d'un ticket de caisse ou d'une facture portant la date d'achat et le cachet du vendeur.

Service de réparation :
Le service après-vente de notre usine effectue également les réparations non couvertes par la garantie ou survenant après l'expiration de celle-ci. Veuillez envoyer le produit correctement emballé à la station de service après-vente la plus proche.

NL Gebruiksaanwijzing

Geachte klant,

Hartelijk dank voor het vertrouwen dat u met de aanschaf van uw nieuwe aanwezigheidsmelder van STEINEL in ons stelt. U heeft een hoogwaardig kwaliteitsproduct gekocht, dat met uiterste zorgvuldigheid vervaardigd, getest en verpakt werd.

Lees voor de installatie deze gebruiksaanwijzing nauwkeurig door, want alleen een vakkundige installatie en ingebruikneming garanderen een duurzaam, betrouwbaar en storingvrij gebruik.

Wij wensen u veel plezier met uw nieuwe sensor van STEINEL.

Veiligheidsvoorschriften

- De installatie moet volgens de geldende installatievoorschriften VDE 08 29 (DIN EN 5000 90) door een vakman worden uitgevoerd.
- In een omgeving met laagspanningsproducten kan een verkeerde montage zwaar letsel en grote materiële schade veroorzaken.
- Dit apparaat mag nooit op laagspanning (230 V AC) worden aangesloten, aangezien het voor aansluiting op laagspanningscircuits is bedoeld.

Beschrijving van het apparaat

C Sensormodule
Stalen plaatje
Onderkant sensor
Kaiser-contactdoos, optioneel
Klem-plafondadapter inbouwdoos
@ Opbouwadapter
Sluiting
Reikwijdte-instelling
® Programmeertoets
® Montage installatie
@ Afdekfolie ter verkleining van het registratiebereik (HF 360 KNX).

Montage/installatie ®

De sensor is alleen geschikt voor montage in het plafond. Een hiervoor bedoelde klemplafondadapter en een opbouwadapter zijn niet bij de levering inbegrepen.

Toebehoren

Kaiser-contactdoos
EAN-nr.: 4007841 000370
Plafond-klemadapter
EAN-nr.: 4007841 002855
Opbouwadapter
AP Box KNX
EAN-nr.: 4007841 003029

Beschermkap
EAN-nr.: 4007841003036
Service-afstandsbediening
RC6 KNX
EAN-nr.: 4007841 593018
Gebruiker-afstandsbediening
RC7 KNX
EAN-nr.: 4007841 592912

Werking/basisfuncties

De infrarood- en HF-aanwezigheidsmelders van de serie Control PRO S regelen de verlichting en HLK-regeling bijv. in kantoren, scholen, openbare en particuliere gebouwen afhankelijk van de omgevingslichtsterkte en de aanwezigheid van personen.

De IR Quatro maakt met zijn zeer geavanceerde lens een aan de ruimte aangepast, vierkantig, registratiebereik mogelijk, waarin zelfs de kleinste bewegingen worden geregistreerd.

De HF 360 garandeert dankzij moderne HF-technologie een volledige, temperatuuronafhankelijke bewegingsregistratie. De Dual HF sensor is door de dubbele richteigenschappen vooral geschikt voor gangen in hotels, scholen en kantoren.

De Presence Control heeft bovendien een zeer laag stroomverbruik.

- Aanwezigheidsmelding
- Verlichtingsturing met regeling van lichtsterkte
- HLK-regeling

De functies die moeten worden gebruikt (geactiveerd), worden via het parametervenster 'Algemene instellingen' ingesteld met de Engineering Tool Software (ETS) vanaf versie ETS3.f.

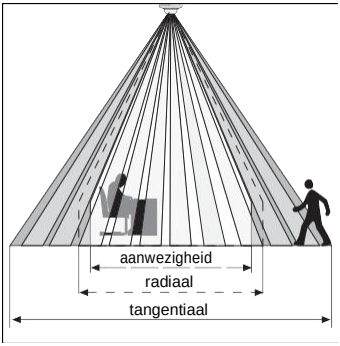
Ingebruikname

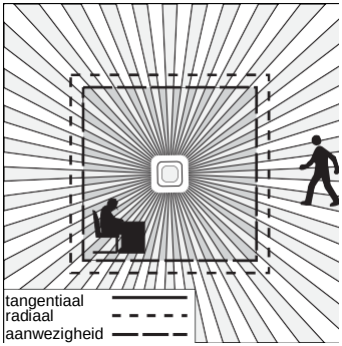
Opmerking: de toepassingsbeschrijving vindt u op **www.knx.steinel.de**

1. Fysiek adres invoeren en toepassingsprogramma in de ETS maken.
2. Het fysieke adres en het toepassingsprogramma uploaden in de aanwezigheidsmelder. Wanneer u hiernaar gevraagd wordt op de programmeertoets (8) drukken.
3. Na een succesvolle programmering dooft het blauwe led-lampje.

Observeringsgebied

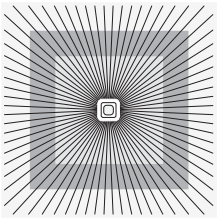
IR Quattro KNX / IR Quattro HD KNX

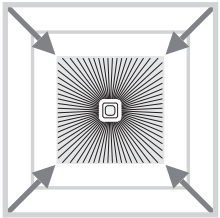


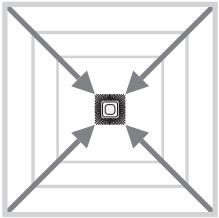


Een betrouwbare aanwezigheidsherkenning hangt grotendeels van het aantal, de aard en de plaatsing van de lenselementen af. De IR Quattro KNX met zijn vierkant registratiegebied van 16 m², dat 13 niveaus met 1760 schakelzones heeft, registreert zelfs de kleinste bewegingen. Dr IR Quattro HD KNX met zijn vierkant registratiegebied van 64 m², heeft 4800 schakelzones en daardoor een nauwkeurigere detectie. Door de instelling op de potentiometer bestaat de mogelijkheid om deze reikwijdtes aan individuele omstandigheden aan te passen. Dankzij het vierkant registratiebereik en de mogelijkheid om de master/slave-varianten te koppelen is een eenvoudige, snelle en optimale planning van de ruimte mogelijk.

Reikwijdte-instelling (PC IR Quattro / IR Quattro HD KNX)







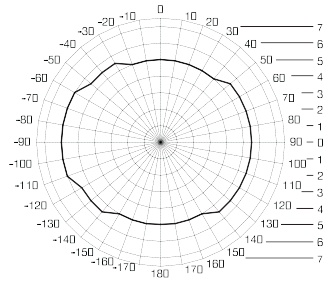
Potentiometer

Aanpassing van de reikwijdte aan individuele omstandigheden.

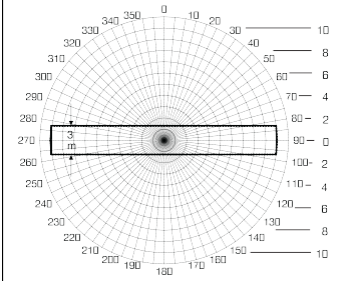
Vgl. tabel technische gegevens en aanpassing aan individuele omstandigheden pagina 4/5.

Reikwijdte-instelling (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - montagehoogte 2,8 m



DUAL HF KNX - montagehoogte 2,8 m



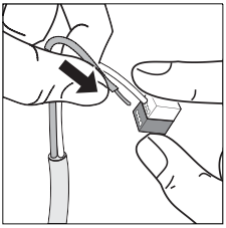
De reikwijdte van de HF 360 KNX kan elektronisch met de service-afstandsbediening RC 6 (zie toebehoren) en via de ETS software/ KNX BUS (zie toepassingsbeschrijving, www.knx.steinel.de) worden ingesteld. Voor het aanpassen aan de ruimte kunnen 1 of 2 registratierichtingen worden buitengesloten.

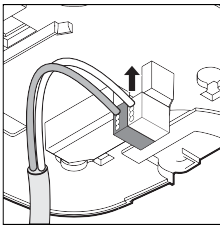
Met een registratiehoek van 360° is een reikwijdte van max. 8 m mogelijk. De DUAL HF KNX sensor beschikt over 2 speciale HF-sensoren die vanaf het plafond beide richtingen van een gang bewaken. Elektronisch kan de reikwijdte in beide richtingen worden ingesteld.

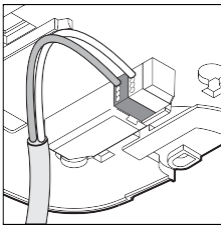
NL

Elektrische installatie/automatische werking

Bij het kiezen van de bekabelingsleidingen moeten altijd de installatievoorschriften volgens VDE 08 29 (DIN EN 5000 90) worden opgevolgd (zie de veiligheidsvoorschriften op pagina 28).







Technische gegevens

Netaansluiting KNX:	24 V via KNX busspanning	
Instellingen:	via ETS-software, afstandsbediening of bus	
Lichtkanalen: licht 1 – licht 4	schakelen/dimmen; schakelmodus regeling constant licht	
Nalooptijd:	IQ-modus, 1 – 30 min., afhankelijk van aanwezigheid en lichtsterkte	
Lichtmeting:	gemengd licht	
Basislichtsterkte:	UIT/10% – 50%	
Nalooptijd:	basislichtsterkte permanent-AAN, 1 – 30 min.	
Uitgang HLK:	afhankelijk van aanwezigheid	
Inschakelvertraging:	bewaking, 1 – 30 min.	
Nalooptijd:	1 – 120 min.	
Uitgang nalooptijd aanwezigheid:	1 – 255 sec.	
Overige uitgangen:	lichtsterktewaarde, scènesturing	
Vierkantige registratiegebieden: Aanwezigheid: Radiaal: Tangentiaal:	**IR Quattro KNX** max. 4 x 4 m (16 m²) max. 5 x 5 m (25 m²) max. 7 x 7 m (49 m²)	**IR Quattro HD KNX** max. 8 x 8 m (64 m²) max. 8 x 8 m (64 m²) max. 20 x 20 m (400 m²)
Registratiehoek:	**HF 360 KNX** 360° met 140° openingshoek eventueel door glas, hout en snelbouwwanden. Voor het aanpassen aan de ruimte kunnen 1 of 2 registratierichtingen worden buitengesloten.	**DUAL HF KNX** zie diagram pag. 31 eventueel door glas, hout en snelbouwwanden.
Reikwijdte:	**HF 360 KNX** max. Ø 8 m , min., 1/3, 2/3, max. elektronisch instelbaar (ETS-software, KNX bus, afstandsbediening RC 6)	**DUAL HF KNX** min., 1/3, 2/3, max. in iedere richting elektronisch instelbaar (ETS-software, KNX bus, afstandsbediening RC 6)

Afstandsbediening

Met de gebruiker-afstandsbediening RC 7 (optioneel) kunnen alle functies eenvoudig vanaf de grond worden ingeschakeld.

De service-afstandsbediening RC 6 (optioneel) maakt een eenvoudige configuratie mogelijk (vgl. toebehoren pag. 29)

Bedrijfsstoringen

Storing	Oorzaak	Oplossing
Licht gaat niet aan	• geen aansluitspanning - schemerwaarde te laag ingesteld - geen bewegingsregistratie	- aansluitspanning controleren - schemerwaarde langzaam verhogen tot het licht inschakelt - voor vrij zicht op de sensor zorgen - registratiebereik controleren
Licht gaat niet uit	- lichtsterkte in de kamer te hoog voor de ingestelde schemerwaarde - nalooptijd loopt af - storende warmtebronnen (alleen IR-sensor) bijv.: ventilatoren, open deuren en ramen, huisdieren, gloeilamp/halogeenspot, bewegende objecten	- schemerwaarde verhogen - nalooptijd afwachten of nalooptijd lager zetten - permanente storingsbronnen met stickers buiten bereik halen
Sensor schakelt uit ondanks aanwezigheid	- nalooptijd te kort - inschakelniveau te laag	- nalooptijd verhogen - schemerinstelling veranderen
Sensor schakelt te laat uit	- nalooptijd te lang	- nalooptijd verkorten
Sensor schakelt bij frontale looprichting te laat in	- reikwijdte bij frontale looprichting is beperkt - schemerwaarde te laag gekozen	- meer sensoren monteren - afstand tussen twee sensoren verkleinen
De sensor schakelt ondanks duisternis niet in bij aanwezigheid		- sensor met schakelaar/ toets gedeactiveerd? - halfautomatisch? - schemerwaarde verhogen

NL

Conformiteitsverklaring

Dit product voldoet aan de:
- EMC-richtlijn 2004/108/EG
- RoHS-richtlijn 2002/95/EG.

Functiegarantie

Dit Steinel-product is met grote zorgvuldigheid gefabriceerd, getest op goede werking en veiligheid volgens de geldende voorschriften, en vervolgens steekproefsgewijs gecontroleerd. Steinel verleent garantie op de storingsvrije werking.

De garantietermijn bedraagt 36 maanden en gaat in op de datum van aanschaf door de klant. Alle klachten, die berusten op materiaal- of fabricagefouten, worden door ons opgelost. De garantie bestaat uit reparatie of vernieuwen van de defecte onderdelen, door ons te beoordelen. Garantie vervalt bij schade aan onderdelen, die aan slijtage onderhevig zijn en bij schade of gebreken, die door ondeskundig gebruik of onderhoud ontstaan. Schade aan andere voorwerpen is uitgesloten van garantie.

De garantie wordt alleen verleend wanneer het niet-gedemonteerde apparaat met korte storingsbeschrijving, kassabon of rekening (koopdatum en winkelierstempel), goed verpakt naar het desbetreffende serviceadres wordt gestuurd.

Reparatieservice:
Na afloop van de garantietermijn of bij schade die niet onder de garantie valt, kan er ook door ons gerepareerd worden. Gelieve het product goed verpakt aan het dichtstbijzijnde serviceadres op te sturen.

(I) Istruzioni per l'uso

Gentili Clienti,

molte grazie per la fiducia che ci avete dimostrato acquistando il Vostro nuovo rilevatore di presenza STEINEL. Avete scelto un prodotto pregiato di alta qualità costruito, provato e confezionato con la massima cura.

Vi preghiamo di procedere all'installazione solo dopo aver letto attentamente le presenti istruzioni di montaggio. Solo un'installazione ed una messa in funzione effettuate a regola d'arte possono infatti garantire un funzionamento affidabile, privo di disturbi e di lunga durata.

Vi auguriamo di essere pienamente soddisfatti del Vostro nuovo sensore STEINEL.

Avvertenze sulla sicurezza

- L'installazione deve venire effettuata esclusivamente da personale specializzato e in base alle prescrizioni d'installazione VDE 08 29 (DIN EN 5000 90) vigenti nel relativo paese.
- In un ambiente in cui sono presenti dispositivi a bassa tensione, un montaggio eseguito non a regola d'arte potrebbe provocare gravissimi danni a persone o cose.
- Questo apparecchio non deve mai venire allacciato alla bassa tensione (230 V CA), in quanto esso è destinato all'allacciamento a circuiti di piccola tensione.

Descrizione apparecchio

C Modulo sensore
Telaio in lamiera
Lato inferiore del sensore
Q1 Scatola per parete cava Kaiser come optional
Q2 Adattatore a pinza per soffitto UP Box
@ Adattatore per montaggio sopra intonaco
Meccanismo di chiusura
Regolazione del raggio d'azione
® Tasto di programmazione
® Montaggio Installazione
@ Pellicole di schermatura per la riduzione del campo di rilevamento (HF 360 KNX).

Montaggio/Installazione ®

Il sensore è previsto esclusivamente per il montaggio sotto intonaco e a soffitto in locali interni. Il relativo adattatore a pinza per soffitto e l'adattatore per montaggio sopra intonaco non sono compresi nel volume di fornitura.

Accessori

Scatola per parete cava
Kaiser
N. EAN: 4007841 000370
Adattatore a fermaglio per soffitto
N. EAN: 4007841 002855
Adattatore per montaggio sopra intonaco
AP Box KNX
n. EAN: 4007841 003029
Gabbia di protezione
n. EAN: 4007841003036
Telecomando di servizio
RC6 KNX
n. EAN: 4007841 593018
Telecomando per l'utente
RC7 KNX
n. EAN: 4007841 592912

Funzionamento/Funzione principale

Il rilevatore di presenza a raggi infrarossi e il rilevatore di presenza HF della serie Control PRO regolano l'illuminazione e il comando HVAC per es. in uffici, scuole, edifici pubblici o privati in funzione della luminosità dell'ambiente e della presenza o meno di persone.

L'IR Quatro permette, grazie alla lente di avanzatissima tecnologia, un campo di rilevamento a forma squadrata, tipica dei vani interni, nel quale vengono rilevati anche i minimi movimenti.

L'HF 360 garantisce, grazie alla moderna tecnologia ad alta frequenza, un rilevamento dei movimenti completo in funzione della temperatura.

Il sensore Dual HF, per via della caratteristica direzionale doppia, è particolarmente adatto all'impiego in corridoi di hotel e pianerottoli di scuole e complessi di uffici.

Il controllo della presenza si distingue inoltre per il ridotto consumo di corrente propria.

- Rilevamento della presenza
- Controllo dell'illuminazione con regolazione della luminosità
- Comando HVAC

Quale di queste funzioni deve venire utilizzata (attivata) viene stabilito tramite la finestra parametri "Impostazioni generali" con l'Engineering Tool Software (ETS) a partire dalla versione ETS3.f.

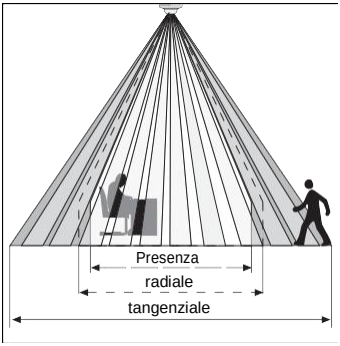
Messa in funzione

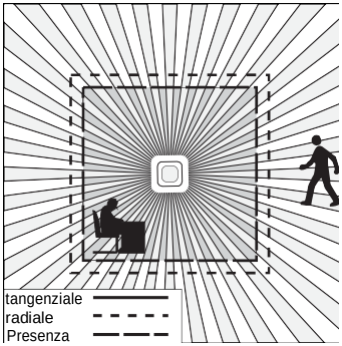
Avvertenze: l'applicazione è descritta al sito **www.knx.steinel.de**

1. Assegnate l'indirizzo fisico e creare il programma applicativo nell'ETS.
2. Caricate l'indirizzo fisico e il programma applicativo nel rilevatore di presenza. Quando compare la relativa richiesta, premete il tasto di programmazione (8).
3. A programmazione ultimata il LED blu si spegne.

Campo di controllo

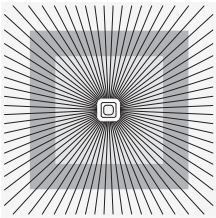
IR Quattro KNX / IR Quattro HD KNX

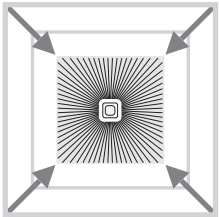


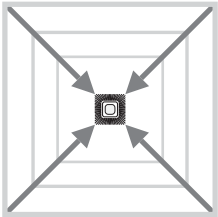


Un riconoscimento sicuro della presenza dipende fondamentalmente dal numero, dalla costituzione e dalla disposizione delle lenti. L'IR Quattro KNX e il quadrato di rilevamento di 16 m² che si rappresenta in 13 piani con 1760 zone d'intervento, rileva persino i minimi movimenti. L'IR Quattro HD KNX e il quadrato di rilevamento di 64 m², dispone di 4800 zone d'intervento e precisa il campo di prestazione. Agendo sul potenziometro avete la possibilità di adeguare questi raggi d'azione alle esigenze individuali. Grazie alla forma squadrata del campo di rilevamento e alla possibilità del collegamento in rete delle varianti Master/Slave, è possibile una progettazione semplice, rapida e ottimale dello spazio.

Regolazione del raggio d'azione(PC IR Quattro / IR Quattro HD KNX)







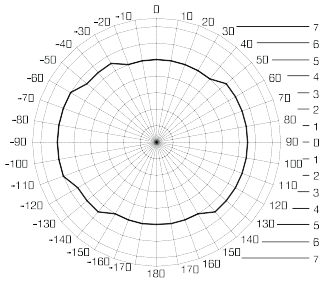
Potenziometro

Adattamento del raggio d'azione alle esigenze individuali. Cfr.

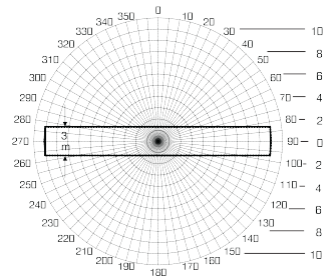
Tabella dati tecnici e Impostazione in base alle esigenze individuali Pagina 4/5.

Regolazione del raggio d'azione(HF 360 KNX / DUAL HF KNX)

HF 360 KNX - Altezza di montaggio 2,8 m



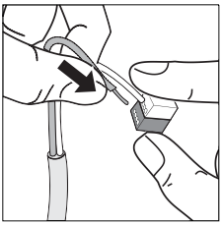
DUAL HF KNX - Altezza di montaggio 2,8 m

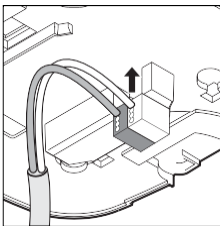


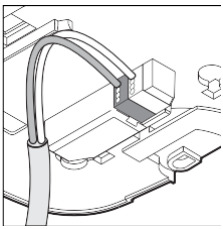
Il raggio d'azione dell'HF 360 KNX è regolabile elettronicamente tramite il telecomando di servizio RC 6 (cfr. Accessori) nonché tramite il software ETS/KNX BUS (cfr. Descrizione dell'applicazione, www.knx.steinel.de). Per adattarlo alla situazione dell'ambiente, si possono mascherare 1 o 2 direzioni di rilevamento. Con un angolo di rilevamento di 360° è possibile un raggio d'azione massimo di 8 m. Il sensore DUAL HF KNX dispone di 2 sensori speciali ad alta frequenza che sorvegliano dal soffitto entrambe le direzioni di un corridoio. Elettronicamente il raggio d'azione può venire impostato in entrambe le direzioni.

Installazione elettrica/Funzionamento automatico

Nella scelta delle linee di cablaggio si devono assolutamente rispettare le prescrizioni d'installazione della norma VDE 08 29 (DIN EN 5000 90) (vedi avvertenze relative alla sicurezza a pagina 35).







Dati tecnici

Collegamento a rete KNX:	24 V tramite tensione bus KNX	
Regolazioni:	mediante software ETS, telecomando o bus	
Canali illuminazione: luce 1 – luce 4	accensione/dimmerazione; modalità accensione regolazione luce costante	
Tempo di attesa:	modalità IQ, 1 – 30 min., in funzione della presenza e della luminosità	
Misurazione luce:	luce mista	
Luminosità di base:	OFF/10 % – 50 %	
Tempo di attesa:	luminosità di base per durata ON, 1 – 30 min	
Uscita HVAC:	in funzione della presenza	
Ritardo di accensione:	monitoraggio ambiente, 1 – 30 min	
Tempo di attesa:	1 – 120 min	
Uscita tempo di attesa presenza:	1 – 255 sec.	
Ulteriori uscite:	valore di luminosità, controllo dello scenario	
Quadrati di rilevamento: Presenza: Senso radiale: Senso tangenziale:	**IR Quattro KNX** max. 4 x 4 m (16 mq) max. 5 x 5 m (25 mq) max. 7 x 7 m (49 mq)	**IR Quattro HD KNX** max. 8 x 8 m (64 mq) max. 8 x 8 m (64 mq) max. 20 x 20 m (400 mq)
Angolo di rilevamento:	**HF 360 KNX** 360° con angolo di apertura di 140° all'occorrenza attraverso vetro, legno e pareti in materiale leggero. Per adattarlo alla situazione dell'ambiente, si possono mascherare 1 o 2 direzioni di rilevamento	**DUAL HF KNX** vedi diagramma a pag. 38 all'occorrenza attraverso vetro, legno e pareti in materiale leggero.
Raggio d'azione:	**HF 360 KNX** max. Ø 8 m , min., 1/3, 2/3, max. regolabile elettronicamente (software ETS, KNX Bus, telecomando RC 6)	**DUAL HF KNX** min., 1/3, 2/3, max. regolabile elettronicamente in ogni direzione (software ETS, KNX Bus, telecomando RC 6)

Telecomando

Tramite il telecomando dell'utente RC 7 (optional) è possibile attivare e disattivare comodamente le funzioni da pavimento.

Il telecomando di servizio RC 6 (optional) permette una comoda configurazione (cfr. Accessori pag. 36)

Disturbi di funzionamento

Guasto	Causa	Rimedio
La luce non si accende	• mancanza di tensione di allacciamento • valore crepuscolare impostato troppo basso • non viene rilevato nessun movimento	• controllare la tensione di allacciamento • aumentare lentamente il valore crepuscolare finché la luce si accende • fare in modo da liberare la visuale sul sensore • verificare il campo di rilevamento
La luce non si spegne	• la luminosità dell'ambiente è eccessiva per il valore crepuscolare impostato • il tempo di attesa sta scadendo • interferenza da parte di fonti di calore (solo nel caso del sensore a raggi infrarossi) per es.: termoventilatore, porte o finestre aperte, animali domestici, lampadina/spot alogeno, oggetti in movimento	• aumentare il valore crepuscolare • aspettare la scadenza del tempo di attesa o all'occorrenza ridurlo • escludere fonti d'interferenza stazionarie mediante adesivi
Il sensore provoca lo spegnimento delle luci nonostante la presenza di persone	• il tempo di attesa è troppo breve • la soglia luminosa è troppo bassa	• aumentare il tempo di attesa • modificare la regolazione crepuscolare
Il sensore spegne le luci troppo tardi	• il tempo di attesa è eccessivamente lungo	• ridurre il tempo di attesa
In caso di senso di marcia frontale il sensore accende le luci troppo tardi	• il raggio d'azione per il senso di marcia frontale è ridotto	• montare ulteriori sensori • ridurre la distanza tra due sensori
Il sensore non accende le luci in presenza di persone nonostante sia buio	• valore crepuscolare selezionato troppo basso	• è stato disattivato il sensore con l'interruttore/ il tasto? • funzionamento semiautomatico? • aumentare il valore crepuscolare

Dichiarazione di conformità

Questo prodotto è conforme alle seguenti direttive:
- Direttiva sulla compatibilità elettromagnetica 2004/108/CE
- Direttiva sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche 2002/95/CE

Garanzia di funzionamento

Questo prodotto STEINEL viene prodotto con la massima cura, con controlli di funzionamento e del grado di sicurezza in conformità alle norme vigenti in materia; vengono poi effettuati collaudi con prove a campione. La STEINEL si assume la garanzia di una fabbricazione ed un funzionamento perfetti.

GARANZIA
36 mesi
sulle funzioni

La garanzia si estende a 36 mesi ed inizia il giorno d'acquisto da parte dell'utilizzatore finale. Noi eliminiamo difetti riconducibili al materiale o alla fabbricazione; la prestazione della garanzia consiste a nostra scelta nella riparazione o nella sostituzione dei pezzi difettosi. Il diritto alla prestazione di garanzia viene a decadere in caso di danni a pezzi soggetti ad usura nonché in caso di danni o difetti che sono da ricondurre ad un trattamento inadeguato o ad una cattiva manutenzione. Sono esclusi dal diritto di garanzia gli ulteriori danni conseguenti che si verificano su oggetti estranei.

La garanzia viene prestata solo se l'apparecchio viene inviato non smontato, ben imballato e accompagnato da una breve descrizione del difetto e dallo scontrino o dalla fattura (in cui siano indicati la data dell'acquisto e il timbro del rivenditore), al centro di assistenza competente.

Centro assistenza riparazioni: con periodo di garanzia scaduto e nel caso di difetti che non danno diritto a prestazioni di garanzia, è il nostro centro di assistenza ad eseguire le relative riparazioni. Inviate il prodotto ben imballato, al più vicino centro di assistenza.

(E) Instrucciones de montaje

Apreciado cliente:

Gracias por la confianza que nos ha dispensado al comprar su nuevo detector de presencia STEINEL. Se ha decidido por un producto de alta calidad, producido, probado y embalado con el mayor cuidado.

Le rogamos se familiarice con estas instrucciones de montaje antes de instalarlo. Sólo una instalación y puesta en funcionamiento adecuadas garantizarán un servicio prolongado, eficaz y sin alteraciones.

Le deseamos que disfrute durante mucho tiempo con su nuevo sensor STEINEL.

Indicaciones de seguridad

- La instalación debe ser realizada por personal técnico especializado, de acuerdo con las normativas de instalación específicas de cada país VDE 08 29 (DIN EN 5000 90).
- En un ambiente donde se produce tensiones bajas se pueden producir daños materiales así como afectar gravemente la salud si no se realiza un montaje profesional.
- Este aparato nunca debe ser conectado a una baja tensión (230 V AC), ya que ha sido diseñado para ser conectado a circuitos de tensiones pequeñas.

Descripción del aparato

C Módulo de sensor
Bastidor de chapa
Lado inferior del sensor
Caja para pared hueca Kaiser, opcional
Adaptador de clip para techos, caja empotrable
@ Adaptador de superficie
Mecanismo de cierre
Regulación de alcance
® Tecla de programación
® Montaje, instalación
@ Cubiertas para la minimización del campo de detección (HF 360 KNX).

Montaje/Instalación ®

El sensor ha sido previsto sólo para el montaje empotrado en el techo de ambientes. Un adaptador de clip para techos así como un adaptador de superficie no son parte del volumen de suministro.

Accesorios

Caja para pared hueca Kaiser,
nº EAN.: 4007841 000370
Adaptador de techo con pinzas,
nº EAN: 4007841 002855
Adaptador de superficie
AP Box KNX
nº EAN: 4007841 003029
Protección metálica
nº EAN: 4007841003036

Mando a distancia de servicio
RC6 KNX
nº EAN: 4007841 593018
Mando a distancia para el usuario
RC7 KNX
nº EAN: 4007841 592912

Funcionamiento/funciones básicas

El detector de presencia infrarrojo y AF de la serie Control PRO regulan el alumbrado y la regulación CEA p. ej. en oficinas, escuelas, edificios públicos y privados dependiendo de la luminosidad ambiental y la presencia.

El IR Quatro hace posible con avanzada tecnología de lentes, un campo de detección típico y cuadrado de ambiente, con lo cual se pueden detectar los movimientos más pequeños.

El HF 360 garantiza con esta tecnología de alta frecuencia moderna una detección de movimiento completa sin interrupciones independiente de la temperatura.

El sensor AF dual es apropiado especialmente para pasillos en hoteles y recibidores en escuelas y oficinas, debido a su doble característica de orientación.

El control de presencia se caracteriza además por su bajo consumo de energía.

- Aviso de presencia
- Regulación de la luz inclusive luminosidad
- Regulación CEA

Cual de estas funciones debe ser usada (activada), se ajusta mediante la ventana de parámetros „Configuraciones generales“ con el Engineering Tool Software (ETS) a partir de la versión ETS3.f.

E

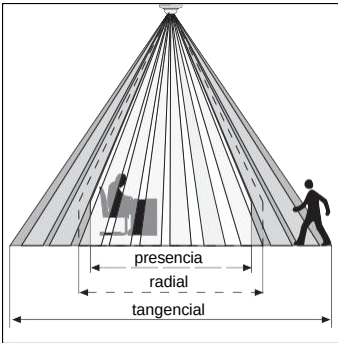
Puesta en servicio:

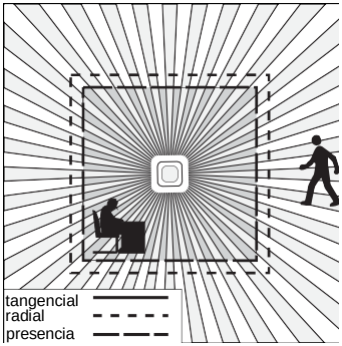
Observación: La descripción de aplicaciones se puede encontrar en
www.knx.steinel.de

1. Asignar direcciones físicas y crear programas de aplicación en el ETS.
2. Cargar la dirección física y el programa de aplicación en el detector de presencia. Pulsar la tecla de programación (8) cuando esto le sea pedido.
3. Después de la programación exitosa se apaga el diodo luminoso LED azul.

Zona de vigilancia

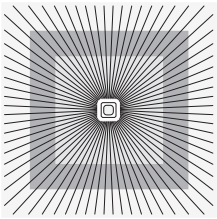
IR Quattro KNX / IR Quattro HD KNX

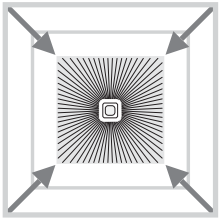


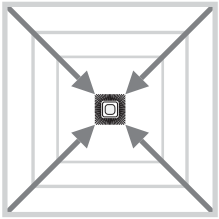


Un reconocimiento de presencia seguro depende fundamentalmente de la cantidad, estado y distribución de los elementos de lente. El IR Quattro KNX y el cuadrado de detección de 16 m^2, que consiste de 13 sectores con 1760 zonas de conmutación, detecta incluso el movimiento más insignificante. El IR Quattro HD KNX y el cuadrado de detección de 64 m^2, dispone de más de 4800 zonas de conmutación y da precisión al espectro energético. Debido a la regulación en el potenciómetro existe la posibilidad de adaptar este alcance de detección a necesidades individuales. Debido a los campos de detección cuadrados y las posibilidades de interconexión de las variantes maestro/esclavo se hace posible una planificación sencilla, rápida y óptima del ambiente.

Regulación de alcance (PC IR Quattro / IR Quattro HD KNX)





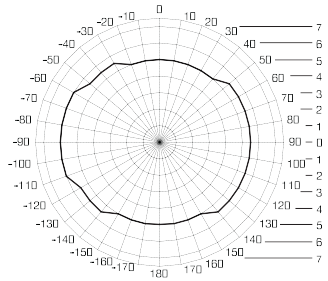


Potenciómetro

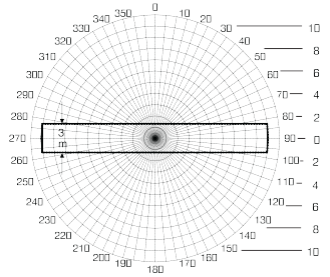
Adaptación del alcance de detección a necesidades individuales. Comparar tabla de datos técnicos y regulación de necesidades individuales página 4/5.

Regulación de alcance (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - Altura de montaje 2,8 m



DUAL HF KNX - Altura de montaje 2,8 m

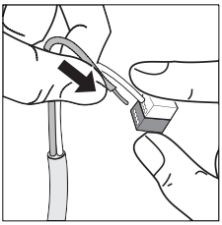


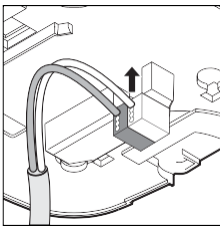
El alcance de detección del HF 360 KNX se puede regular electrónicamente mediante el mando a distancia de servicio RC 6 (véase accesorios) así como mediante el software ETS / KNX BUS (véase descripción de aplicaciones, www.knx.steinel.de). Para la adaptación al interior, se pueden suprimir 1 ó 2 direcciones de detección. Con un ángulo de detección de 360° es posible un alcance de detección de máx. 8 m. El sensor DUAL HF KNX dispone de más de 2 sensores AF especiales que monitorean desde el techo ambos lados de un pasillo. Electrónicamente se puede regular el alcance de detección en ambos sentidos.

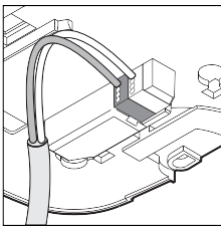
E

Instalación eléctrica/funcionamiento automático

Al seleccionar los cables desnudos para cableado se deben tomar en cuenta las prescripciones de instalación según VDE 08 29 (DIN EN 5000 90) (véase indicaciones de seguridad en la página 42).







Datos técnicos

Alimentación de red KNX:	24 V vía tensión de bus KNX	
Configuración:	vía software ETS, mando a distancia o bus	
Canales de luz: luz 1 – luz 4	conectar/graduar; modo de conmutación regulación de luz constante	
Desconexión diferida:	modo CI, 1 – 30 min., sujeto a presencia y luminosidad	
Fotometría:	luz mixta	
Claridad de fondo:	APAGADO/10% – 50%	
Desconexión diferida:	claridad de fondo ENCENDIDO permanente, 1 – 30 min.	
Salida CEA:	sujeto a presencia	
Conexión diferida:	vigilancia de interior, 1 – 30 min.	
Desconexión diferida:	1 – 120 min.	
Salida desconexión diferida de presencia:	1 – 255 seg.	
Salidas adicionales:	Valor de luminosidad, control de escenas	
Cuadrados de detección:	**IR Quattro KNX**	**IR Quattro HD KNX**
Presencia:	máx. 4 x 4 m (16 m^2)	máx. 8 x 8 m (64 m^2)
Radial.:	máx. 5 x 5 m (25 m^2)	máx. 8 x 8 m (64 m^2)
Tangencial.:	máx. 7 x 7 m (49 m^2)	máx. 20 x 20 m (400 m^2)
Ángulo de detección:	**HF 360 KNX** 360° con 140° ángulo de apertura en caso necesario a través de cristal, madera y paredes de construcción ligera. Para la adaptación al interior, se pueden suprimir 1 ó 2 direcciones de detección.	**DUAL HF KNX** Véase el diagrama pág. 45, en caso necesario a través de cristal, madera y paredes de construcción ligera.
Alcance:	**HF 360 KNX** máx. Ø 8 m , mín., 1/3, 2/3, máx. regulable electrónicamente (software ETS, KNX Bus, mando a distancia RC 6)	**DUAL HF KNX** mín., 1/3, 2/3, máx. en cualquier dirección regulable electrónicamente (software ETS, KNX Bus, mando a distancia RC 6)

Mando a distancia

Mediante el mando a distancia RC 7 (opcional) del usuario se pueden activar cómodamente las funciones desde el suelo.

El mando a distancia de servicio RC 6 (opcional) hace posible la configuración confortable (véase accesorios página 43)

Fallos de funcionamiento

Fallo	Causa	Solución
La luz no se conecta	• No hay tensión de alimentación • Valor crepuscular regulado demasiado bajo • Ninguna detección de movimiento	• Comprobar la tensión de alimentación • Aumentar el valor crepuscular lentamente hasta la conexión de la luz • Crear una vista libre al sensor • Controlar el campo de detección
La luz no se desconecta	• Luminosidad en el interior para el valor crepuscular demasiado alto • Tiempo de desconexión diferida expira • Fuentes de calor perturbadoras (sólo sensor infrarrojo) p. ej.: ventilador calentador, puertas y ventanas abiertas, animales domésticos, bombilla/foco halógeno, objetos en movimiento	• Aumentar el valor crepuscular • Esperar el tiempo de desconexión diferida, en caso necesario reajustar la desconexión diferida a un tiempo más corto • Suprimir la fuente de interferencias estacionarias con una pegatina
El sensor se desconecta aun cuando existe presencia de objetos	• Tiempo de desconexión diferida demasiado corto • Umbral de luz demasiado bajo	• Aumentar el tiempo de desconexión diferida • Modificar la regulación crepuscular
Sensor se desconecta demasiado tarde	• Tiempo de desconexión diferida demasiado largo	• Reducir el tiempo de desconexión diferida
El sensor se conecta demasiado tarde cuando existe un sentido del movimiento frontal	• Alcance de detección con sentido de movimiento frontal está reducida	• Montar otros sensores • Reducir la distancia entre dos sensores
El sensor no se conecta aun con oscuridad cuando existe presencia de algo	• Valor crepuscular elegido demasiado bajo	• ¿Sensor con interruptor/pulsador desactivado? • ¿Semiautomático? • Aumentar el valor crepuscular

E

Declaración de conformidad

Este producto cumple con:
- Directiva de compatibilidad electromagnética 2004/108/CE
- Directiva RoHS (limitación de sustancias peligrosas) 2002/95/CE.

Garantía de funcionamiento

Este producto STEINEL ha sido elaborado con el máximo esmero, habiendo pasado los controles de funcionamiento y seguridad previstos por las disposiciones vigentes, así como un control adicional de muestreo al azar. Steinel garantiza el perfecto estado y funcionamiento.

GARANTÍA
36 meses
DE FUNCIONAMIENTO

El período de garantía es de 36 meses comenzando el día de la venta al consumidor. Reparamos defectos de material o de fabricación, la garantía se aplicará a base de la reparación o el cambio de piezas defectuosas, según nuestro criterio. La prestación de garantía queda anulada para daños producidos en piezas de desgaste y daños y defectos originados por uso o mantenimiento inadecuados. Quedan excluidos de la garantía los daños consecuenciales causados en objetos ajenos.

La garantía sólo será efectiva enviando el aparato no deshecho con una breve descripción del fallo, tique de caja o factura (con fecha de compra y sello del comercio), bien empaquetado, al correspondiente centro de servicio.

Servicio de reparación:
Una vez transcurrido el período de garantía o en caso de defectos no cubiertos por la misma, las reparaciones las lleva a cabo nuestro departamento técnico. Rogamos envíen el producto bien embalado al centro de servicio más próximo.

(P) Manual de Utilização

Estimado cliente

Agradecemos-lhe a confiança depositada em nós ao comprar o novo detector de presença STEINEL. Trata-se de um produto de elevada qualidade produzido, testado e embalado com o máximo cuidado.

Procure familiarizar-se com estas instruções de montagem antes da instalação. Só uma instalação e colocação em funcionamento correctas podem garantir a longevidade do produto e um funcionamento fiável e isento de falhas.

Fazemos votos que tenha prazer ao trabalhar com o seu novo sensor da STEINEL.

Instruções de segurança

- A instalação só pode ser realizada por pessoal especializado segundo as respectivas prescrições de instalação habituais nos diversos países VDE 08 29 (DIN EN 5000 90).
- Uma montagem realizada de forma não profissional, em ambientes com produtos de baixa tensão, pode provocar graves danos para a saúde e danos materiais.
- Este aparelho nunca deve ser ligado a tensão baixa (230 V CA), pois está previsto para circuitos de potência muito baixa.

P

Descrição do aparelho

C Módulo de sensor
Chapa de base
Lado inferior do sensor
Q1 Caixa de distribuição Kaiser para paredes ocas, opcional
Q2 Adaptador de grampos para o tecto UP Box
@ Adaptador para montagem saliente
Mecanismo de fecho
Ajuste do alcance
® Tecla de programação
® Montagem/instalação
@ Películas de cobertura para reduzir a área de detecção (HF 360 KNX).

Montagem/Instalação ®

O sensor destina-se apenas à montagem embutida no tecto em recintos fechados. O fornecimento não inclui o respectivo adaptador de grampos para o tecto nem o adaptador para montagem à superfície.

Acessórios

Caixa de distribuição Kaiser
para paredes ocas,
N.º EAN: 4007841 000370
Adaptador de grampo para
tetos
N.º EAN: 4007841 002855
Adaptador para montagem à
superfície,
N.º EAN: 4007841 003029

Grelha protectora
N.º EAN: 4007841003036
Comando de serviço
RC6 KNX
N.º EAN: 4007841 593018
Comando de utilizador
RC7 KNX
N.º EAN: 4007841 592912

Princípio de funcionamento/Funcionamento básico

Os detectores de presença por infravermelhos e de alta frequência da série Control PRO controlam a iluminação e o comando HLK por ex., em escritórios, escolas, edifícios públicos ou privados em dependência da luminosidade do ambiente e da presença de pessoas.

A lente de alta tecnologia do IR Quatro permite obter uma área de detecção quadrada, típica para o recinto, na qual são detectados os menores movimentos.

A tecnologia moderna de alta frequência do HF 360 permite a detecção de movimento integral sem qualquer falha independentemente da temperatura.

Devido à característica direccional dupla do DUAL HF, este sensor é particularmente adequado para corredores em hotéis e em escolas ou complexos de escritórios.

Mas o Presence Control também surpreende pelo seu consumo próprio de corrente extremamente baixo.

- Detecção de presença
- Controlo da iluminação com regulação da luminosidade
- Controlo do aquecimento, da ventilação e da climatização

A definição das funções que devem ser usadas (activadas) é realizada através da janela de parâmetros "Configurações gerais" do software "Engineering Tool Software (ETS)" a partir da versão ETS3.f.

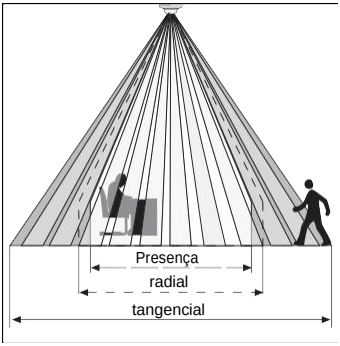
Colocação em funcionamento

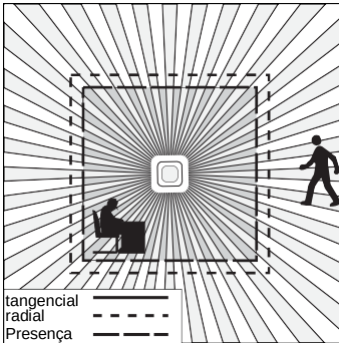
Nota: A descrição do aplicativo encontra-se na Internet, em **www.knx.steinel.de**

1. Atribuir um endereço físico e criar o programa de aplicação no software ETS.
2. Carregar o endereço físico e o programa de aplicação para o detector de presença. Quando lhe for solicitado, carregue na tecla de programação (8).
3. Depois de a programação ter sido concluída com êxito, o LED azul apaga-se.

Área Monitorizada

IR Quattro/ IR Quattro HD

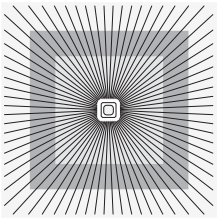


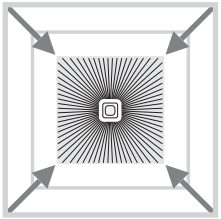


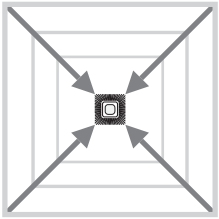
Uma detecção segura da presença depende, principalmente, do número, do tipo e da disposição dos elementos da lente. O IR Quattro KNX e o quadrado de detecção de 16 m², composto por 13 níveis com 1760 zonas de comutação, detectam o menor movimento. O IR Quattro HD KNX e o quadrado de detecção de 64 m², dispõem de 4800 zonas de comutação e facultam uma precisão ainda maior. A regulação do potenciómetro permite adaptar estes alcances às necessidades personalizadas. Devido à área de detecção quadrada e à possibilidade do encadeamento das variantes Master/ Slave em rede, é possível realizar um planeamento de espaços rápido e ideal.

P

Ajuste do alcance (PC IR Quattro / IR Quattro HD KNX)





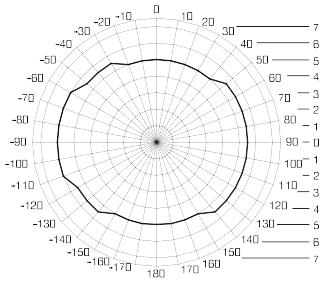


Potenciómetro

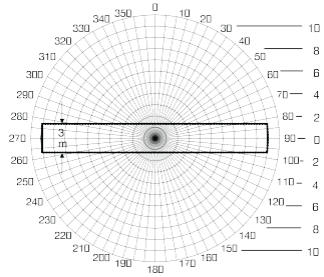
Adaptação do alcance às necessidades personalizadas. Ver a tabela "Dados técnicos e adaptação às necessidades personalizadas" nas páginas 4/5.

Ajuste do alcance (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - altura de montagem 2,8 m



DUAL HF KNX - altura de montagem 2,8 m

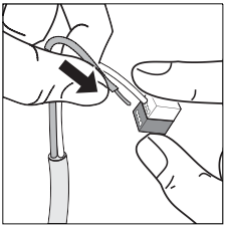


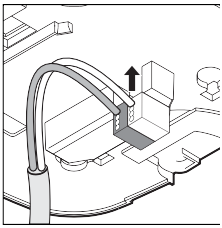
O alcance do HF 360 KNX pode ser regulado por via electrónica, através do comando de serviço RC 6 (ver Acessórios), bem como através do software ETS/KNX BUS (ver descrição do aplicativo, www.knx.steinel.de). Para o adaptar ao recinto, podem omitir-se 1 ou 2 sentidos de detecção. Com um ângulo de detecção de 360°, é possível obter um alcance máx. de 8 m.

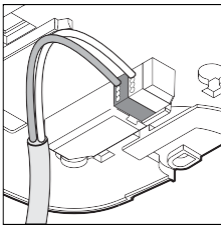
O sensor DUAL HF KNX dispõe de 2 sensores de alta frequência especiais que monitorizam, a partir do tecto, ambos os sentidos de passagem no corredor. Por via electrónica, o alcance pode ser regulado em ambas as direcções.

Instalação eléctrica/Modo de funcionamento automático

Ao seleccionar os cabos de ligação, é sempre necessário respeitar as instruções de instalação segundo a norma VDE 08 29 (DIN EN 5000 90), (ver instruções de segurança na página 49).







Dados técnicos

Ligação de rede KNX:	24 volts através da tensão do comando ou barramento KNX	
Intensidade:	através do software ETS, comando ou barramento	
Canais de luz: luz 1 – luz 4	comutar/regular intensidade; funcionamento de comutação da regulação de luz constante	
Tempo pós-evento:	modo IQ, 1 a 30 min., dependente da presença e da luminosidade	
Medição da luz:	luz mista	
Luminosidade básica:	DESL/10 % – 50 %	
Tempo pós-evento:	luminosidade básica LIGA permanente, 1 a 30 min.	
Saída HLK:	dependente da presença	
Atraso de activação:	monitorização do recinto, 1 a 30 min.	
Tempo pós-evento:	1 a 120 min.	
Saída do tempo pós-evento de presença:	1 – 255 s	
Outras saídas:	Valor de luminosidade, controlo de cenários	
Quadrados de detecção: Presença: Radial: Tangencial:	**IR Quattro** máx. 4 x 4 m (16 m²) máx. 5 x 5 m (25 m²) máx. 7 x 7 m (49 m²)	**IR Quattro** máx. 8 x 8 m (64 m²) máx. 8 x 8 m (64 m²) máx. 20 x 20 m (400 m²)
Ângulo de detecção:	**HF 360 KNX** 360° com ângulo de abertura de 140° eventualmente através de vidro, madeira e tabiques. Para o adaptar ao recinto, podem omitir-se 1 ou 2 sentidos de detecção.	**Dual HF** ver diagrama pág. 52 por vezes atravessando vidro, madeira e paredes leves.
Alcance:	**HF 360 KNX** Ø máx. 8 m , mín., 1/3, 2/3, máx. regulação electrónica (software ETS, KNX Bus, comando RC 6)	**Dual HF** mín., 1/3, 2/3, máx. regulação electrónica em todas as direcções (software ETS, KNX Bus, comando RC 6)

P

Comando

O comando de utilizador RC 7 (opcional) permite ligar as funções confortavelmente a partir do chão.

O comando de serviço RC 6 (opcional) permite realizar a configuração confortavelmente (ver Acessórios pág. 50)

Falhas de funcionamento

Falha	Causa	Solução
Lâmpada não acende	• Falta tensão de ligação • Valor crepuscular regulado é demasiado baixo • Não foi detectado movimento	• Verificar a tensão de ligação • Aumentar o valor crepuscular gradualmente até a luz se acender • Estabelecer contacto visual desobstruído • Verificar a área de detecção
Lâmpada não se apaga	• A luminosidade no recinto é demasiado elevada para o valor crepuscular definido • Tempo pós-evento decorre • Fontes térmicas interferentes, por ex.: aquecedores, portas ou janelas abertas, animais de estimação, lâmpada incandescente/ projector de halogéneo, objectos em movimento	• Aumentar o valor crepuscular • Esperar até o tempo pós-evento decorrer, se necessário, reduzir a definição • Suprimir fontes interferentes fixas por meio de autocolante
Sensor desliga a luz apesar de estar alguém presente	• Tempo pós-evento insuficiente • Limiar de luz insuficiente	• Aumentar o tempo pós-evento • Alterar a regulação crepuscular
Sensor desliga as luzes demasiado tarde	• Tempo pós-evento excessivo	• Reduzir o tempo pós-evento
Em sentido de aproximação frontal, o sensor liga demasiado tarde	• Alcance está reduzido em sentido de aproximação frontal	• Montar outros sensores • Reduzir a distância entre dois sensores
Sensor não liga apesar de estar escuro e haver presença de alguém	• Valor crepuscular regulado é demasiado baixo	• Sensor foi desactivado com interruptor/botão? • Semi-automático? • Aumentar o valor crepuscular

Declaração de conformidade

Este produto cumpre as seguintes directivas:
- "Compatibilidade electromagnética" 2004/108/CE
- "Redução de substâncias perigosas" 2002/95/CE.

Garantia de funcionamento

Este produto Steinel foi fabricado com todo o zelo e o seu funcionamento e segurança verificados, de acordo com as normas em vigor, e sujeito a um controlo por amostragem aleatória. A Steinel garante o bom estado e o bom funcionamento do aparelho.

O prazo de garantia é de 36 meses a contar da data de compra. Eliminamos falhas relacionadas com defeitos de material ou de fabrico.
A garantia inclui a reparação ou a substituição das peças com defeito, de acordo com o nosso critério, estando excluídas as peças sujeitas a desgaste, os danos e as falhas originados por uma utilização ou manutenção incorrecta. Excluem-se igualmente os danos provocados noutros objectos estranhos ao aparelho.

Os serviços previstos na garantia só serão prestados caso o aparelho seja apresentado bem embalado no respectivo serviço de assistência técnica, devidamente montado e acompanhado do talão da caixa ou da factura (data da compra e carimbo do revendedor) e de uma pequena descrição do problema.

Serviço de reparação:
depois de expirado o prazo de garantia ou em caso de falha não abrangida pela garantia, o nosso serviço de assistência técnica encarregar-se-á da reparação do seu aparelho. Basta enviar o produto bem acondicionado ao nosso centro de assistência técnica mais próximo de si.

GARANTIA
36 meses
DE FUNCIONAMENTO

P

(S) Montageanvisning

Bäste kund!

Vi tackar för det förtroende du har visat oss genom köpet av din IR-sensor från STEINEL. Du har bestämt dig för en förstklassig kvalitetsprodukt, som har tillverkats, provats och förpackats med största omsorg.

Vi ber dig att noga läsa igenom denna montageanvisning innan du installerar sensorn. Korrekt installation och idrifttagning är en förutsättning för långvarig, tillförlitlig och störningsfri drift.

Vi hoppas att du får stor nytta av din nya IR-sensor från STEINEL.

Säkerhetsanvisningar

- Innan installation och montage påbörjas måste spänningen kopplas bort.
- Inkoppling måste utföras i spänningsfritt tillstånd. Bryt strömmen och kontrollera med spänningsprovare att alla parter är spänningslösa.
- Eftersom sensorn installeras till nätspänningen måste arbetet utföras på ett fackmannamässigt sätt och enligt gällande installationsföreskrifter

Produktbeskrivning

C Sensormodul
Montageram av metall
Baksida sensor
Q1 "Kaiser" takdosa, tillbehör
Q2 Infällnadsdosa för undertak
@ Förhöjningsram
Låsmekanism
Inställning av räckvidd
® Tryckknapp för programmering
® Montage Installation
@ Täckfolie för dämpning av räckvidden (endast HF 360 KNX)

Montage/Installation ®

Sensorn är avsedd för montage infälld i dosa. Dosa för infällnad i tak eller förhöjningsram för utanpåliggande montage ingår ej.

Sensormodulen frigöres med två låsmekanismer (12) på sidan av sensormodulen. Vi rekommenderar att man använder en spårskruvmejsel för att frigöra låsmekanismen.

Tillbehör

Infällnadsdosa för undertak - E13 120 34
Förhöjningsram för KNX - E17 403 11
Skyddsgaller metall - E13 120 32

Fjärrkontroll installation RC6 - E17 403 09
Fjärrkontroll slutanvändare RC7 - E17 403 10

Funktionsbeskrivning

Serie Control Pro med IR- och HF-sensor styr belysning men även värme, ventilation och air-condition.

Modell med IR-sensor har ett kvadratiskt bevakningsområde. Modell IR HD (High Definition) är lämplig att använda i större lokaler som klassrum, gymnastiksalar, konferensrum.

För kontor och mindre konferensrum (<16m²) rekommenderas modell Control Pro IR. HF 360 är försedd med en modern högfrekvensteknik detekteras alla rörelser oavsett omgivningstemperatur. HF DUAL är tack vare sitt långsmala bevakningsområde mycket lämplig att använda för att detektera rörelse i korridorer och kulvertar.

Serie Pro Control kan användas för kontroll/styrning av:
- Närvarvo-rörelse
- Ljusreglering-konstantljus
- Styrning av värme-ventilation-kyla

Inställning av sensorns funktioner med hjälp mjukvaran för KNX ETS.

S

Driftsättning

Notera:
Applikationsbeskrivning finns på **www.knx.steinel.de**

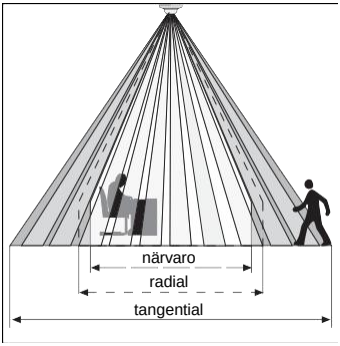
1. Ställ in sensorns adress i applikationsprogrammet ETS

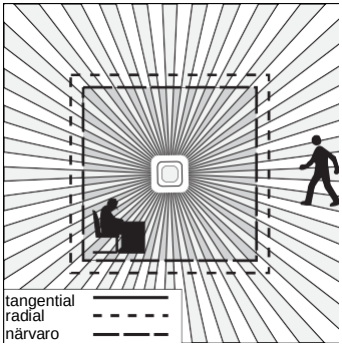
2. Tryck på programmeringsknappen (8) för att kunna ställa in sensorns adress och funktioner i applikationsprogrammet ETS.

3. Sensorn bekräftar med fast sken på blå LED-lampa att programmering är genomförd

Detekteringsområde

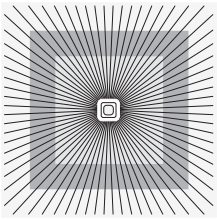
IR Quattro KNX / IR Quattro HD KNX

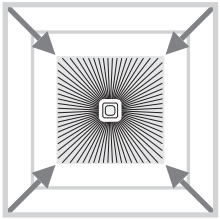


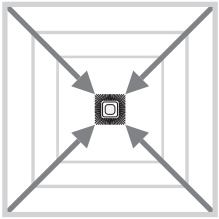


Control Pro IR finns i två olika utföranden där modell HD (High Definition) lämpar sig för närvarodetektering av större lokaler. Sensorns bevakningsområde kan enkelt reduceras med en potentiometer. Control Pro har ett kvadratiskt bevakningsområde vilket gör det enkelt att säkerställa att hela rummet närvarodetekteras. Det kvadratiska bevakningsområdet gör det även enkelt att planera sensorns Modell Control Pro IR har 1760 bevakningszoner och lämpar sig för närvarodetektering av ytor upp till 16 m². Modell Control Pro IR HD (High Definition) har hela 4800 bevakningszoner och detekterar närvaro på en yta av 8x8 meter dvs 64 m².

Inställning av bevakningsområde (PC IR Quattro / IR Quattro HD KNX)





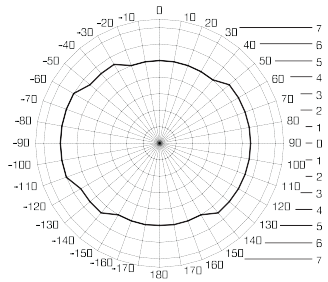


Potentiometer

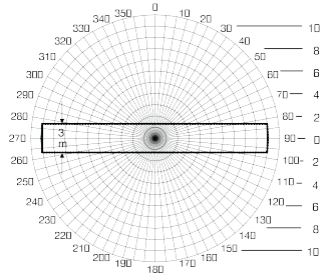
Anpassning av bevakningsområde. Se även tabell på sidan 4-5

Inställning av bevakningsområde (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - Montagehöjd 2,8 m



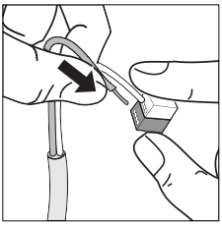
DUAL HF KNX - Montagehöjd 2,8 m

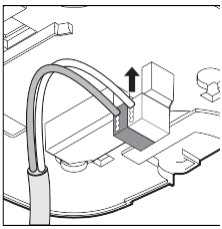


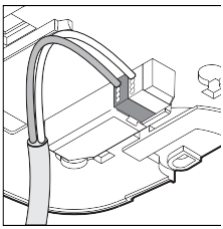
Räckvidden för Control Pro HF 360 kan justeras elektroniskt med hjälp av fjärrkontroll RC 6 (tillbehör) men också direkt i ETS programvaran (se applikationsbeskrivning på www.knx.steinel.de). Sensorn kan också avskärmas i en eller två detekteringsriktningar om så önskas. Detektering i 360° med maximal räckvidd 8 m Ø. Control Pro DUAL HF KNX har två stycken riktade HF-sensorer som detekterar rörelse åt var sitt håll.

Installation

Dimensionering av anslutningskablar skall göras enl. gällande installationsföreskrifter (se även sid. 7).







Tekniska data

Anslutning KNX:	24 V via KNX-buss	
Inställning av funktioner:	ETS-mjukvara eller fjärrkontroll	
Ljuskanal: Ljus 1 – 4	Tänd-släck, dimring, konstantsljusreglering	
Efterlystid	1-30 min alt. IQ-mode dvs dynamisk efterlystid.	
Ljusmätning	Blandat ljus	
Grundljus	Av, 10-50%	
Efterlystid för grundljus	Konstant grundljus, 1-30 min.	
Utgång VVK	Beroende på närvaro	
Tillslagsfördröjning	Rumsövervakning, 1-30 min.	
Eftergångstid	1 – 120 min.	
Utgång för närvaro	1 – 255 sek.	
Fler utgångar	Scenarier, ljusmätning	
Bevakningsområde för IR sensor Närvaro: Radial riktning gående person: Tangen. riktning gående person:	**IR Quattro KNX** max. 4 x 4 m (16 m²) max. 5 x 5 m (25 m²) max. 7 x 7 m (49 m²)	**IR Quattro HD KNX** max. 8 x 8 m (64 m²) max. 8 x 8 m (64 m²) max. 20 x 20 m (400 m²)
Bevakningsvinkel för HF-sensor	**HF 360 KNX** 360° med 140° öppningsvinkel, känner genom tunna material som glas, trä- och gipsvägg. För anpassning till rummet kan sensorn dämpas i en eller två riktningar.	**DUAL HF KNX** se diagram sidan 10. Känner genom tunna material som glas, trä- och gipsvägg.
Räckvidd – inställning HF-sensor	**HF 360 KNX** Max Ø 8 meter, Min, 1/3, 2/3, max steglöst inställbar. (ETS-mjukvara, KNX buss, Fjärrkontroll RC 6)	**DUAL HF KNX** Min, 1/3, 2/3, max steglöst inställbar. (ETS-mjukvara, KNX buss, Fjärrkontroll RC 6)

Fjärrkontroll

Med hjälp av fjärrkontroll kan sitting and reclining function enkelt och snabbt Det finns två olika fjärrkontroller till Control Pro DALI:

Fjärrkontroll service RC7 –
art nr. E17 403 10
Fjärrkontroll slutanvändare RC6 –
art nr. E17 403 09
(se även tillbehör sidan 8)

Driftstörningar

Störning	Orsak	Åtgärd
Ljuset tänds inte	• Ingen spänning ansluten ➨ Skymningsvärdet för lågt ställt ➨ Ingen rörelse i sensorns bevakningsområde	➨ Kontrollera anslutningar ➨ Öka långsamt skymnings-värdet tills ljuset tänds ➨ Kontrollera så att sensorn kan känna av önskat bevakningsområde ➨ Kontrollera bevaknings-området
Ljuset släcks inte	➨ Skymningsvärdet för högt ➨ Efterlystiden har inte löpt ut ➨ Påverkan från värmekällor t.ex. värmefläkt, öppna dörrar/fönster, djur, varma ljuskällor	➨ Sänk skymningsnivån ➨ Vänta till efterlystiden har löpt ut, reducera efterlysti-den om det behövs ➨ Använd avskärmningar för att ta bort objekt som påverkar sensorn
Sensorn släcker av ljuset trots rörelse i bevaknings-området	➨ Efterlystiden för kort inställd ➨ Skymningsnivån för lågt inställd	➨ Öka efterlystiden ➨ Ändra skymningsnivån
Sensorn släcker inte ljuset tillräckligt snabbt	➨ Efterlystiden för lång	➨ Minska efterlystiden
Belysningen tänds inte snabbt nog när man går rakt mot sensorn	➨ Räckvidden är reducerad vid rörelse rakt emot sensorn	➨ Anslut ytterligare sensorer ➨ Minska avståndet mellan två sensorer
Sensorn tänder inte ljuset trots rörelse och lågt med omgivande ljus	➨ För lågt skymningsvärde inställt ➨ Sensorn ställd för semi-automatisk drift	➨ Öka skymningsvärdet ➨ Frånvarofunktion (semi-automatisk) aktiverad

S

-överensstämmelseförsäkran

Produkten uppfyller:
- EMC-direktivet 2004/108/EG och
- RoHS-direktivet 2002/95/EG.

Funktionsgaranti

Denna STEINEL produkt är tillverkad med största noggrannhet. Den är funktions- och säkerhetstestad enligt gällande föreskrifter och har därefter genomgått en stickprovskontroll. Steinel garanterar felfri funktion.

Garantin gäller i 36 månader från inköpsdagen. Vi återgärdar fel som beror på material- eller tillverkningsfel. Garantin innebär att varan repareras eller att defekt del byts ut enligt vårt val. Garantin omfattar inte slitage och skador orsakade av felaktig hantering eller av bristande underhåll och skötsel av produkten. Följdskador på främmande föremål ersätts ej.

Garantin gäller endast då produkten, som inte får vara isärtaget, lämnas väl förpackat med fakturakopia eller kvitto (inköpsdatum och stämpel) till vår återförsäljare för återgärd.

Reparationsservice:
Efter garantin är utgången kan produkten ev. repareras. Kontakta din återförsäljare eller Steinels svenska generalagent.

(DK) Brugsanvisning

Kære kunde

Tak for den tillid, du har vist os, ved at købe din nye STEINEL-tilstedeværelsessensor. Du har valgt et produkt af høj kvalitet, som er fremstillet, testet og emballeret med største omhu.

Læs monteringsvejledningen, inden du monterer tilstedeværelsessensoren, for kun korrekt installation og ibrugtagning sikrer en lang, pålidelig og fejlfri drift.

Vi ønsker dig god fornøjelse med din nye STEINEL-sensor.

Sikkerhedsanvisninger

- Installationen må kun udføres af fagfolk iht. de gældende installationsforskrifter VDE 08 29 (DIN EN 5000 90).
- I omgivelser med lavspændingsprodukter kan en ukorrekt montering forårsage alvorlige helbredsmæssige eller materielle skader
- Denne sensor må aldrig tilsluttes ved lavspænding (230 V AC), da den er konstrueret til tilslutning ved kredse med ekstra lav spænding.

Beskrivelse

C Sensormodul
Pladeramme
Sensorunderside
Ⓠ Kaiser-hulmursdåse, option
Ⓠ Klemme-loftadapter UP Box
@ Synlig adapter
Låsemekanisme
Rækkeviddeindstilling
® Programmeringstast
® Montering installation
@ Afdækningsfolie til minimering af overvågningsområdet (HF 360 KNX).

DK

Montering installation ®

Sensoren er kun beregnet til skjult loftmontering i rum. En tilsvarende klemme-loftadapter samt en synlig adapter er ikke med i leveringen.

Tilbehør

Kaiser-hulmursdåse,
EAN-nr.: 4007841 000370
Loftsadapter med klemme
EAN-nr.: 4007841 002855
Synlig adapter
AP Box KNX
EAN-nr.: 4007841 003029
Beskyttelseshætte
EAN-nr.: 4007841003036

Service-fjernbetjening
RC6 KNX
EAN-nr.: 4007841 593018
Bruger-fjernbetjening
RC7 KNX
EAN-nr.: 4007841 592912

Funktion/grundfunktion

De infrarøde og HF-tilstedeværelsessensorer i serien Control PRO regulerer belysningen og HLK-styringen f. eks. på kontorer, i skoler, offentlige eller private bygninger afhængigt af lysniveauet og tilstedeværelsen.

IR Quatro giver med den højtudviklede linse mulighed for et rumtypisk, kvadratisk overvågningsområde, hvor der registreres små bevægelser.

HF 360 sikrer med moderne højfrekvensteknologi en komplet temperaturuafhængig bevægelsesregistrering.

Dual HF-sensoren egner sig pga. den dobbelte retningskarakteristik særligt til gange på hoteller, skoler og kontorbygninger.

Tilstedeværelsessensoren udmærker sig derudover pga. det lave egenstrømforbrug.

- Tilstedeværelsesmeddelelse
- Belysningsstyring med lysstyrkeregulering
- HLK-styring

Hvilken af disse funktioner, der skal bruges (aktiveres), indstilles via parametervinduet „Generelle indstillinger“ med Engineering Tool Software (ETS) fra version ETS3.f.

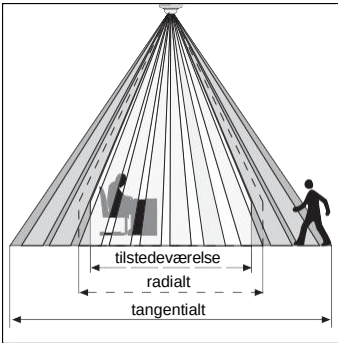
Ibrugtagning

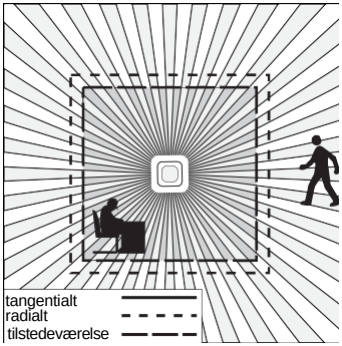
Henvisning: Applikationsbeskrivelsen kan du finde under **www.knx.steinel.de**

1. Tildel fysisk adresse og opret applikationsprogram i ETS.
2. Indlæs den fysiske adresse og applikationsprogrammet i tilstedeværelsessensoren. Tryk på programmeringstast (8), når du opfordres til det.
3. Efter vellykket programmering slukker den blå LED.

Overvågningsområde

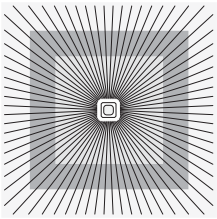
IR Quattro KNX / IR Quattro HD KNX

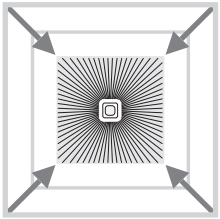


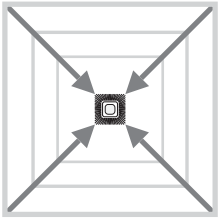


En sikker registrering af personer afhænger hovedsageligt af linseelementernes antal, beskaffenhed og placering. IR Quattro KNX og registreringskvadratet på 16 m², som har 13 niveauer med 1760 koblingszoner, registrerer selv de mindste bevægelser. IR Quattro HD KNX og registreringskvadratet på 64 m², har over 4800 koblingszoner og præciserer ydelsesspektret. Med indstillingen ved potentiometeret er der mulighed for at tilpasse disse rækkevidder til individuelle krav. På grund af det kvadratiske registreringsområde og muligheden for at sammenkoble master/slave-varianterne muliggøres en enkel, hurtig og optimal planlægning af rummet.

Rækkeviddeindstilling (PC IR Quattro / IR Quattro HD KNX)







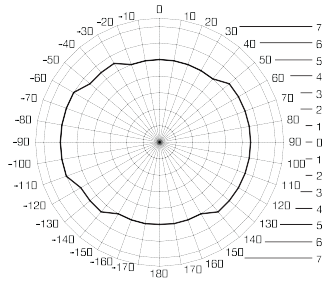
Potentiometer

Tilpasning af rækkevidden til individuelle krav. Se tabellen

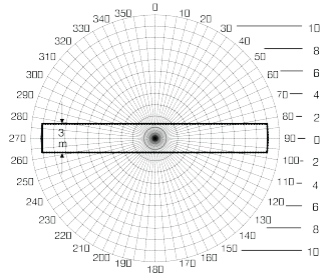
Tekniske data og indstilling af individuelle krav på side 4/5.

Rækkeviddeindstilling (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - monteringshøjde 2,8 m



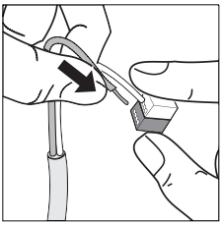
DUAL HF KNX - monteringshøjde 2,8 m

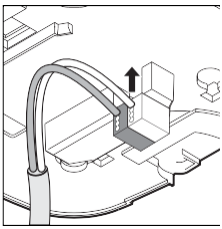


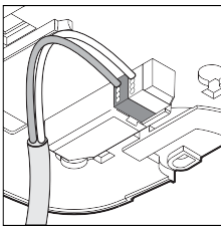
Rækkevidden for HF 360 KNX kan indstilles elektronisk via service-fjernbetjening RC 6 (se tilbehør) samt via ETS Software/KNX BUS (se applikationsbeskrivelse, www.knx.steinel.de). For rumtilpasning kan 1 eller 2 overvågningsområder afdækkes. Med et overvågningsområde på 360° er der mulighed for en rækkevidde på maks. 8 m. DUAL HF KNX-sensoren har 2 specielle HF-sensorer, der fra loftet overvåger begge gangens retninger. Elektronisk kan rækkevidden indstilles i begge retninger.

Elektrisk installation/automatisk drift

Ved valg af ledninger overholdes altid installationsforskrifterne iht. VDE 08 29 (DIN EN 5000 90) (se Sikkerhedsanvisninger på side 63).







Tekniske data

Nettilslutning KNX:	24 V via KNX busspænding	
Indstillinger:	Via ETS-software, fjernbetjening eller bus	
Lyskanaler: Lys 1 – Lys 4	Aktivering/dæmpning; Koblingsdrift regulering af permanent belysning	
Efterløbstid:	IQ-modus, 1 – 30 min., tilstedeværelses- og lysafhængig	
Lysmåling:	Blandingslys	
Grundlysstyrke:	FRA/10 % – 50 %	
Efterløbstid:	Grundstyrke permanent-TIL, 1 – 30 min.	
Udgang HLK:	Tilstedeværelsesafhængig	
Tilkoblingsforsinkelse:	Rumovervågning, 1 – 30 min.	
Efterløbstid:	1 – 120 min.	
Udgang tilstedeværelsesefter-løbstid:	1 – 255 sek.	
Andre udgange:	Lysniveauværdi, scenestyring	
Overvågningskvadrater	**IR Quattro KNX**	**IR Quattro KNX**
Tilstedeværelse:	maks. 4 x 4 m (16 kvadratmeter)	maks. 8 x 8 m (64 kvadratmeter)
Radialt:	maks. 5 x 5 m (25 kvadratmeter)	maks. 8 x 8 m (64 kvadratmeter)
Tangentialt:	maks. 7 x 7 m (49 kvadratmeter)	maks. 20 x 20 m (400 kvadratmeter)
Registreringsvinkel:	**HF 360 KNX** 360° med 140° åbningsvinkel evt. gennem glas, træ og tynde vægge. For rumtilpasning kan 1 eller 2 overvågningsområder afdækkes	**DUAL HF KNX** se diagram s. 66 evt. gennem glas, træ og tynde vægge.
Rækkevidde:	**HF 360 KNX** maks. Ø 8 m , min., 1/3, 2/3, maks. kan indstilles elektronisk (ETS-software, KNX bus, fjernbetjening RC 6)	**DUAL HF KNX** min., 1/3, 2/3, maks. i hver retning kan indstilles elektronisk (ETS-software, KNX bus, fjernbetjening RC 6)

DK

Fjernbetjening

Via bruger-fjernbetjening RC 7 (ekstraudstyr) kan funktionerne tændes komfortabelt fra gulvet.

Service-fjernbetjening RC 6 (ekstraudstyr) muliggør en komfortabel konfiguration (se Tilbehør s. 64)

Driftsforstyrrelser

Fejl	Årsag	Afhjælpning
Lampen tænder ikke	• Ingen tilslutningsspænding ➨ Skumringsværdi indstillet for lavt ➨ Ingen bevægelsesregistrering	➨ Kontroller tilslutningsspændingen ➨ Øg skumringsværdien langsomt til lyset tændes ➨ Sørg for at der er frit udsyn til sensoren ➨ Kontroller overvågningsområdet
Lampen slukker ikke	➨ Rumlysstyrken for den indstillede skumringsværdi er høj ➨ Efterløbstiden udløber ➨ Forstyrrende varmekilder (kun IR-sensor) f.eks.: Varmeblæsere, åbne døre og vinduer, husdyr, elpærer/ halogenlamper, genstande der bevæger sig	➨ Øg skumringsværdien ➨ Afvent efterløbstiden, indstil eventuelt en kortere efterløbstid ➨ Afdæk stationære støjkilder med en mærkat
Sensoren slukker trods tilstedeværelse	➨ Efterløbstiden er for kort ➨ Lystærskel for lav	➨ Øg efterløbstiden ➨ Ændr skumringsindstillingen
Sensor slukker for sent	➨ Efterløbstiden er for lang	• Reducer efterløbstiden
Sensoren tænder for sent ved frontal bevægelsesretning	➨ Rækkevidden ved frontal bevægelsesretning er reduceret	➨ Monter yderligere sensorer ➨ Reducer afstanden mellem to sensorer
Sensoren tænder ikke ved tilstedeværelse selv om det er mørkt	➨ Den skumringsværdi, der er valgt, er for lav	➨ Er sensor deaktiveret med kontakt/tast ? • Halvautomatik ? ➨ Øg skumringsværdien

Konformitetserklæring

Dette produkt opfylder:
- EMC-direktiv 2004/108/EF
- RoHS-direktiv 2002/95/EF.

Funktionsgaranti

Dette Steinel-produkt er fremstillet med største omhu, afprøvet iht. de gældende forskrifter samt underlagt stikprøvekontrol. Steinel garanterer for upåklagelig beskaffenhed og funktion.

Garantien gælder i 36 måneder fra den dag, apparatet er blevet solgt til forbrugeren. Ved materiale- og fabrikationsfejl ydes garantien gennem reparation eller ombytning efter vort valg. Der ydes ikke garanti ved skader på sliddele, ej heller ved skader og mangler, som skyldes ukorrekt behandling og vedligeholdelse. Garantien omfatter ikke følgeskader på fremmede genstande.

Der ydes kun garanti mod forevisning af en kort fejlbeskrivelse samt en bon eller kvittering (med dato og stempel). Derudover skal apparatet være intakt og indpakket forsvarligt, når det fremsendes til serviceværkstedet.

Reparationsservice:
Efter garantiperiodens udløb eller ved fejl, der ikke er dækket af garantien, kan apparatet blive repareret på vores værksted. Sørg for, at produktet er pakket forsvarligt ind under forsendelsen til nærmeste serviceværksted.

DK

(FIN) Käyttöohje

Arvoisa asiakas,

Olet ostanut STEINEL-läsnäolotunnistimen. Kiitämme osoittamastasi luottamuksesta. Olet hankkinut laatutuotteen, joka on valmistettu, testattu ja pakattu huolellisesti.

Tutustu ennen tunnistimen asennusta tähän asennusohjeeseen. Ainoastaan asianmukainen asennus ja käyttöönotto takaavat tunnistimen pitkäaikaisen, luotettavan ja häiriöttömän toiminnan.

Toivotamme sinulle paljon iloa uuden STEINEL-tunnistimen kanssa.

Turvaohjeet

- Liitännän saa suorittaa ainoastaan alan ammattilainen yleisten asennusta koskevien määräysten mukaisesti (SFS0100).
- Asiantuntemattomasti suoritettu asennus voi pienjännitetuotteita sisältävässä ympäristössä johtaa vakaviin terveyshaittoihin tai aineellisiin vahinkoihin.
- Laitetta ei koskaan saa liittää verkkojännitteeseen (230 V AC), koska se on tarkoitettu liitettäväksi pienoisjännitteiseen ohjauspiiriin.

Laitteen osat

C Tunnistinmoduuli
Peltikehys
Tunnistimen pohja
Q1 Kaiser-levyseinäkojerasia, lisävaruste
Q2 Jousikiinnitteinen uppoasennusrasia UP Box
@ Pinta-asennusrasia
Lukitusmekanismi
Toimintaetäisyyden asetus
® Ohjelmointipainike
® Asennusohje
@ Peitekalvot toiminta-alueen rajaamista varten (HF 360 KNX).

Asennus ®

Tunnistin on tarkoitettu uppoasennettavaksi kattoon sisätiloissa. Jousikiinnitteinen uppoasennusrasia ja pinta-asennusrasia eivät sisälly toimitukseen.

Lisävarusteet

Kaiser-levyseinäkojerasia
sähkö-nro / EAN:
4007841 000370
Jousikiinnitteinen
uppoasennusrasia
sähkö-nro / EAN:
4007841 002855
Pinta-asennusrasia
AP Box KNX
sähkö-nro / EAN:
4007841 003029

Suojakori
sähkö-nro / EAN:
4007841 003036
Huoltokaukosäädin
RC6 KNX
sähkö-nro / EAN:
4007841 593018
Käyttäjän kaukosäädin
RC7 KNX
sähkö-nro / EAN:
4007841 592912

Toimintatapa/perustoiminta

Control PRO -sarjan infrapuna- ja suurtaajuusläsnäolotunnistimet säätelevät valaistusta ja lämmityksen/tuuletuksen/ilmastoinnin ohjaamista esimerkiksi toimistoissa, kouluissa, julkisissa tai yksityisissä rakennuksissa ympäristön valoisuudesta ja läsnäolosta riippuen.

IR Quatro -tunnistimen linssi mahdollistaa nelikulmaisen toiminta-alueen muodostumisen ja pienimpienkin liikkeiden tunnistuksen.

HF 360 -tunnistimen moderni suurtaajuustekniikka mahdollistaa täysin aukottoman, lämpötilasta riippumattoman liikkeen tunnistuksen.

DUAL HF -tunnistin soveltuu suunnatun suurtaajuustekniikan ansiosta erityisesti hotellien ja koulu- ja toimistorakennusten käytäviin.

Presence Control kuluttaa vähän energiaa.

- Läsnäolon tunnistus Valaistuksen ohjaus kirkkauden säädöllä
- Lämmityksen/tuuletuksen/ilmastoinnin ohjaaminen

Käytettävät (aktivoitavat) toiminnot asetetaan "General Settings"-parametri-ikkunan kautta Engineering Tool Software (ETS) -ohjelmistolla (versiosta ETS3.f alkaen).

Käyttöönotto

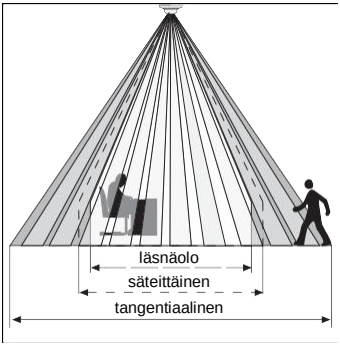
Huom: Kalibroinnin kuvaus "Calibration Description" löytyy osoitteesta:
www.knx.steinel.de

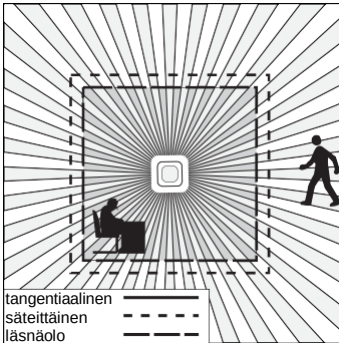
1. Määritä fyysinen osoite ja luo sovellusohjelma ETS-ohjelmistossa.
2. Lataa fyysinen osoite ja sovellusohjelma läsnäolotunnistimeen. Paina ohjelmointipainiketta (8), kun laite pyytää tekemään niin.
3. LED sammuu, kun ohjelmointi on onnistunut.

FIN

Valvonta-alue

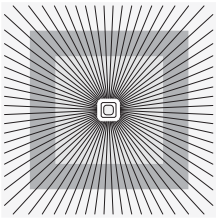
IR Quattro HD

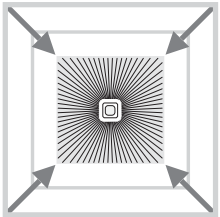


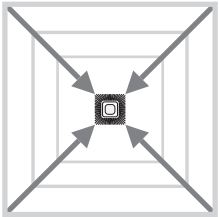


Läsnäolon varma tunnistus riippuu ratkaisevasti linssin lohkojen lukumäärästä, rakenteesta ja sijainnista. IR Quattro KNX:n 16 m²:n tunnistusneliö käsittää 13 tasoa ja 1760 kytkentävyöhykettä ja tunnistaa pienemmätkin liikkeet. IR Quattro HD KNX:n 64 m²:n tunnistusneliö käsittää 4800 kytkentävyöhykettä ja täydentää tuotevalikoiman. Toimintaetäisyydet voidaan sovittaa yksilöllisten vaatimusten mukaisesti. Neliömäisen tunnistusalueen ja master/slave-järjestelmän ansiosta tilojen optimaalinen suunnittelu on helppoa ja nopeaa.

Toimintaetäisyyden asetus (PC IR Quattro / IR Quattro HD KNX)





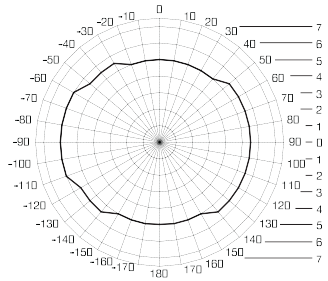


Toimintaetäisyyden säädin

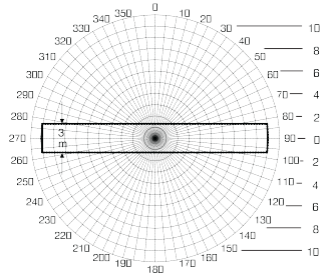
Toimintaetäisyyden sovittaminen yksilöllisiin vaatimuksiin sopivaksi. Vertaa taulukko Tekniset tiedot ja Yksilöllisten vaatimusten asetukset sivu 4/5.

Toimintaetäisyyden asetus (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - asennuskorkeus 2,8 m



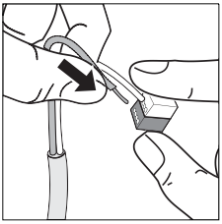
DUAL HF KNX - asennuskorkeus 2,8 m

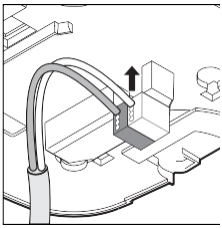


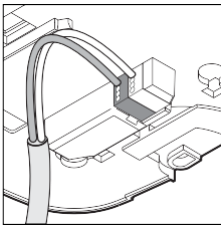
HF 360 KNX:n toimintaetäisyys voidaan asettaa elektronisesti huoltokaukosäätimellä RC 6 (vrt. Varusteet) ja ETS-ohjelmistolla KNX-väylän kautta. 1 tai 2 tunnistussuuntaa voidaan peitekalvoilla rajata pois tunnistimen sovittamiseksi huoneeseen sopivaksi. 360° toimintakulma mahdollistaa enimmillään Ø 8 m toimintaetäisyyden. DUAL HF KNX -tunnistimessa on 2 erityistä suurtaajuustunnistinta, jotka valvovat käytävää katosta kumpaankin suuntaan. Toimintaeäisyys voidaan asettaa elektronisesti kumpaankin suuntaan.

Sähköasennus/automaattikäyttö

Johdotuksessa käytettävien kaapeleiden valinnassa on noudatettava VDE 0100 -säädöksen (DIN EN 5000 90) asennusohjeita (katso turvaohjeet sivulla 70).







FIN

Tekniset tiedot

Väyläliitäntä KNX:	24 V KNX-väylä	
Asetukset:	ETS-ohjelmiston, kaukosäätimen tai väylän kautta	
Valokanavat: Valo 1 – Valo 4	Kytkentä/himmennys; Kytkentäkäyttö, Vakiovalon säätö	
Kytkentäaika:	IQ-toiminto, 1 – 30 min, läsnäolosta ja kirkkaudesta riippuen	
Valonmittaus:	Yleinen	
Peruskirkkaus:	POIS/10 % – 50 %	
Kytkentäaika:	Peruskirkkaus jatkuvasti päällä, 1 – 30 min	
Lämmityksen/tuuletuksen/ ilmastoinnin lähtö:	Läsnäolosta riippuen	
Kytkentäviive:	Huoneen valvonta, 1 – 30 min	
Kytkentäaika:	1 – 120 min	
Läsnäolon kytkentäajan lähtö:	1 – 255 s	
Muut lähdöt:	Kirkkausarvo, tilanneohjaus	
Tunnistusneliöt:	**IR Quattro KNX**	**IR Quattro HD KNX**
Läsnäolo:	enint. 4 x 4 m (16 m²)	enint. 8 x 8 m (64 m²)
Säteittäinen:	enint. 5 x 5 m (25 m²)	enint. 8 x 8 m (64 m²)
Tangentiaalinen:	enint. 7 x 7 m (49 m²)	enint. 20 x 20 m (400 m²)
Toimintakulma:	**HF 360 KNX** 360°, avauskulma 140° myös lasin, puun tai kevytrakenteisten lävitse. 1 tai 2 tunnistussuuntaa voidaan rajata pois tunnistimen sovittamiseksi huoneeseen sopivaksi.	**Dual HF KNX** katso kaavio sivulla 73, lasin, puun ja kevytrakenteisten seinien lävitse.
Toimintaetäisyys:	**HF 360 KNX** enint. Ø 8 m , elektronisesti säädettävä (ETS-ohjelmisto, KNX-väylä, kaukosäädin RC 6)	**Dual HF KNX** kaikkiin suuntiin elektronisesti säädettävä (ETS-ohjelmisto, KNX-väylä, kaukosäädin RC 6)
RC 6 asetukset:	min., 1/3, 2/3, max.	min., 1/3, 2/3, max.

Kaukosäädin

Käyttäjän kaukosäätimellä RC 7 (lisävaruste) toiminnot on helppo kytkeä.

Huoltokaukosäädin RC 6 (lisävaruste) mahdollistaa vaivattoman konfiguroinnin (vrt. Varusteet s. 71)

Käyttöhäiriöt

Häiriö	Syy	Häiriön poisto
Valo ei kytkeydy	• liitäntäyhteys KNX-väylään puuttuu ➨ hämäryystaso asetettu liian alhaiseksi ➨ liikettä ei havaittu	➨ tarkista KNX-väylä ➨ lisää hämäryystasoa hitaasti, kunnes valo kytkeytyy ➨ varmista vapaa näkyvyys tunnistimeen ➨ tarkista toiminta-alue
Valo ei sammu	• huoneessa on liian valoisaa asetetulle hämäryystasolle ➨ kytkentäaika käynnissä ➨ häiritseviä lämmönlähteitä (vain IR-tunnistin) esim.: kuumailmapuhaltimet, avoimet ovet ja ikkunat, kotieläimet, hehkulamput, halogeenivalonheittimet, liikkuvat kohteet	➨ lisää hämäryystasoa ➨ odota, kunnes kytkentäaika kuluu loppuun / aseta kytkentäaika tarvittaessa pienemmäksi ➨ rajaa liikkumattomat häiriölähteet pois tarroilla
Tunnistin kytkeytyy pois läsnäolosta huolimatta	➨ kytkentäaika liian pieni ➨ valoisuusarvon asetus liian matala	➨ suurenna kytkentäaikaa ➨ muuta valoisuusarvon asetusta
Tunnistin kytkeytyy pois liian myöhään	➨ kytkentäaika liian suuri	• pienennä kytkentäaikaa
Tunnistin kytkeytyy edestä päin suuntautuvan liikkeen yhteydessä liian myöhään	➨ toimintaetäisyys pienempi edestä päin suuntautuvan liikkeen yhteydessä	➨ asenna lisää tunnistimia ➨ pienennä kahden tunnistimen välistä etäisyyttä
Tunnistin ei kytkeydy pimeydestä ja läsnäolosta huolimatta	➨ valittu liian alhainen hämäryystaso	➨ lisää hämäryystasoa

FIN

Selvitys yhdenmukaisuudesta

Tuote on seuraavien direktiivien asettamien vaatimusten mukainen:
- EMC-direktiivi 2004/108/EY
- RoHS-direktiivi 2002/95/EY.

Toimintatakuu

Tämä Steinel-tuote on valmistettu huolellisesti, ja sen toiminta ja turvallisuus on testattu voimassa olevien määräysten mukaisesti. Tuotantoa valvotaan pistokokein. Steinel myöntää takuun tuotteen moitteettomalle toiminnalle ja rakenteelle.

Takuuaika on 36 kuukautta ostopäivästä alkaen. Tänä aikana Steinel vastaa kaikista materiaali- ja valmistusvioista valintansa mukaan joko korjaamalla tai vaihtamalla vialliset osat.Takuun piiriin eivät kuulu kuluvat osat eivätkä vahingot, jotka ovat aiheutuneet väärästä huollosta tai käsittelystä tai laitteen putoamisesta. Takuu ei koske laitteen muille esineille mahdollisesti aiheuttamia vahinkoja.

Viallinen laite toimitetaan yhdessä lyhyen virhekuvauksen ja ostokuitin kanssa (ostopäivämäärä ja myyjäliikkeen leima) hyvin pakattuna lähimpään huoltopisteeseen. Takuu raukeaa, jos tuotetta on avattu enemmän kuin tuotteen asentaminen vaatii.

Korjauspalvelu:
Takuuajan jälkeen tai takuun piiriin kuulumattoman vian ollessa kyseessä laite voidaan korjata huoltopalvelussamme. Huom! Ennen lähettämistä pyydä korjauksesta hinta-arvio. Pyydämme lähettämään tuotteen hyvin pakattuna lähimpään huoltopisteeseen.

TOIMINTA
36 kk
TAKUU

(N) Bruksanvisning

Kjære kunde

Takk for tilliten du har vist oss ved ditt kjøp av din nye STEINEL-tilstedeværelsesmelder. Du har valgt et kvalitetsprodukt som er produsert, testet og pakket med største omhu.

Vi ber deg lese denne monteringsveiledningen før du installerer melderen. En lang, sikker og feilfri drift kan kun garanteres dersom installasjon og igangsetting utføres korrekt.

Vi håper du vil ha mye glede av din nye STEINEL-sensor.

Sikkerhetsmerknader

- Tilstedeværelsesmelderen skal installeres av kvalifisert elektriker i henhold til nasjonale installasjonsforskrifter VDE 08 29 (DIN EN 5000 90).
- I omgivelser med lavspenningsprodukter kan en ikke fagkyndig montering føre til alvorlige helse- eller materielle skader.
- Dette apparatet må aldri koples til lavspenning (230 V), da det er konstruert for tilkopling til svakstrømkretser.

Apparatbeskrivelse

C Sensormodul
Blikkramme
Underside sensor
Q1 Kaiser-hulveggboks, tilleggsutstyr
Q2 Klemme-takadapter innfelt boks
@ Adapter til overflatemontering
Låsemekanisme
Rekkeviddeinnstilling
® Programmeringsknapp
® Montering/installasjon
@ Dekkfolier til reduksjon av dekningsområdet (HF 360 KNX).

Montering/installasjon ®

Sensoren skal kun monteres innfelt i tak innendørs. En passende klemme-takadapter og adapter til overflatemontering omfattes ikke av leveringsinnholdet.

N

Tilbehør

Kaiser-hulveggboks,
EAN-nr.: 4007841 000370
Klemme-takadapter
EAN-nr.: 4007841 002855
Adapter til overflatemontering
Overflatemonteringsboks
KNX
EAN-nr.: 4007841 003029

Beskyttelseskurv
EAN-nr.: 400784100303
Service-fjernkontroll
RC6 KNX
EAN-nr.: 4007841 593018
Bruker-fjernkontroll
RC7 KNX
EAN-nr.: 4007841 592912

Funksjonsmåte/grunnfunksjon

Infrarød- og høyfrekvens-tilstedeværelsesmelderne i Control PRO serien styrer belysning og oppvarming, ventilasjon og klimaanlegg i f.eks. kontorer, skoler og offentlige eller private bygninger avhengig av tilstedeværelse og lysstyrken i omgivelsene.

Med den ytterst avanserte linsen gir IR Quatro et romtypisk, kvadratisk dekningsområde, der selv de minste bevegelser registreres.

Den moderne høyfrekvensteknologien i HF 360 gir en temperaturuavhengig bevegelsesregistrering helt uten avbrudd.

Takket være den dobbelte strålingskarakteristikken egner Dual HF sensoren seg spesielt godt til ganger i hoteller, skoler og kontorbygg.

I tillegg utmerker Presence Control seg med et lavt egenstrømforbruk.

- Tilstedeværelsesmelding
- Styring av belysning med lysstyrkeregulering
- HVAC-styring

Hvilke av disse funksjonene som skal benyttes (aktiveres), innstilles via parametervinduet "Generelle innstillinger" med programvaren Engineering Tool Software (ETS) fom. versjon ETS3.f.

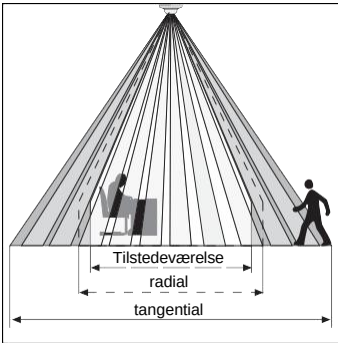
Igangsetting

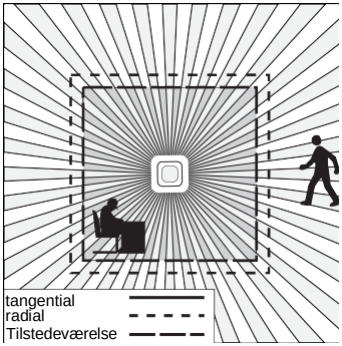
NB: Applikasjonsbeskrivelsen finner du på **www.knx.steinel.de**

1. Gi fysisk adresse og opprette applikasjonsprogram i ETS.
2. Laste fysisk adresse og applikasjonsprogram i tilstedeværelsesmelderen. Trykk på programmeringsknappen (8) når du oppfordres til dette.
3. Når programmeringen er ferdig, slukkes den blå lysdioden.

Overvåkningsområde

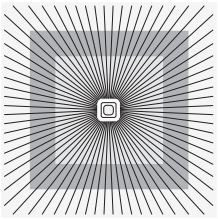
IR Quattro KNX / IR Quattro HD KNX

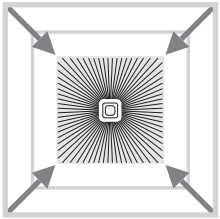


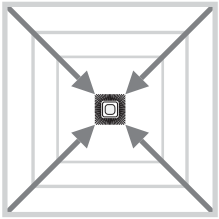


En sikker tilstedeværelsesregistrering er i høy grad avhengig av antall linsesegmenter og deres tilstand og plassering. IR Quattro KNX og registreringskvadratet på 16 m², som er inndelt i 13 nivåer med 1760 koplingssoner, registrerer selv de minste bevegelser. IR Quattro HD KNX og registreringskvadratet på 64 m² har 4800 koplingssoner og gir enda høyere presisjon. Ved å stille inn på potensiometeret kan disse rekkeviddene tilpasses de individuelle behov. Det kvadratiske dekningsområdet og muligheten for å sammenkople master/slave-variantene gir en enkel, rask og optimal romplanlegging.

Rekkeviddeinnstilling (PC IR Quattro / IR Quattro HD KNX)







N

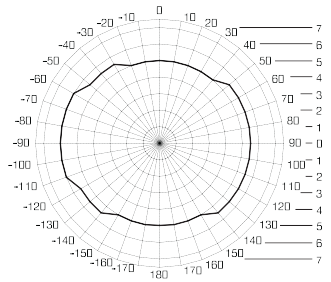
Potensiometer

Tilpassing av rekkevidde iht. individuelle behov. Se tabell

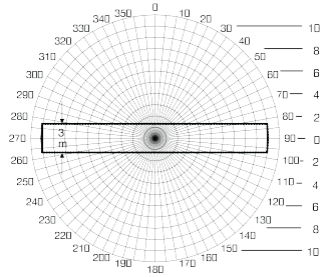
Tekniske spesifikasjoner og Innstilling av individuelle behov, side 4/5.

Rekkeviddeinnstilling (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - monteringshøyde 2,8 m



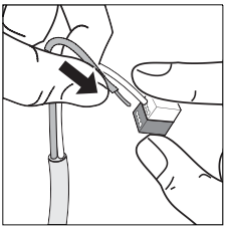
DUAL HF KNX - monteringshøyde 2,8 m

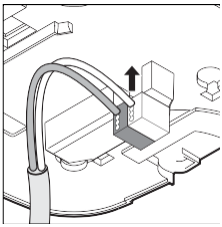


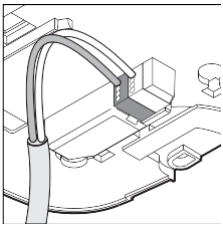
Rekkevidden til HF 360 KNX kan innstilles elektronisk via service-fjernkontrollen RC 6 (se Tilbehør) og via ETS programvaren/KNX BUS (se Applikasjonsbeskrivelse, www.knx.steinel.de). 1 eller 2 registreringsretninger kan dekkes til for tilpasning til rommet. Med en dekningsvinkel på 360° oppnås en rekkevidde på maks. 8 m. DUAL HF KNX sensoren har 2 spesielle høyfrekvens-sensorer som overvåker begge retningene i en gang fra taket. Rekkevidden i begge retninger kan innstilles elektronisk.

Elektrisk installasjon/automatisk drift

Følg installasjonsforskriftene iht. VDE 08 29 (DIN EN 5000 90) ved valg av ledninger (se Sikkerhetsinstrukser på side 77).







Tekniske spesifikasjoner

Nettilkopling KNX:	24 V via KNX busspenning	
Innstillinger:	via ETS-programvare, fjernkontroll eller bus	
Lyskanaler: Lys 1 – Lys 4	kopling/dimming; koplingsdrift konstantlysregulering	
Belysningstid:	IQ-modus, 1 – 30 min., avhengig av tilstedeværelse og lysstyrke	
Lysmåling:	blandingslys	
Grunnlysstyrke:	AV/10 % – 50 %	
Belysningstid:	grunnlysstyrke permanent PÅ, 1 – 30 min.	
Utgang HVAC:	avhengig av tilstedeværelse	
Innkoplingsforsinkelse:	romovervåking, 1 – 30 min.	
Belysningstid:	1 – 120 min.	
Utgang tilstedeværelses-belysningstid:	1 – 255 sek.	
Flere utganger:	lysstyrkeverdi, scenestyring	
Dekningskvadrater:	**IR Quattro KNX**	**IR Quattro HD KNX**
Tilstedeværelse:	maks. 4 x 4 m (16 m^2)	maks. 8 x 8 m (64 m^2)
Radial:	maks. 5 x 5 m (25 m^2)	maks. 8 x 8 m (64 m^2)
Tangential:	maks. 7 x 7 m (49 m^2)	maks. 20 x 20 m (400 m^2)
Dekningsvinkel:	**HF 360 KNX** 360° med 140° åpningsvinkel evt. gjennom glass, tre og tynne vegger. 1 eller 2 regi-streringsretninger kan dekkes til for tilpasning til rommet	**DUAL HF KNX** se diagram s. 80 evt. gjennom glass, tre og tynne vegger.
Rekkevidde:	**HF 360 KNX** maks. Ø 8 m, min., 1/3, 2/3, maks. elektronisk justerbar (ETS-programvare, KNX buss, fjernkontroll RC 6)	**DUAL HF KNX** min., 1/3, 2/3, maks. elektronisk justerbar i alle retninger (ETS-programvare, KNX buss, fjernkontroll RC 6)

Fjernkontroll

Via bruker-fjernkontrollen RC 7 (ekstrautstyr) kan funksjonene enkelt aktiveres fra gulvet.

Service-fjernkontrollen RC 6 (ekstrautstyr) gir enkel konfigu-rasjon (se Tilbehør s. 78)

Driftsfeil

Feil	Årsak	Tiltak
Lyset tennes ikke	• ingen tilførselsspenning ➨ for lavt innstilt skumringsverdi ➨ ingen bevegelsesregistrering	➨ kontroller tilførselsspenningen ➨ øk skumringsverdien sakte til lyset tennes ➨ sørg for at sensoren har uhindret sikt ➨ kontroller dekningsområdet
Lyset slukkes ikke	➨ lysstyrken i rommet er for høy for den innstilt skumringsverdien ➨ belysningstid går ut ➨ forstyrrende varmekilder (kun IR-sensor) f.eks.: vifteovn, åpne dører og vinduer, husdyr, lyspære/halogenlyskaster, objekter som beveger seg	➨ øk skumringsverdien ➨ vent til belysningstid utgår eller still inn lavere belysningstid ➨ bruk klebeetiketter for å utelukke stasjonære forstyrrende kilder
Sensoren slås av selv om noen er tilstede	➨ for kort belysningstid ➨ for lavt lysnivå	➨ øk belysningstiden ➨ endre skumringsinnstillingen
Sensoren slår seg på for sent	➨ for lang belysningstid	• reduser belysningstiden
Sensoren slår seg på for sent ved frontal gangretning	➨ rekkevidden ved frontal gangretning er redusert	➨ monter flere sensorer ➨ reduser avstanden mellom to sensorer
Sensoren slås ikke på når personer er tilstede selv om det er mørkt	➨ det er valgt for lav skumringsverdi	➨ er sensoren deaktiviert med bryter/knapp? ➨ halvautomatisk modus? ➨ øk skumringsverdien

Konformitetserklæring

Dette produktet oppfyller kravene i:
- EMC-direktivet 2004/108/EF
- RoHS-direktivet 2002/95/EF

Funksjonsgaranti

Dette Steinel-produktet er fremstilt med største nøyaktighet. Det er testet mht. funksjon og sikkerhet i henhold til gjeldende forskrifter og deretter underkastet en stikkprøvekontroll. Steinel gir full garanti for feilfri kvalitet og funksjon.

Garantitiden utgjør 36 måneder, regnet fra dagen apparatet ble solgt til forbrukeren. Vi erstatter mangler som kan føres tilbake til fabrikasjonsfeil eller feil ved materialene. Garantien ytes ved reparasjon eller ved at deler med feil byttes ut. Garantien bortfaller ved skader på slitasjedeler eller ved skader eller mangler som oppstår som følge av ufagmessig bruk eller vedlikehold. Følgeskader ved bruk (skader på andre gjenstander) dekkes ikke av garantien.

Garantien ytes bare hvis det hele apparatet pakkes godt inn og sendes til importøren. Legg ved en kort beskrivelse av feilen samt kvittering eller regning (kjøpsdato og forhandlers stempel).

Reparasjonsservice:
Etter garantitidens utløp, eller ved mangler som ikke dekkes av garantien, kan vårt verksted foreta reparasjoner. Pakk apparatet godt inn og send det til importøren.

GR Οδηγίες χειρισμού

Αξιότιμε Πελάτη,

σας ευχαριστούμε πολύ για την εμπιστοσύνη που μας δείξατε αγοράζοντας αυτόν το νέο ανιχνευτή παρουσίας της STEINEL. Επιλέξατε ένα προϊόν υψηλής ποιότητας, το οποίο κατασκευάζεται, ελέγχεται και συσκευάζεται με μέγιστη προσοχή.

Σας παρακαλούμε, πριν από την εγκατάσταση να εξοικειωθείτε με τις παρούσες οδηγίες συναρμολόγησης. Διότι μόνο η εξειδικευμένη εγκατάσταση και θέση σε λειτουργία μπορούν να διασφαλίσουν τη μακρόχρονη, αξιόπιστη και άψογη λειτουργία χωρίς διαταραχές.

Επιθυμία μας είναι να χαρείτε τις λειτουργίες του νέου σας αισθητήρα STEINEL.

Υποδείξεις ασφάλειας

- Η εγκατάσταση επιτρέπεται να γίνει μόνο από εξειδικευμένο προσωπικό σύμφωνα με τις εθνικές προδιαγραφές εγκατάστασης VDE 08 29 (DIN EN 5000 90).
- Σε περιβάλλον με προϊόντα χαμηλής τάσης ενδέχεται η ακατάλληλη συναρμολόγηση να προκαλέσει σοβαρότατες βλάβες υγείας ή υλικές βλάβες.
- Αυτή η συσκευή δεν επιτρέπεται να συνδεθεί ποτέ σε χαμηλή τάση (230 V AC), διότι προορίζεται για σύνδεση σε κυκλώματα εξαιρετικά χαμηλής τάσης.

Περιγραφή συσκευής

C Δομοστοιχείο αισθητήρα
Ελασμάτινο πλαίσιο
Κάτω πλευρά αισθητήρα
Q1 Κοίλο κιβώτιο τοίχου Kaiser, προαιρετικά
Q2 Προσαρμογέας συνδετήρας οροφής UP Box
@ Επιτοίχιος προσαρμογέας
Μηχανισμός ασφάλισης
Ρύθμιση εμβέλειας
® Πλήκτροπρογραμματισμού
® Συναρμολόγηση Εγκατάσταση
@ Μεμβράνες κάλυψης ελαχιστοποίησης ορίων ανίχνευσης (HF 360 KNX).

Συναρμολόγηση/Εγκατάσταση ®

Ο αισθητήρας προβλέπεται μόνο για την ενδοτοίχια εγκατάσταση σε οροφή χώρων. Στα περιεχόμενα παράδοσης δεν περιλαμβάνεται αντίστοιχος προσαρμογέας συνδετήρας οροφής ούτε επιτοίχιος προσαρμογέας.

Αξεσουάρ

Κοίλο κιβώτιο τοίχου Kaiser,
αρ. EAN: 4007841 000370
Προσαρμογέας συνδετήρας οροφής,
αρ. EAN: 4007841 002855
Επιτοίχιος προσαρμογέας AP Box KNX
αρ. EAN: 4007841 003029

Πλέγμα προστασίας
αρ EAN: 4007841003036
Τηλεκοντρόλ Service RC6 KNX
αρ. EAN: 4007841 593018
Τηλεκοντρόλ χρήστη RC7 KNX
αρ EAN: 4007841 592912

Τρόπος λειτουργίας/Βασική λειτουργία

Οι ανιχνευτές παρουσίας υπέρυθρης ακτινοβολίας και υψηλής συχνότητας (HF) της Σειράς Control PRO ρυθμίζουν το φωτισμό και τον σύστημα ελέγχου θέρμανσης, αερισμού και κλιματισμού π.χ. σε γραφεία, σχολεία, δημόσια ή ιδιωτικά κτίρια ανάλογα με τη φωτεινότητα περιβάλλοντος και την παρουσία ατόμων.

Ο ανιχνευτής IR Quatro διασφαλίζει με το φακό του υψηλής τεχνολογίας χωροχαρακτηριστική τετραγωνική κάλυψη χώρου, εντός του οποίου ανιχνεύονται και οι παραμικρές κινήσεις.

Ο ανιχνευτής HF 360 διασφαλίζει με υπερσύγχρονη τεχνολογία υψηλής συχνότητας τέλεια ανίχνευση κινήσεων ανεξάρτητα θερμοκρασίας.

Ο αισθητήρας Dual HF προσφέρεται εξαιτίας των διπλών του χαρακτηριστικών κατεύθυνσης ιδιαίτερα για διαδρόμους σε ξενοδοχεία, σχολεία και κτίρια γραφείων.

Ο ελεγκτής παρουσίας διακρίνεται επίσης για την ελάχιστη κατανάλωση ρεύματος.

- Ανίχνευση παρουσίας
- Έλεγχος φωτισμού με ρύθμιση φωτεινότητας
- Σύστημα ελέγχου θέρμανσης, αερισμού, κλιματισμού

Το ποια από τις λειτουργίες θα πρέπει να χρησιμοποιηθεί (ενεργοποιηθεί), ρυθμίζεται μέσω του παραθύρου παραμέτρων „Γενικές Ρυθμίσεις“ με το Engineering Tool Software (ETS) από παραλλαγή ETS3.f.

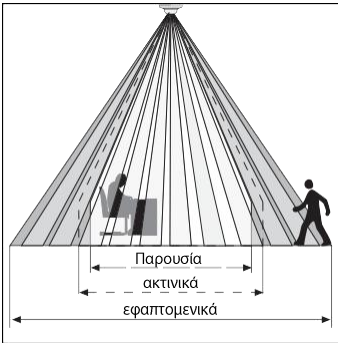
Θέση σε λειτουργία

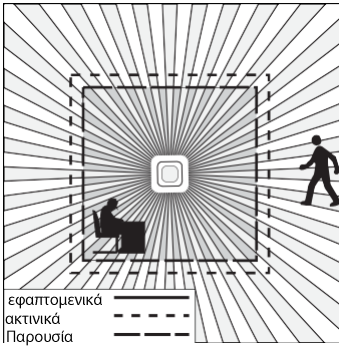
Υπόδειξη: Την περιγραφή εφαρμογής θα την βρείτε στη διαδικτυακή πύλη **www.knx.steinel.de**

1. Παροχή φυσικής διεύθυνσης και εκπόνηση προγράμματος εφαρμογής στο ETS.
2. Κλήση φυσικής διεύθυνσης και προγράμματος εφαρμογής στον ανιχνευτή παρουσίας. Εάν σας ζητηθεί αυτό πατήστε το πλήκτρο προγραμματισμού (8).
3. Μετά από επιτυχή προγραμματισμό σβήνει η μπλε φωτοδίοδος LED.

Περιοχή παρακολούθησης

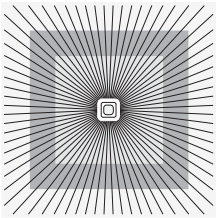
IR Quattro KNX / IR Quattro HD KNX

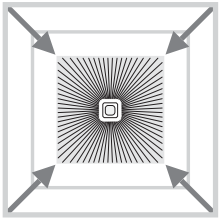


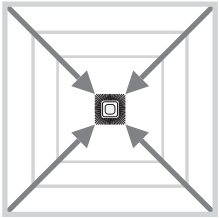


Η ασφαλής αναγνώριση παρουσίας εξαρτάται αποφασιστικά από τον αριθμό, τη δομή και τη διάταξη των στοιχείων φακού. Ο ανιχνευτής IR Quattro KNX και το τετράγωνο ανίχνευσης 16 m², το οποίο παριστάνεται σε 13 επίπεδα με 1760 ζώνες μεταγωγής, ανιχνεύει και την παραμικρή κίνηση. Ο ανιχνευτής IR Quattro HD KNX και το τετράγωνο ανίχνευσης 64 m², διαθέτει 4800 ζώνες μεταγωγής και ορίζει επακριβώς το φάσμα επιδόσεων. Με τη ρύθμιση στο ποτενσιόμετρο παρέχεται η δυνατότητα προσαρμογής αυτών των εμβελειών σε εξατομικευμένες απαιτήσεις. Χάρη στην τετραγωνική περιοχή ανίχνευσης και στη δυνατότητα δικτύωσης των παραλλαγών Master/Slave είναι εφικτός ο εύκολος, ταχύς και βέλτιστος χωροταξικός σχεδιασμός.

Ρύθμιση εμβέλειας (PC IR Quattro / IR Quattro HD KNX)





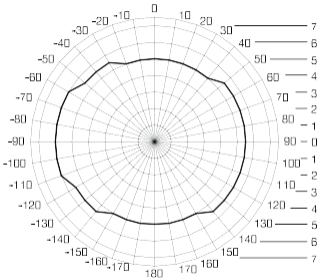


Ποτενσιόμετρο

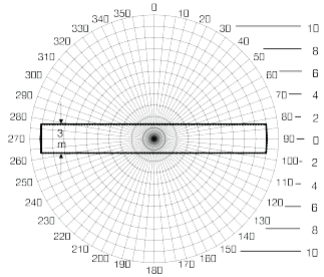
Προσαρμογή εμβέλειας σε εξατομικευμένες απαιτήσεις. Βλέπε πίνακα Τεχνικά δεδομένα και Ρύθμιση εξατομικευμένων απαιτήσεων σελίδα 4/5.

Ρύθμιση εμβέλειας (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - Ύψος συναρμολόγησης 2,8 m



DUAL HF KNX - Ύψος συναρμολόγησης 2,8 m

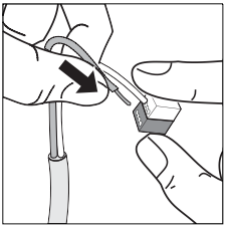


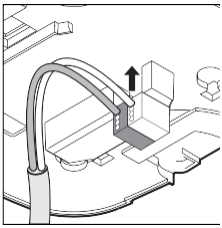
Η εμβέλεια του HF 360 KNX ρυθμίζεται ηλεκτρονικά μέσω του Τηλεκοντρόλ Service RC 6 (βλέπε Αξεσουάρ) όπως επίσης μέσω του ETS Software/KNX BUS (βλέπε Περιγραφή εφαρμογής, www.knx.steinel.de). Για την προσαρμογή χώρου είναι εφικτή η κάλυψη 1 ή 2 κατευθύνσεων ανίχνευσης. Με γωνία ανίχνευσης 360° είναι εφικτή η εμβέλεια 8 m το ανώτερο.

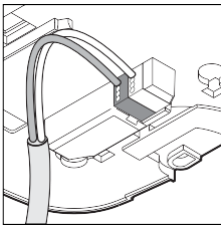
Ο αισθητήρας DUAL HF KNX διαθέτει 2 ειδικούς αισθητήρες υψηλής συχνότητας (HF), οι οποίοι παρακολουθούν από την οροφή και τις δύο κατευθύνσεις ενός διαδρόμου. Ηλεκτρονικά είναι εφικτή η ρύθμιση της εμβέλειας και στις δύο κατευθύνσεις.

Ηλεκτρική εγκατάσταση/Αυτόματη λειτουργία

Κατά την επιλογή των αγωγών συρμάτωσης πρέπει να τηρούνται βασικά οι προδιαγραφές εγκατάστασης VDE 08 29 (DIN EN 5000 90) (βλέπε Υποδείξεις ασφάλειας στη σελίδα 84).







GR

Τεχνικά δεδομένα

Σύνδεση δικτύου KNX:	24 V μέσω τάσης Bus KNX	
Ρυθμίσεις:	μέσω λογισμικού ETS, τηλεκοντρόλ ή Bus	
Κανάλια φωτός: φως 1 – φως 4	Μεταγωγή/Ρεοστατική ρύθμιση, λειτουργία μεταγωγής ρύθμιση σταθερού φωτός	
Διάρκεια χρονοστέρησης:	IQ-Modus, 1 – 30 λεπ., εξαρτάται από παρουσία και φωτεινότητα	
Μέτρηση φωτός:	μεικτό φως	
Βασική φωτεινότητα:	ΕΚΤΟΣ/10 % – 50 %	
Διάρκεια χρονοστέρησης:	Βασική φωτεινότητα διάρκεια ΕΝΤΟΣ, 1 – 30 λεπ.	
Έξοδος θέρμανση, αερισμός, κλιματισμός:	ανάλογα με παρουσία	
Καθυστέρηση ενεργοποίησης:	παρακολούθηση χώρων, 1 – 30 λεπ.	
Διάρκεια χρονοστέρησης:	1 – 120 λεπ.	
Έξοδος χρονυστέρηση παρουσίας:	1 – 255 δευτ.	
Περαιτέρω έξοδοι:	Τιμή φωτεινότητας, ρύθμιση σκηνής	
Τετράγωνα ανίχνευσης: Παρουσία: Ακτινικά: Εφαπτομενικά:	**IR Quattro KNX** μέγ. 4 x 4 m (16 qm) μέγ. 5 x 5 m (25 qm) μέγ. 7 x 7 m (49 qm)	**IR Quattro HD KNX** μέγ. 8 x 8 m (64 qm) μέγ. 8 x 8 m (64 qm) μέγ. 20 x 20 m (400 qm)
Γωνία κάλυψης:	**HF 360 KNX** 360° με 140° γωνία ανοίγματος εν ανάγκη μέσω γυαλιού, ξύλου και ψευδοτοίχων. Για προσαρμογή χώρου εφικτή κάλυψη 1 ή 2 κατευθύνσεων ανίχνευσης	**DUAL HF KNX** βλέπε διάγραμμα σελ. 87 εν ανάγκη μέσω γυαλιού, ξύλου και ψευδοτοίχων.
Εμβέλεια:	**HF 360 KNX** **μέγ**. Ø 8 m , ελάχ., 1/3, 2/3, μέγ. ηλεκτρονικά ρυθμιζόμενη (ETS-Software, KNX Bus, τηλεκοντρόλ RC 6)	**DUAL HF KNX** ελάχ., 1/3, 2/3, μέγ. σε κάθε κατεύθυνση ρυθμιζόμενη ηλεκτρονικά (ETS-Software, KNX Bus, τηλεκοντρόλ RC 6)

Τηλεκοντρόλ

Μέσω του τηλεκοντρόλ χρήστη RC 7 (προαιρετικά) είναι εφικτή η άνετη ενεργοποίηση των λειτουργιών από το δάπεδο.

Το Τηλεκοντρόλ Service RC 6 (προαιρετικά) διευκολύνει την άνετη διάρθρωση (βλέπε Αξεσουάρ σελ. 85)

Διαταραχές λειτουργίας

Βλάβη	Αιτία	Βοήθεια
Φως δεν ενεργοποιείται	• δενυπάρχειτάσησύνδεσης • Τιμή ευαισθησίας ρυθμισμένη πολύ χαμηλά • Δεν υπάρχει ανίχνευση κίνησης	• Ελέγχετε τάση σύνδεσης • Αυξάνετε αργά τιμή ευαισθησίας έως ενεργοποίηση φωτός • Δημιουργείτε ελεύθερη ορατότητα αισθητήρα • Ελέγχετε όρια ανίχνευσης
Φως δεν απενεργοποιείται	• Φωτεινότηταχώρουγιαρυθμισμένη τιμή ευαισθησίας πολύ υψηλή • Διάρκεια χρονυστέρησης παρέρχεται • Ενοχλητικές πηγές θερμότητας (μόνο αισθητήρας IR) π.χ.: αερόθερμα, ανοιχτές πόρτες και παράθυρα, κατοικίδια ζώα, λαμπτήρες/προβολείς αλογόνου, κινούμενα αντικείμενα	• Αυξάνετε τιμή ευαισθησίας • Αναμένετε διάρκεια χρονυστέρησης εν ανάγκη ρυθμίζετε μικρότερη διάρκεια χρονυστέρησης • Καλύπτετε στάσιμες πηγές θερμότητας με αυτοκόλλητα
Αισθητήρας απενεργοποιείται παρά την παρουσία	• Διάρκεια χρονυστέρησης πολύ μικρή • Όριο ευαισθησίας φωτός χαμηλό	• Αυξάνετε διάρκεια χρονυστέρησης • Αλλάζετε ρύθμιση ευαισθησίας
Αισθητήρας απενεργοποιείπολύ αργά	• Διάρκεια χρονυστέρησης μεγάλη	• Μειώνετε διάρκεια χρονυστέρησης
Αισθητήρας ενεργοποιείπολύ αργά σε μετωπική πορεία κίνησης	• Εμβέλεια μειωμένη σε μετωπική πορεία κίνησης	• Συναρμολογείτε περαιτέρω αισθητήρες • Μειώνετε απόσταση μεταξύ δύο αισθητήρων
Αισθητήρας δεν ενεργοποιεί παρά την παρουσία σε σκοτάδι	• Επιλέχτηκε χαμηλή τιμή ευαισθησίας	• Απενεργοποιήθηκε αισθητήρας με διακόπτη/πλήκτρο; • Ημιαυτόματο; • Αυξάνετε τιμή ευαισθησίας

GR

Δήλωση συμμόρφωσης

Αυτό το προϊόν ανταποκρίνεται στην:
- Οδηγία ηλεκτρομαγνητικής συμβατότητας 2004/108/ΕΚ
- Οδηγία RoHS 2002/95/ΕΚ.

Εγγύηση λειτουργίας

Αυτό το προϊόν STEINEL κατασκευάστηκε με μέγιστη προσοχή, ελέγχθηκε σχετικά με τη λειτουργία του και την τεχνική του ασφάλεια σύμφωνα με τους ισχύοντες κανονισμούς και κατόπιν υποβλήθηκε σε δειγματοληπτικό έλεγχο. Η εταιρία STEINEL αναλαμβάνει την εγγύηση για απρόσκοπτη κατάσταση και λειτουργία.

Εγγύηση
36 μήνες
Λειτουργίας

Ο χρόνος εγγύησης ανέρχεται σε 36 μήνες και αρχίζει με την ημέρα πώλησης στον καταναλωτή. Επιδιορθώνουμε ελαττώματα, τα οποία οφείλονται σε σφάλματα υλικού ή εργοστασίου, η εγγυητική απαίτηση εκπληρώνεται με επισκευή ή αντικατάσταση ελαττωματικών εξαρτημάτων σύμφωνα με δική μας επιλογή. Η εγγυητική απαίτηση εκπίπτει για βλάβες σε φθειρόμενα εξαρτήματα όπως επίσης για βλάβες και ελαττώματα που οφείλονται σε ακατάλληλο χειρισμό ή ακατάλληλη συντήρηση. Περαιτέρω επακόλουθες βλάβες σε ξένα αντικείμενα αποκλείονται.

Η εγγύηση παρέχεται μόνο εφόσον η συσκευή αποσταλεί σε μη αποσυναρμολογημένη μορφή με σύντομη περιγραφή βλάβης, απόδειξη ταμείου ή τιμολόγιο (ημερομηνία αγοράς και σφραγίδα εμπόρου), καλά συσκευασμένη στην αρμόδια υπηρεσία σέρβις.

Σέρβις επισκευής:
Επισκευές μετά την πάροδο του χρόνου εγγύησης ή επισκευές ελαττωμάτων χωρίς εγγυητική απαίτηση εκτελούνται από το σέρβις του εργοστασίου μας. Σας παρακαλούμε να αποστείλετε το προϊόν καλά συσκευασμένο στην πλησιέστερη υπηρεσία σέρβις.

(TR) Kullanma Kılavuzu

Sayın Müşterimiz,

STEINEL hareket sensörü ürününü satın alarak firmamızın ürünlerine göstermiş olduğunuz güvenden dolayı çok teşekkür ederiz. İtina ile üretilmiş, test edilmiş ve ambalajlanmış, bu ürünü tercih ederek yüksek kaliteli bir cihaz satın almış bulunmaktasınız.

Tesisat işleminden önce lütfen bu Montaj Talimatını okuyun. Tesisat ve işletmeye almanın ancak talimatlara göre yapılması durumunda uzun ömürlü, güvenilir ve arızasız bir işletme sağlanır.

STEINEL sensörü ile iyi çalışmalar dileriz.

Güvenlik Bilgileri

- Tesisat çalışmaları sadece zma personel tarafından ilgili ülkede geçerli tesisat yönetmeliğine VDE 08 29 (DIN EN 5000 90) uygun olarak yapılacaktır.
- Alçak gerilim ürünleri bulunan bir ortamda talimatlara aykırı olarak yapılan bir montaj işlemi ağır sağlık tehlikesi veya maddi hasarlar oluşmasına sebep olabilir.
- Bu cihaz küçük gerilim devrelerine bağlanmak için tasarlandığından kesinlikle alçak gerilim (230 V AC) sistemine bağlanması yasaktır.

Cihaz Açıklaması

C Sensör modülü
Sac çerçeve
Sensör alt tarafı
Q1 Kaiser delikli duvar kutusu, opsiyonel
Q2 Tavan adaptörü mandalı UP Box
@ Sıva üstü adaptörü
Kilitleme mekanizması
Erişim mesafesi ayarı
® Programlama butonu
® Tesisat Montajı
@ Kapsama alanını azaltmak için kullanılan kapatma folyoları (HF 360 KNX).

Montaj/Tesisat ®

Sensör sadece, iç mekanlarda tavana sıva altına monte etmek için öngörülmüştür. Gerekli tavan adaptörü mandalı ve sıvas üstü adaptörü cihazın teslimat kapsamına dahil değildir.

Aksesuarlar

Kaiser delikli duvar kutusu,
EAN-Nr.: 4007841 000370
Tavan adaptör mandalı,
EAN-Nr.: 4007841 002855
Sıva üstü adaptörü
AP Box KNX
EAN-Nr.: 4007841 003029
Koruma sepeti
EAN-Nr.: 4007841003036

Servis uzaktan kumanda
RC6 KNX
EAN-Nr.: 4007841 593018
Kullanıcı uzaktan kumanda
RC7 KNX
EAN-Nr.: 4007841 592912

Fonksiyon Prensibi / Temel Fonksiyon

Control PRO Serisi kızılötesi ve HF hareket sensörü örneğin ofis, okul, kamu veya özel sektör binalarında ortam parlaklığı ve hareket durumuna bağlı olarak aydınlatma sistemlerini ve Kalorifer-havalandırma-klima kontrol sistemlerini kumanda eder.

IR Quatro, yüksek derecede geliştirilmiş merceği ile en küçük hareketlerin dahi algılandığı mekansal, kare boyutlarında bir kapsama alanı mümkün kılar.

HF 360 cihazı, yüksek frekans teknolojisi ile eksiksiz sıcaklığa bağlı bir hareket algılamasını garanti eder.

Dual HF Sensörü, çift ayar özelliği sayesinde özellikle otel koridorları, okul ve ofis binalarının koridorları için çok uygundur.

Hareket sensörü Control ayrıca düşük cereyan sarfiyatı özelliğine sahiptir.

- Hareket algılaması bildirimi
- Parlaklık regülasyonu ile aydınlatma sisteminin kontrolü
- Kalorifer-havalandırma-klima Kontrol Sistemi

Bu fonksiyonlardan hangisinin kullanılacağı (aktifleştirileceği) „Genel Ayarlar“ parametre penceresinde, ETS3.f versiyonu Engineering Tool Software (ETS) yazılımı ile ayarlanır.

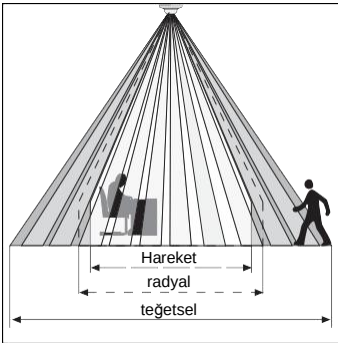
Çalıştırma

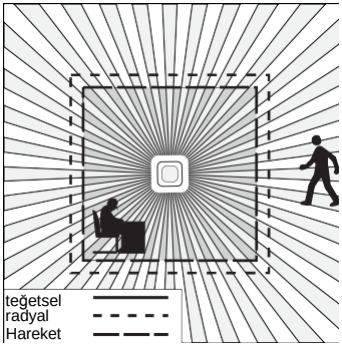
Uyarı: Aplikasyon açıklaması aşağıda açıklanan internet sayfasında bulunur
www.knx.steinel.de

1. Fiziksel adresi verin ve ETS içinde aplikasyon programını oluşturun.
2. Fiziksel adres ve aplikasyon programını hareket sensörüne yükleyin. Programlama butonuna (8) basmanız talep edildiğinde.
3. Programlama başarı ile sonuçlandığında mavi renkli LED lambası söner.

Kontrol bölümü

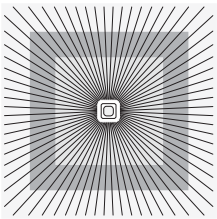
IR Quattro KNX / IR Quattro HD KNX

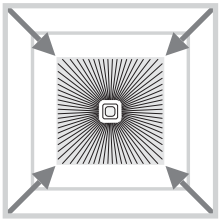


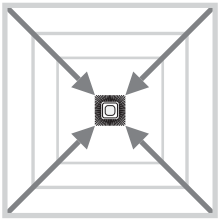


Güvenli bir hareket algılaması mercek segmentlerinin sayısı, özelliği ve pozisyonlanmasına bağlıdır. IR Quattro KNX ve 16 m² kare boyutlu ve 13 düzeyde 1760 kumanda bölümünü içeren kapsama alanı en küçük hareketi dahi algılar. IR Quattro HD KNX ve 64 m² kare boyutlu ve 4800 kumanda bölümünü içeren kapsama alanı peformans özelliğini daha da hassaslaştırır. Potensiyometrede yapılacak ayar ile bu erişim mesafelerini, kişisel isteklere göre ayarlama olanağı bulunur. Kare boyutlu kapsama alanı ve Master/Slave versiyonlarını ağ sistemi içinde düzenleme olanağı sayesinde kolay, hızlı ve optimal mekan planlaması mümkündür.

Erişim mesafesi ayarı (PC IR Quattro / IR Quattro HD KNX)





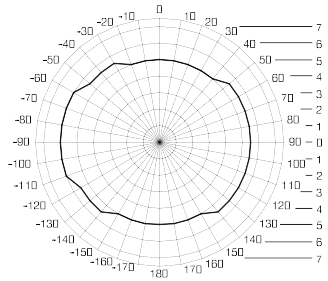


Potensiyometre

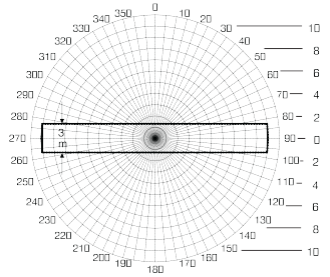
Erişim mesafesini kişisel isteklere göre ayarlama. Bkz. Tablo Teknik Özellikler ve Kişisel İsteklere Göre Ayarlama Sayfa 4/5.

Erişim mesafesi ayarı (HF 360 KNX / DUAL HF KNX)

HF 360 KNX - Montaj yüksekliği 2,8 m



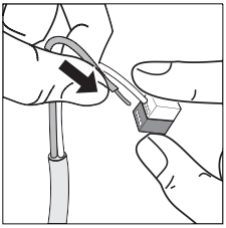
DUAL HF KNX - Montaj yüksekliği 2,8 m

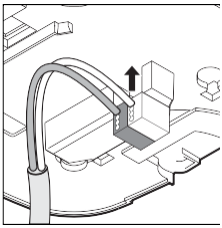


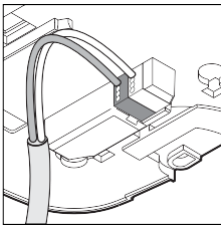
HF 360 KNX sensörünün erişim mesafesi elektronik sistemle, servis uzaktan kumandası RC 6 (bkz. aksesuar) ve ETS yazılımı/KNX BUS (bkz. aplikasyon açıklaması, www.knx.steinel.de) ile ayarlanabilir. Mekan adaptasyonu için 1 veya 2 kapsama yönü kapatılabilir. 360°lik kapsama açısında max. 8 m erişim mesafesi mümkündür. DUAL HF KNX sensöründe 2 adet özel HF sensörü bulunur ve bu sensörler, tavandan koridorun her iki yönünü kontrol eder. Erişim mesafesi elektronik olarak her iki yöne ayarlanabilir.

Elektrik Tesisat / Otomatik İşletim

Kablo döşeme hatlarının seçiminde daima VDE 08 29 (DIN EN 5000 90) tesisat yönetmelikleri yerine getirilecektir (bkz. Güvenlik Uyarıları Sayfa 91).







Teknik Özellikler

Şebeke bağlantısı KNX:	24 V, KNX Bus gerilimi üzerinden	
Ayarlar:	ETS yazılımı, uzaktan kumanda veya Bus üzerinden	
Işık kanalları: Işık 1 – Işık 4	Kumandalama/Ayarlı ışık; Kumanda işletmesi sait ışık ayarı	
Müteakip çalışma süresi:	IQ modu, 1 – 30 dakika, hareket algılaması ve parlaklığa bağlıdır	
Işık ölçümü:	Karışık ışık	
Temel parlaklık:	KAPALI/%10 – % 50	
Müteakip çalışma süresi:	Temel parlaklık sürekli AÇIK, 1 – 30 dakika	
Çıkış HLK:	hareket algılamasına bağlı	
Çalıştırma gecikmesi:	Mekan kontrolü, 1 – 30 dakika	
Müteakip çalışma süresi:	1 – 120 dak.	
Çıkış hareket müteakip çalışma süresi:	1 – 255 sn.	
Diğer çıkışlar:	Parlaklık değeri, olay kumandası	
Kapsama karesi:	**IR Quattro KNX** Hareket: max. 4 x 4 m (16 metrekare) Radyal: max. 5 x 5 m (25 metrekare) Teğetsel: max. 7 x 7 m (49 metrekare)	**IR Quattro HD KNX** max. 8 x 8 m (64 metrekare) max. 8 x 8 m (64 metrekare) max. 20 x 20 m (400 metrekare)
Kapsama açısı:	**HF 360 KNX** 360°, 140° açma açısı ile gerektiğinde cam, ahşap ve hafif yapı duvarlarından geçirgendir. Mekan adaptasyonu için 1 veya 2 kapsama yönü kapatılabilir.	**DUAL HF KNX** bkz. Diyagram S. 94 gerektiğinde cam, ahşap ve hafif malzemeli duvarlardan geçirgendir.
Erişim mesafesi:	**HF 360 KNX** max. Ø 8 m , min., 1/3, 2/3, max. elektronik olarak ayarlanabilir (ETS yazılımı, KNX Bus, uzaktan kumanda RC 6)	**DUAL HF KNX** min., 1/3, 2/3, max. her yöne elektronik olarak ayarlanabilir (ETS yazılımı, KNX Bus, uzaktan kumanda RC 6)

Uzaktan kumanda

Fonksiyonlar zeminden, kullanıcı uzaktan kumandası RC 7 (opsiyonel) ile konforlu bir şekilde kumanda edilebilir.

Servis uzaktan kumandası RC 6 (opsiyonel) konfigürasyonun konforlu şekilde yapılmasını mümkün kılar (bkz. Aksesuar S. 92)

İşletme Arızaları

Arıza	Sebebi	Tamiri
Işık yanmıyor	• Gerilim bağlantısı yok • Alaca karanlık değeri çok düşük ayarlanmıştır • Hareket algılaması yok	• Gerilim bağlantısını kontrol edin • Işık yanıncaya kadar alaca karanlık değerini yavaşca yükseltin • Sensörün önünde herhangi bir engel bulunmamasını sağlayın • Kapsama alanını kontrol edin
Işık kapanmıyor	• Ayarlanmış olan alaca karanlık değeri için mekan parlaklığı çok yüksek • Müteakip çalışma süresi doluyor • Hatalı Çalışmasına Sebep Olan Isı Kaynakları (sadece IR sensörü) örneğin: Fanlı ısıtıcı, açık kapı ve pencere, ev hayvanları, ampul/ halojen lamba, hareket eden objeler	• Alaca karanlık değerini yükseltin • Müteakip çalışma süresini bekleyin gerektiğinde müteakip çalışma süresini daha kısa olarak ayarlayın • Sabit arıza kaynaklarını yapışkan etiket ile kapatın
Hareket algılamasına rağmen sensör kapanıyor	• Müteakip çalışma süresi çok küçük • Işık sınırı çok düşük	• Müteakip çalışma süresini yükseltin • Alaca karanlık ayarını değiştirin
Sensör çok geç kapanıyor	• Zaman ayarı yüksek	• Müteakip çalışma süresini küçültün
Sensör önden yürüyüşlerde çok geç devreye giriyor	• Önden yürüyüşler için olan erişim mesafesi ayarı azaltılmıştır	• ek sensör monte edin • İki sensör arasındaki mesafeyi azaltın
Karanlıkta hareket algılamasına rağmen sensör devreye girmiyor	• Alaca karanlık değeri çok düşük seçilmiştir	• Sensör şalter/buton ile devre dışı bırakılmıştır ? • Yarı otomatik ? • Alaca karanlık değerini yükseltin

Uygunluk Açıklaması

Bu ürün aşağıda açıklanan direktifleri karşılar:
- Elektro Manyetik Uyumluluk Direktifi 2004/108/AT
- RoHS Direktifi 2002/95/AT

Fonksiyon Garantisi

Bu STEINEL ürünü yüksek itina ile üretilmiş olup geçerli olan yönetmeliklere uygun olarak fonksiyon ve güvenlik testlerinden geçirilmiş ve son olarak numune kontrolü işlemleri uygulanmıştır. STEINEL firması ürünün mükemmel durumda ve fonksiyon özelliklerine sahip olduğunu garanti eder.

KULLANIM
36 ay
GARANTISI

Cihaz 36 ay garantilidir ve garanti süresi cihazın alıcıya satıldığı günden itibaren başlar. Firmamız malzeme ve imalat hatalarından kaynaklanan arızaları giderir, garanti kapsamında verilen bu hizmetler arızalı parçanın onarımı veya değiştirilmesi şeklinde yapılır ve bu seçime firmamız karar verir. Sarf malzemeleri, yönetmeliklere aykırı kullanım veya bakımdan kaynaklanan hasar ve eksiklikler garanti kapsamına dahil değildir. Bunun dışında yabancı eşyalar üzerinde oluşacak müteakip hasarlarda firmamızdan herhangi bir hak iddia edilemez.

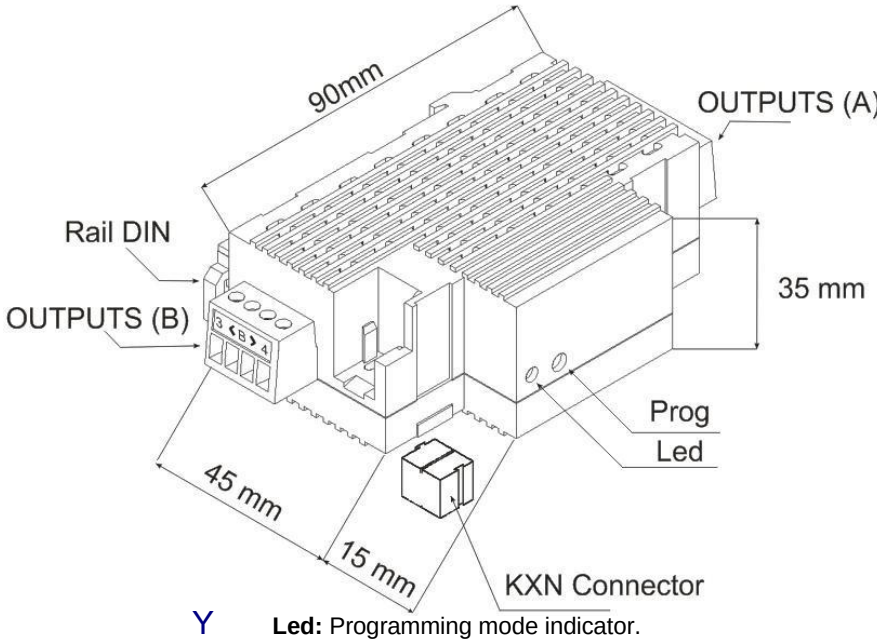
Garanti hizmetlerinden faydalanmak sadece, cihaz sökülmeden ve parçalarına ayrılmadan, özet arıza açıklaması, kasa fişi veya fatura (satın alış tarihini belirten bayi kaşesi ile) ile iyi şekilde ambalajlanarak yetkili servis merkezine gönderilmesi ile gerçekleşir.

Tamir servis hizmeti:
Garanti süresi dolduktan sonra oluşan arızalar veya garanti kapsamında bulunmayan parçaların hasarlanması durumunda fabrika servisimiz gerekli tamir hizmetlerini verir. Bunun için lütfen cihazı iyi şekilde ambalajlayarak en yakın servis merkezimize postalayın.

ACTinBOX QUATRO. Multi-Function Actuator 4 outputs 16A

ZN1IO-AB40 **Technical Documentation**

- Reduced size: 90 x 60 x 35 mm (2 DIN rail units).
- No external supply required different from Bus.
- EIB/KNX BCU integrated.
- Stand Capacitive Loads
- Connectors wiring can be done without the device.
- Independent control assembly device to be mounted inside distribution boxes or electrical panels with DIN rails.
- Including Logical Functions.
- Output timing facilities.
- Total Data Saving when Power Failure occurs.
- CE directives OK.



Y **Led:** Programming mode indicator.

Y **Prog:** Push button to set the programming mode.

CONCEPT		DESCRIPTION
General System Specifications		
○ Type of device		Electric Operation Control Device
○ EIB/KNX Supply	○ Voltage	29V DC
	○ Voltage range	20…31V DC
	○ Power consumption	Max 150 mW
	○ Bus connection	Typical BUS connector TP1, 0,50 mm² section
○ External Power Supply		No
○ Ambient Temperature		0ºC a +55ºC
○ Storage Temperature		-20ºC a +70ºC
○ Ambient Humidity		30 a 85% RH (No condensation)
○ Storage Humidity (relative)		30 a 85% RH (No condensation)
○ Complementary Characteristics		Class B
○ Safety Class		II
○ Operation Type		Continuous operation
○ Device Action Type		Type 1
○ Electrical solicitations period		Long
○ Type of Protection		IP20, clean environment
○ Assembly		Independent control assembly device to be mounted inside distribution boxes or electrical panels
○ Minimum clearances		---
○ Power Failure response		Data saving
○ Response when restarting		Customizable output status recovering
○ Operation indication		Programming led lighting when pressing programming button.
○ Weight		170 gr.
○ PCB CTi index		175 V
○ Enclosure		PC-ABS, flammability category Class D.

OUTPUTS-Specifications and connections		
ontact type		Free Potencial Outputs through bistable relays with tungsten pre-contact.
isconnection type		Micro-disconnection
ated current by output		15A 250V AC (3750 VA), 15A 30V DC (450W)
ated current by channel		20/30A***** 250V AC (5000 VA), 20/30A***** 30V DC (600W)
ropping Voltage		Negligible
utputs per common (Channel)		2 Individual Outputs (Channel A) 2 Individual Outputs per common (Channel B)
ifferent Phases Connection		Up to two phases: Phase 1-Channel 1 & Phase 2-Channel 2
onnection Type		Screw Terminals Clamp
ecommended Cable Section		0,25 mm² a 2,5 mm²
able Type		Stranded or solid wire with crimping terminals.
esponse Time		50 ms
umber of automatic cycles (A) per automatic action	Mechanical (Min)	10 million operations (300cpm)
	Electrical (min.)	100.000 cycles at Max. current (20cpm and resistive load)

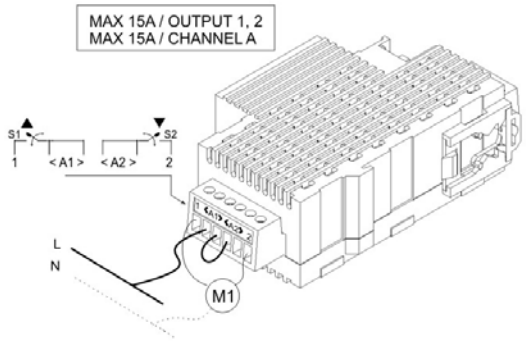
***** *See Wiring/Installation Options*

SAFETY INSTRUCTIONS

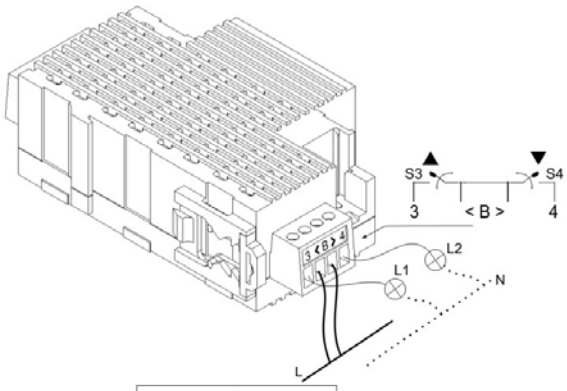
- Do not connect the Main Voltage (230 V) or any other external voltages to any point of the BUS. Connecting an external voltage might put all the EIB/KONNEX system into risk.
- Installation should only be performed by qualified electricians following applicable regulations on preventing accidents, as required by law.
- Flexible cable with crimping terminals or rigid cable without terminals must be used for output connection.
- Ensure there is enough insulation between the AC Voltage cables and the BUS ones.
- Up to 2 different electrical phases can be connected to the device as long as one is connected to channel A and the other one to Channel B.
- Warning! Once installed, the device must not be easily accessible from the outside.
- Any non-observance of the safety instructions may cause fire or other hazards.

WIRING/INSTALLATION OPTIONS

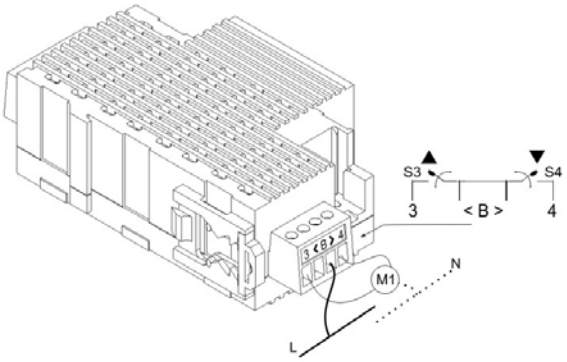
MAX 15A / OUTPUT 1, 2
MAX 15A / CHANNEL A



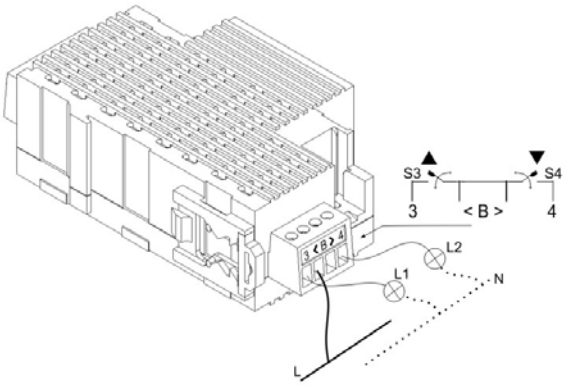
MAX 15A / OUTPUTS 3, 4
MAX 20A / CHANNEL B



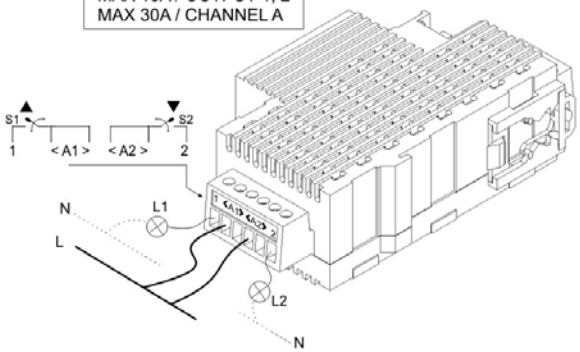
MAX 15A / OUTPUTS 3, 4
MAX 15A / CHANNEL B



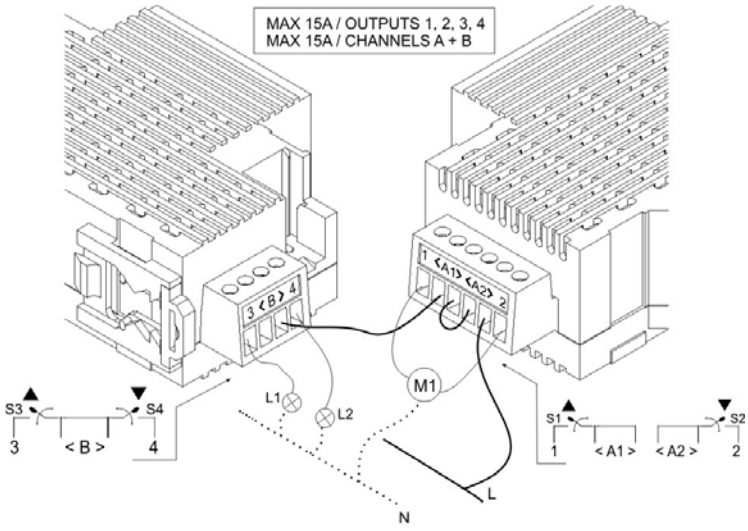
MAX 15A / OUTPUTS 3, 4
MAX 15A / CHANNEL B



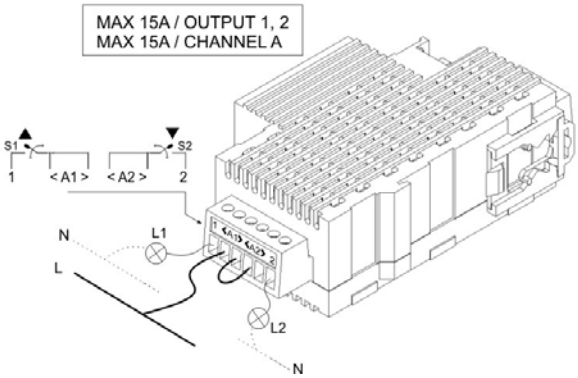
MAX 15A / OUTPUT 1, 2
MAX 30A / CHANNEL A



MAX 15A / OUTPUTS 1, 2, 3, 4
MAX 15A / CHANNELS A + B



MAX 15A / OUTPUT 1, 2
MAX 15A / CHANNEL A



PRODUCT MANUAL

ACTinBOX

ACTinBOX QUATRO

ZN1I0-AB40

Edition 3

Version 1.1

1. INTRODUCTION

1.1. PRODUCT

ACTinBOX QUATRO is a **KNX** actuator that combines in a same device:

- **6 x 16A** multifunction (**INDIVIDUAL** or **SHUTTER**) binary **OUTPUTS**
- **5** multioperation **LOGICAL FUNCTIONS**

These 2 sections work independently, and can interact the others as if there were 2 autonomous devices connected to the **KNX BUS**.

1.2. OBJECTS

ACTinBOX QUATRO has 108 communication objects divided into three different sections:

INDIVIDUAL OUTPUTS

SHUTTER CHANNELS

LOGICAL FUNCTIONS

NOMENCLATURE: To easily find the appropriate Communication Objects during the Group addressing process, every Communication Object is named depending on the section they belong to, as:

[Group Type] "Function to be executed"

Following abbreviations are associated to the different groups:

- Individual Outputs:

[O1] -7 Output 1
...
...
[O4] -7 Output 4

- Shutter Chanels:

[CA] -7 Channel A
[CB] -7 Channel B

- Logical Functions:

[FL] -7 Logical Function

Examples: *See (**Figure 1.2**)*

- **[O1] Status:** Output 1 Status object.
- **[CB] Stop:** Channel B Shutter Stop Control.
- **[LF] Function 4 RESULT (1bit):** Object to store the 1bit Logical Function 4 result.

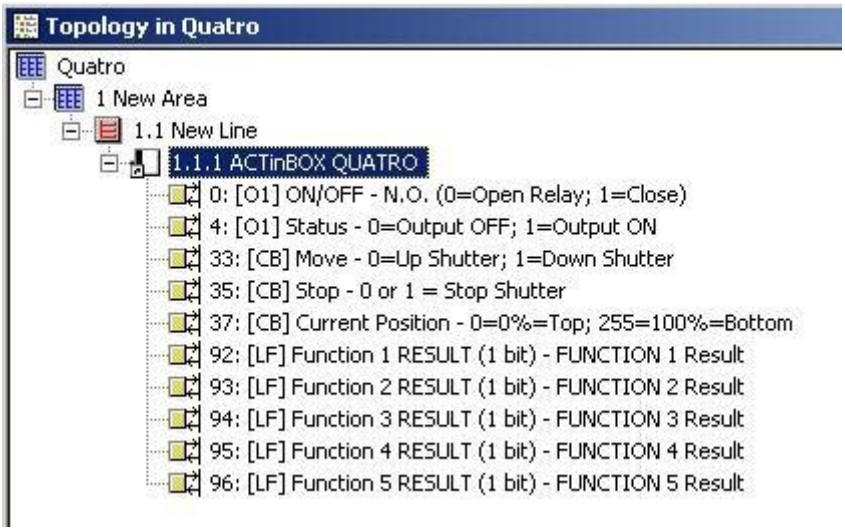


Figure 1.2

2. OUTPUTS

The **ACTinBOX QUATRO** has six **16A binary outputs** (see product datasheet). These 4 outputs are divided into 2 groups (called channels) with 2 outputs each.

- **Channel A: "Output 1"** & **"Output 2"**
- **Channel B: "Output 3"** & **"Output 4"**

Both channels can be independently parameterized as:

Y **Individual Outputs:** Every output is independent from the others, so all of them are independently managed. To control electrical loads…

Y **Shutter Channels:** Outputs in the same channel are jointly managed. To control shutter drives, sun blinds or similar…

- **In the shutter channel case:**

  ./ **Output 1 (3 in Channel B):** In charge of raising the shutter.

  ./ **Output 2 (Output 4 in Channel B):** In charge of lowering the shutter.

Configuration example: *Consider a facility where we need to manage one shutter drive and a light spot.*

*In this case, the **ACTinBOX QUATRO** could be parameterized as follows:*

- ***Channel A** = Shutter Channel*
- ***Channel B** = Individual Outputs*
  - ./ ***Output 3** = normally open*
  - ./ ***Output 4** = Disabled*
- ***Channel B = Disabled***

2.1. SHUTTER CHANNELS

The **ACTinBOX** QUATRO allows installing any type of shutter drive control (or similar) on its Channels. To operate them, two basic control objects (**"Move"** & **"Stop/Step"**) together with a set of additional functions (with their own Communications objects) are available.

The Basic shutter control with the above mentioned Communications objects is made as follows:

Y **Raise shutter**: Send value "**0**" to the object "**Move**".

Y **Lower shutter**: Send value "**1**" to the object "**Move**".

Note: *When the object "**Move**" gets a "**0**" or a "**1**", the shutter will start moving, and won't stop unless it reaches its lowest or highest position (depending on the order received), or that receives some other order annulling the previous one.*

Y **To stop a shutter in motion : A** "**0**" or a "**1**" must be sent to the object "**Stop**".

2.1.1. TYPE

- **ROLLER SHUTTER (No lamellas) / SUNBLINDS** -7 These are the typical revolving shutters, with a simple (Raise/Lower) movement.

- **SHUTTER WITH LAMELLAS** -7 Special shutters with a secondary movement managed by the same drive.
  The **ACTinBOX** in this case, allows controlling both movements, lamella rotation (getting more or less incident light from the outside), and the Raise/Lower movement.
  By selecting this Shutter control type, the **"Stop"** object is replaced with the **"Stop/Step"** one.
  This way, if the device receives a **"0"** or a **"1"** via this object when the shutter is in motion, it shall stop; while if the shutter is stopped, receiving a **"0"** via this communication object will make lamellas to pull up; on the contrary, receiving a **"1"** will make lamellas to pull down.

2.1.2. TIMES

It is necessary to set two different times (three when working with shutters with moveable lamellas) for a proper channel working.

- **MAIN TIME (Shutter Height)**: This is the time the shutter needs to cover its height completely. Both times can be used in this field (Raising time or Lowering time); but if there was some difference between these two times, **"Lowering time"** will be considered as "master", and should be used to fill in this field.
  "Raising time" in this case will be set in the **"Total Time up"** field, enabled for this purpose.
  This variable won't need to be periodically calibrated since the exact shutter position remains on the ACTinBOX (even when Power Failure occurs).

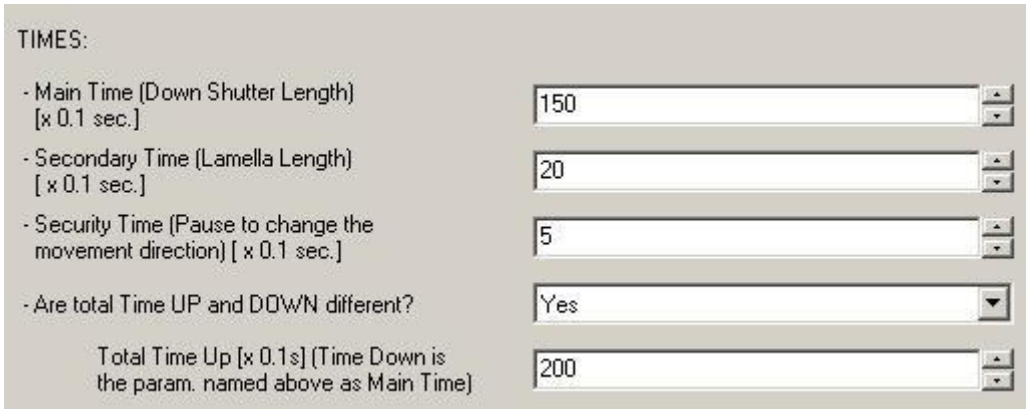
  Note: *After programming the device with the ETS, the ACTinBOX considers the shutter is completely raised.*

- **SECONDARY TIME (Lamellas movement) : (Only for Lamella Shutters)** Time used by lamellas to cover a complete deployment (up or down).

- **SECURITY TIME (before changing the movement direction) :** This time is applied by the actuator to protect the drive when the movement direction of the shutter is changed. If the device receives the order to **"Lower"** the shutter while this is being raised, the ACTinBOX will stop it for a while (security time), to later **"Lower"** it. It is recommended to keep the default value in this field: 5 [x 0.1 sec]

- **DIFFERENT UP / DOWN TIMES?** : Whenever the shutter raising and lowering times are different (i.e. heavy shutters), this field should be dropped down to set the raising shutter time in this field, as mentioned above the lowering one must be set in the **"Main Time field"**.

Configuration Example: *Shutter in Channel B takes 15 seconds to be lowered and 20 to be raised. In this case the ACTinBOX parameterization should remain as follows:*



- **ADDITIONAL TIME WHEN SHUTTER GETS THE LIMIT:** This parameter guarantees the shutter always gets its lowest or highest level by setting an extra time for the drive to keep moving once the shutter took up its raising/lowering times, preventing small maladjustments.

2.1.3. FUNCTIONS

Following parameters add functionality or special features to a Shutter Channel Control.

2.1.3.1. STATUS OBJECT

This function provides a communication object **"Current Position"**, to indicate the user the exact position the shutter is at all times.
This is a 1 byte object measured in **"%"**. The object value is in the range [0…255]:

- 0= 0% -> Shutter completely raised
- ……

- ……
- 255=100% -> Shutter completely lowered

When the shutter is in motion, and eventually stops, the QUATRO actuator can send (via this Object) the exact position of the shutter to update the rest of devices in the BUS when needed

Note: *The shutter "**Current Position**" status object has been programmed so that every time the shutter is in motion, this is transmitted to the BUS to update its position in real time (every second).*

2.1.3.2. PRECISE CONTROL

This function makes possible to move the shutter to any position on its length, via the 1 byte **"Positioning"** communication object.

Every time the **ACTinBOX** gets a new value through this object (e.g. 50%), the shutter is moved to the corresponding position (the middle in the example).

2.1.3.3. SCENES

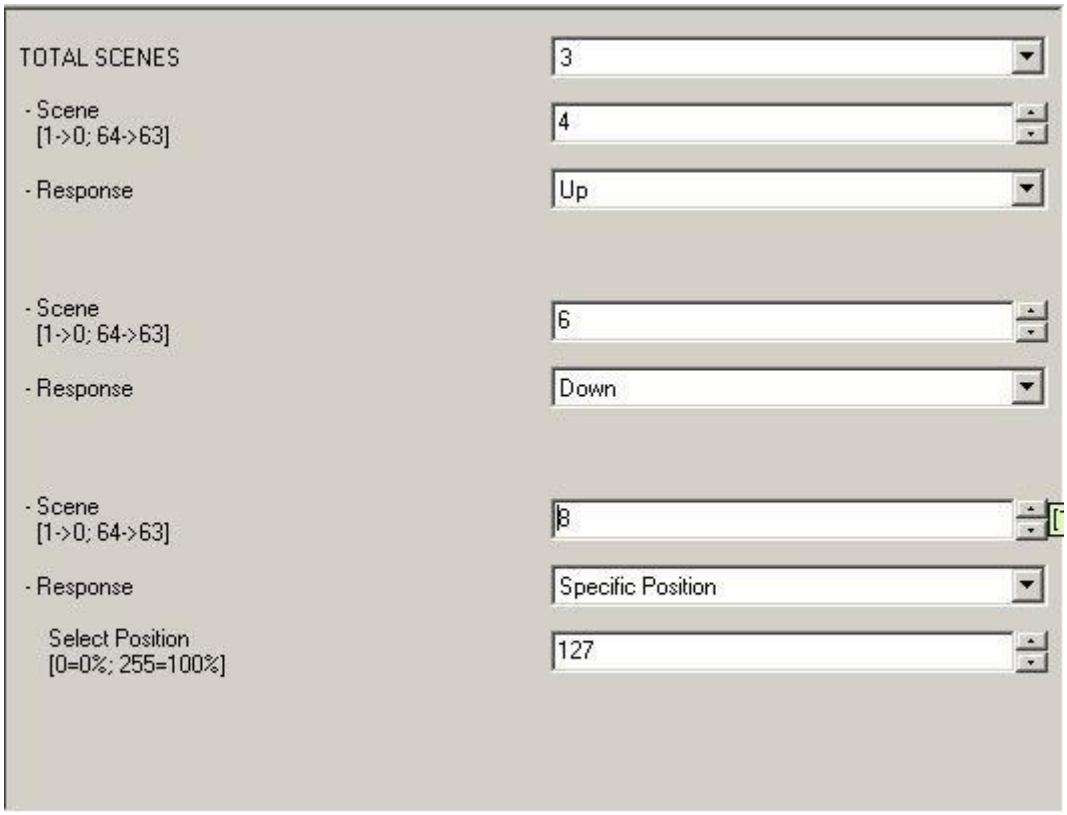
This function makes possible to use a standard (1 byte) scene object to control shutters, giving the users the possibility to choose a precise position where to locate the shutter depending on the scene number received by the ACTinBOX through the object **"Scenes"**.

- **TOTAL SCENES** -7 To choose the total number of scenes to be used; up to a maximum of five scenes can be set in this field.
- **SCENE**-7 Set the scene number.
- **RESPONSE**-7 To set the precise position where to locate the shutter when the corresponding scene number is called from the BUS.

Example: *Consider a facility where 4 scenes will be used (**4, 6, 8 & 9**), but only three of them will be controlled from the ACTinBOX QUATRO to locate the shutter in a precise position:*

- ***Scene 4*** *Up*
- ***Scene 6*** *Down*
- ***Scene 8*** *In the middle (50%)*

Parameterization in this case should remain as follows:



2.1.3.4. BLOCK

This function makes possible to **"block"** an output by disabling its control. Output will be blocked by sending a "**1"** to the corresponding object in the channel.

Note: *Only the Alarm function is higher priority than the block one. This means that , if shutter in the channel is blocked and the Alarm goes On, the shutter shall be carried to the Alarm parameterized position. When Alarm goes off, the shutter will recover its blocked status.*
To unblock the shutter it's necessary to send a ***"0"*** *to the object* ***"Block"****.*

2.1.3.5. ALARM

This function is designed for cases in which the ACTinBOX must response to an alarm situation. When an alarm occurs, this function locates the shutter in the parameterized position, and after this, shutter is blocked (it won´t be controlable until Alarm goes off).

- **NUMBER OF ALARMS** -7 Set whether to use one or two alarms. Both of them can be independently managed through their corresponding communication objects.

Note: *"**Alarm 1**" is higher priority than **"Alarm 2"**. This means that if channel is in **"Alarm 2"** status and **"Alarm 1"** occurs the shutter will change to **"Alarm 1"** status and it shall not come back to **"Alarm 2"** until **"Alarm 1"** goes off. Whereas if the Channel is in **"Alarm 1"** status, and **"Alarm 2"** occurs , **"Alarm 1"** prevails.*

- **TRIGGER VALUE** -7 Set the value to activate the Alarm status. An Alarm status will be activated when the value set in this field is sent to the object Alarm (or Alarm 2).
  The opposite of the **"trigger"** value is the **"Passive"** value.

- **CYCLICAL MONITORING** -7 To be sure that the sensor works properly and that no alarm is active, the sensor to send the **"Trigger Value"** to the ACTinBOX, shall continuously send the **"Passive Value"** to the BUS when there is no alarm active. It is in this case that this parameter should be enabled; this way, if the ACTinBOX doesn't get the **"passive value"** during the parameterized

- **CYCLE TIME**, alarm will be automatically activated.

Note: *It's recommended to set a time higher than double sensor cycle time, to avoid alarm frames missing.*

- **RESPONSE**-7 Set the response of the actuator channel output when the alarm is activated.

- **DEACTIVATION** -7 Two different methods to deactivate an active Alarm:

  ./ **NORMAL**-7 By sending the **"Passive value"** (opposite to the Trigger one) to the object **"Alarm"**.

  ./ **FROZEN**-7 Consists in applying the normal method to later send a **"1"** to the object "**Unfreeze alarm**". This method makes the channel output remains blocked even when the alarm status is finished; in this case it will be necessary then that the output is manually enabled from another point in the installation.

  - **END** -7 This parameter sets the output response when the alarm status is finished.

2.1.3.6. REVERSED MOVING

This function makes possible to control shutters the other way around from usual; this means **"1"** to raise the shutter and **"0"** to lower it. This control is made through the object **"Reversed Moving"** and is compatible with the usual control.

This is really useful when a **"Central Off"** is required in the installation, i.e. to turn the lights off & lower the shutters. In this case, a **"0"** should be sent to the light **"ON/OFF"** objects, and to the shutter **"Reversed moving"** objects.

2.1.3.7. DIRECT POSITIONING

Function to move a shutter to a prefixed specific position via 1 bit objects.

When value **"1"** is received through one of these objects ("**Direct positioning**" or "**Direct positioning 2**"), the shutter will be moved to the parameterized position.

- **TOTAL DIRECT POSITIONINGS** -7 Set the number of direct positioning to be used.
- **POSITION** -7 Choose the exact position to move the shutter to (Remember that 0=0% and 255=100%).
- **NEW POSITIONS SAVING** -7 Set whether to allow or not new positions saving:
  - ./ **Save Position 1**
  - ./ **Save Position 2**

A "**1**" must be sent to these objects in order to save new positions.

2.1.3.8. START UP CONFIGURATION

This function is meant to define the behaviour of the shutter channel output after a BUS Power Failure, or after programming the device with the ETS.

- **INITIAL POSITION** -7 This field is to define the exact position the shutter should be located after a BUS Power Failure. After programming the device with the ETS, **"current position"** option means the shutter will remain the position it was before de programming.
- **UPDATE** -7 By enabling this field, the output initial status can be sent to the BUS to update the rest of devices in the installation if needed.
- **START UP SENDING DELAY**-7 As some devices in the installation may take longer to restart after a Power Failure, this field allows setting a delay in seconds for the initial configuration to be sent to the BUS, in order to ensure the rest of devices in the installations are ready to receive the corresponding telegrams.

Note: *The initial position is always sent through the object* ***"Current Position"****.*

2.2. INDIVIDUAL OUTPUTS

When this option is selected, both outputs in the channel are completely independent from each other.

2.2.1. TYPE

It is necessary to indicate whether the outputs are **"Normally open"** or **"Normally closed"**.

- Normally Open:	**- Normally Closed:**
ON -7 Close Relay	**ON** -7 Open Relay
OFF -7 Open Relay	**OFF** -7 Close Relay

2.2.2. FUNCTIONS

Following parameters add functionality or special features to Shutter Channels Control.

2.2.2.1. STATUS OBJECT

The "**status**" object always shows the current status output, and is meant to feedback any other device in the installation when needed.

- Output ON -> status output = "**1**".
- Output OFF -> status output = "**0**".

This object will be sent to the BUS every time the output status changes.

- **INTERNAL LINKS** -7 To internally link the output **"status object"** with:
  - **1 bit logical function objects** (data entry objects).

This means that, if an internal link is set, every time the output changes and the new **"Status"** object value is sent to the BUS through the corresponding Group address (when used), the same effect over the internally linked Logical function objects will take place; in fact if no feedback signal (to update any other device in the installation) is needed, no group addresses are necessary to make internal links work.

- ./ **LOGICAL FUNCTIONS** -7 When enabled, the output **"status"** object is internally linked with the "1 bit" logical function data entry.

Possible options in this case are:

- Data (1bit)1
- …… ……
- …… ……
- Data (1bit)16

This feature is especially useful to feedback the inputs when these control the outputs by means of a "switching" control.

2.2.2.2. TIMERS

This section is meant to control the outputs by mean of a timer.

Two different timers can be selected:

- **Simple Timer:** Through the object "**Timer**".
- **Flashing:** Through the object "**Flasing**".

Note: *Both timers (Simple and Flashing) work independently from each other as from the "**On/Off**" control, since these are all managed from three different Communications objects.*

*By sending an ON order to the object "**Timer**", a scheduled ON begins. If before the time for the ON comes to its end a new OFF order is sent to the object "**ON/OFF**", the output will turn off finishing the previous set timer.*

- **SIMPLE TIMER** -7 This is applied in the output when an ON or OFF order is received through the objet **"Timer"**.

  ./ **ON DELAY**-7 Time to pass since the ON order is sent (through the object **"Timer")** and the (ON) response in the output takes place.

  ./ **OFF DELAY**-7 Time to pass since the OFF order is sent (through the object **"Timer")** and the (OFF) response in the output takes place.

  ./ **ON DURATION**-7 Time the output remains ON before recovering the OFF status. A "**0**" set in this field means the Output will remain always ON, no timing is applied in the output.

Note: *Sections mentioned above are detailed next:*

*- By sending a "**1**" to the object" **Timer**", an order to apply the **"On Delay"** and the **"On Duration"** in the corresponding output is sent.*

*- By sending a "**0**" to the object" **Timer**", an order to apply the **"Off Delay"** in the corresponding output is sent.*

./ **MULTIPLY**-7 Consists in multiplying a timer as many times as a "**1**"or a "**0**" is received through the object "**Timer**".

Note: *The way the multiply parameter works is detailed next:*

- No Multiply: When value "1" is received by object "Timer" while a simple ON timer is still running, the ACTinBOX resets its counter to 0 to restart counting again. The same happens with "0" and timer off.

- Multiply: When value "1" is received by object "Timer"while a simple ON timer is still running, the ACTinBOX will count double time. If another "1" is received before the ON timer ends, the ACTinBOX will count triple time and so on…. The same happens with "0" and timer off.

- **FLASHING** -7 This function is meant for the output to run the sequence ON-OFF-ON-OFF…. when needed

  ./ **ON DURATION**-7 Set the On duration time in the sequence.

  ./ **OFF DURATION**-7 Set the off duration time in the sequence.

  ./ **REPETITIONS**-7 Set the number of repetitions in the sequence. For an unlimited value, set **"0"** in this field.

  ./ **STATUS AFTER LAST REPETITION**-7 To set the output status after the last repetition in the sequence took place.

Note: *Flashing starts by sending a "**1**" to the object "**Flashing**", and stops by sending a **"0"**.*

2.2.2.3. SCENES

This function makes possible to use a standard (1 byte) scene object to control the outputs.

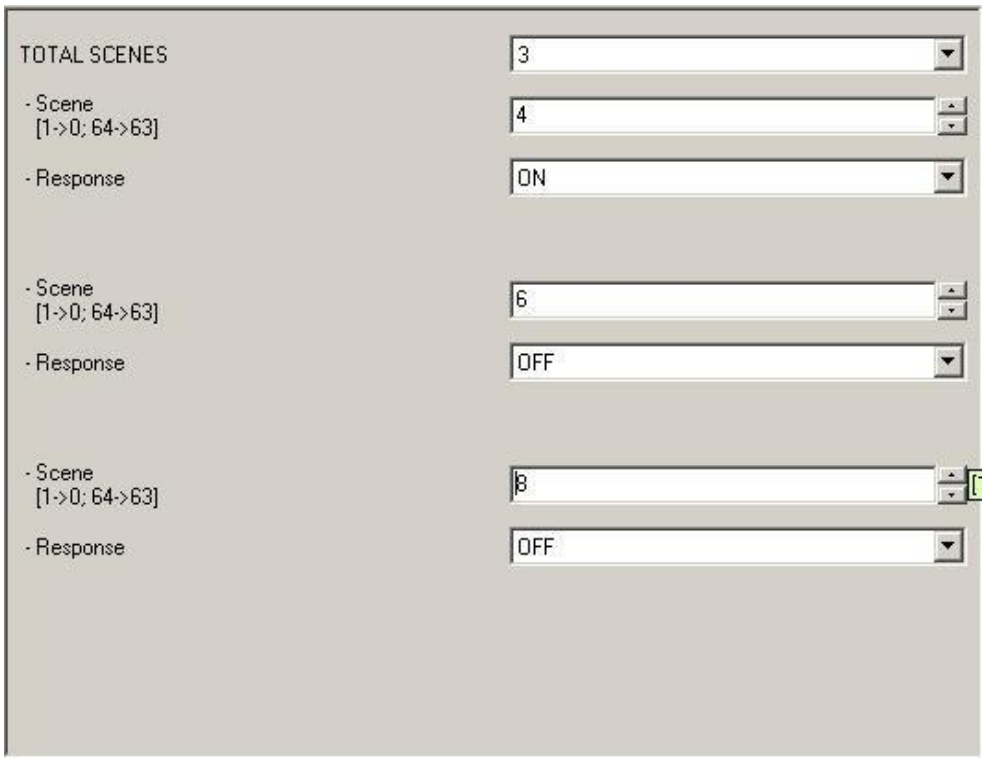
- **Nº OF SCENES** -7 To choose the total number of scenes to be used; up to a maximum of five scenes can be set in this field.
- **SCENE**-7 Set the Scene number.
- **RESPONSE**-7 To set the exact output response (On / Off) when the corresponding scene number is called from the BUS.

Example: *Consider a facility where 4 scenes will be used (**4, 6, 8 & 9**), but only three of the outputs will be controlled from the ACTinBOX QUATRO*

- **Scene 4** *ON*
- ***Scene 6*** *ON*

*- **Scene 8** OFF*

Parameterization of the device in this case should remain as follows



2.2.2.4. BLOCK

This function makes possible to **"block"** an output by disabling its control. Output will be blocked by sending a "**1"** to the corresponding object in the channel.

Note: *Only the Alarm function is higher priority than the block one. This means that , if output in the channel is blocked and the Alarm goes On, the output shall be carried to the Alarm parameterized position. When Alarm goes off, the output is blocked again. To unblock the output it's necessary to send a **"0"** to the object **"Block"**.*

2.2.2.5. ALARM

This function is designed for cases in which the ACTinBOX must response to an alarm situation. When an alarm occurs, this function sets the output in the previously parameterized position, and after this, output is blocked (it won't be controllable until Alarm goes off).

- **TRIGGER VALUE** -7 Set the value to activate the Alarm status. An Alarm status will be activated when the value set in this field is sent to the object Alarm (or Alarm 2). The opposite of the **"trigger"** value is the **"Passive"** value.

- **CYCLICAL MONITORING** -7 To be sure that the sensor works properly and the alarm is not activated, the sensor to send the **"Trigger Value"** to the ACTinBOX, shall continuously send the **"Passive Value"** to the BUS when there is no alarm active. It is in this case that this parameter should be enabled; this way, if the ACTinBOX doesn´t get the **"passive value"** during the parameterized

- **CYCLE TIME**, alarm will be automatically activated

Note: *It's recommended to set a time higher than double sensor cycle time, to avoid alarm frames missing.*

- **RESPONSE** -7 Set the response of the actuator channel output when the alarm is activated. When the **"Flashing"** response is set in this field, new parameters will appear in the ETS parameterization environment:

  ./ **ON DURATION**-7 Set the On duration time in the sequence.

  ./ **OFF DURATION**-7 Set the Off duration time in the sequence.

  ./ **REPETITIONS**-7 Set the number of repetitions in the sequence. For an unlimited value, set **"0"** in this field.

  ./ **STATUS AFTER LAST REPETITION** -7 To set the output status after the last repetition in the sequence took place.

- **DESACTIVACIÓN** -7 Two different methods to activate an alarm:

  ./ **NORMAL**-7 By sending the **"Passive value"** (opposite to the Trigger one) to the object **"Alarm".**

  ./ **FROZEN**-7 Consists in applying the normal method to later send a **"1"** to the object "**Unfreeze alarm**". This method makes the channel output remains blocked even when the alarm status is finished; in this case it will be necessary then that the output is manually enabled from another point in the installation.

- **END** -7 This parameter sets the output response when the alarm status is finished.

2.2.2.6. START UP CONFIGURATION

This function is meant to define the behaviour (ON / OFF) of the channel output after a BUS Power Failure, or after programming the device with the ETS.

- **INITIAL POSITION** -7 This field is to define the exact initial position for the channel output after a BUS Power Failure. After programming the device with the ETS, option **"current position"**

means output OFF (relay open) for normally open outputs, and output OFF (relay closed) for normally closed outputs.

- **UPDATE** -7 By enabling this field, the output initial status signal can be sent to the BUS to feedback the rest of devices in the installation when needed.

- **START UP SENDING DELAY**-7 As some devices in the installation may take longer to restart after a Power Failure, this field allows setting a delay in seconds for the initial configuration to be sent to the BUS, in order to ensure the rest of devices in the installation are ready to receive the corresponding telegrams.

3. LOGICAL FUNCTIONS

This section in the **ACTinBOX** is meant to perform **binary logic operations with incoming data from the BUS**, to send the RESULT through other Communication Objects specifically enabled in the actuator for this operation. These Functions work with two different types of data:

- **BUS**, through special Communication Objects enabled for these functions.
- **Internal variables**, to store the intermediate partial operation RESULTS.

Y **LOGICAL FUNCTIONS SELECTION** -7 up to five different logical functions can be enabled.

  - FUNCTION 1……5

Y **TOTAL DATA ENTRY OBJECTS** -7 It is necessary to define the number of Data Entry Objects of each type necessary to be used in all functions.

  - **1 BIT (16 available objects)** -7 It is necessary to previously define the number of 1 bit objects to be used as data entry in the function operations.
  - **1 BYTE (8 available objects)** -7 It is necessary to previously define the number of 1 byte objects to be used as data entry in the function operations.
  - **2 BYTES (8 available objects)** -7 It is necessary to previously define the number of 2 byte objects to be used as data entry in the function operations.

Note I: *Also available as internal variables to store partial results in the operations:*

- 16 "1 bit" variables
- 8 "1 byte" variables
- 8 "2 bytes" variables

Note II: *It is necessary to previously define by parameter the number of data entry objects to be used in the functions before these appear on the ETS environment.*

Note III: *It is always recommended to define more data entries than needed, as a later redefinition involves the deletion of the possible Group addresses association previously made; with the consequent loss of time to re-associate them all again.*

3.1. CALL

This section is meant to select the objects to trigger the FUNCTION execution. Up to 8 different objects may be selected.

Note: *For the FUNCTION to be executed, it will be necessary that at least one of the enabled objects in this section is updated. It is not necessary that the objects in charge of triggering the function execution are included in it.*

3.2. OPERATIONS

This section is meant to define the operations to be performed in every enabled FUNCTION. Up to 4 different operations can be enabled

- **OPERATION**-7 Enable the corresponding operation
- **TYPE** -7 4 different operation types:
    - **Logic**-7: 1 bit available logical operations are **ID, AND, OR, XOR, NOT, NAND, NOR y NXOR**. All of them work with 2 different values (except **ID** and **NOT**). These values can be chosen from the available **16 1 bit objects**, and the **16 1 bit internal variables**. In this case, the operation RESULT is also a 1 bit value that can be stored in any of the 16 available 1 bit internal variables.
    - **Arithmetic (1 byte/2bytes (unsigned integer)/2bytes (Floating point)-7:** Depending on the chosen type, these operations will work with 1 byte or 2 bytes values. Users can choose among the following arithmetic operations: **ID, ADD, SUBSTRACT, MULTIPLY, DIVIDE, MAXIMUM y MINIMUM**. All of them work with two values (excepto **ID**); these can be chosen from the available objects, variables or a constant value chosen by parameter. The RESULT in the arithmetic opeation will be 1byte or 2 bytes, (depending on the operation). This RESULT can be stored in any of the 8 corresponding variables.

Note: *Arithmetic Operations (2 bytes unsigned integer) work with data in the range (0……65535). Constants set in the corresponding parametrizable field use format 1X (i.e. Value=4000 Parameter=4000).*

Note I: *Arithmetic operations (2 bytes Floating point) work with data in the range (0……120). Constants set in the corresponding parametrizable field use format 0.1X (i.e. Value=22.5 Parameter=225).*

Note II: *If the RESULT in the 2 bytes Arithmetic operations exceed the permitted range, this will be converted to the corresponding limit in the range. Dividing by "0" doesn´t send anything to the BUS.*

- **Comparison (1 byte/2bytes (unsigned integer)/2bytes (Floating point)** -7: These operations work with 1 byte or 2 bytes values, depending on the chosen type. Users in this case can choose among the following comparision operations: **HIGHER, HIGHER OR EQUAL, LOWER, LOWER OR EQUAL, EQUAL, UNEQUAL**. All of them work with two values to be chosen hmong the available objects, values or constant values chosen by parameter. The RESULT in the operation is a 1 bit type ("1" si se cumple la comparación y "0" si no se cumple).This RESULT can be stored in any of the 16 1 bit available variables.
- **Conversión (1 bit/1 byte/2bytes (unsigned integer)/2bytes (Floating point)**-7: To convert the Communication Objects between formats.

CONVERSION FUNCTION DESCRIPTION

Specific information on the conversion function is detailed next:

- "**CONVERSION**" (1 bit -7 1byte)

1bit	1byte
0	00000000
1	00000001

- **"CONVERSION"** (1bit -7 2bytes unsigned integer)

1bit	2bytes unsigned integer
0	00000000 00000000
1	00000000 00000001

- **"CONVERSION"** (1 bit -7 2 bytes Floating point)

1bit	2 bytes Floating point
0	0
1	0,1

- **“CONVERSION”** (1 byte -7 1 bit)

1byte	1bit
0	0
1..255	1

- **“CONVERSION”** (1 byte -7 2 bytes unsigned integer)

1byte	2bytes
$00	$00 00
$01	$00 01
…	…

$FF	$00 FF

- **“CONVERSION”** (1 byte -7 2 bytes Floating point)

1byte	2 bytes Floating point
0	0
1	0.1
255	25.5

Note: *Conversion limit in this case is 25.5*

- **“CONVERSION”** (2 bytes unsigned integer -7 1 bit)

2bytes unsigned integer	1bit
0	0
1..65535	1

- **“CONVERSION”** (2 bytes unsigned integer -71 byte)

2 bytes unsigned integer	1byte
$00 00	$00
$00 01	$01
…	…
$00 FF	$FF
> $00 FF	$FF

- **“CONVERSION”** (2 bytes unsigned integer-7 2 bytes Floating point)

2bytes unsigned integer	2 bytes Floating point
0	0
1	0.1
…	…
1200	120
>1200	120

- [illegible] (2 bytes Floating point -7 1 bit)

2 bytes Floating point	1bit
0	0
0,1…….120	1

- **“CONVERSION”** (2 bytes Floating point -71 byte)

2 bytes Floating point	1byte
0	0
0,1… 25,5 .	1..255
> 25,5	255

- [illegible] (2 bytes Floating point -7 2 bytes unsigned integer)

2 bytes Floating point	2bytes unsigned integer
0	0
0.1	1
…	
120	1200
>120	1200

Y **OPERATION RESULT**-7 To define the variable to store the operation result.

3.3. RESULT

This section is meant to tell the ACTinBOX where to store and what to do with the RESULT obtained in the previous sections.

Y **TYPE**-7 Choose among 1 bit, 1 byte or 2 bytes (Unsigned integer) / (Floating point).

Y **VALUE**-7 Set the variable where the RESULT will be stored.

Note: *Please notice that all the storing variables are shared with all the possible functions/operations in the ACTinBOX, this means that a specific variable used to store the RESULT in an operation/function, should not be used to store a different result.*

- **SENDING**: Set the conditions to send the RESULT to the BUS.
  - **Result is different from last sent**: The RESULT will be sent every time the final RESULT in the operations changes.
  - **Whenever the function is executed**: The RESULT will be sent every time the FUNCTION is executed.

*Note: This parameter is related with section **CALL** (see pag Nº 35); actualy the RESULT will be sent every time the FUNCTION is executed, but the FUNCTION will only be executed when at least one of the enabled objects in the section CALL is updated.*

  - **Periodical sending**: The result will be periodically sent depending on the time set in the **CYCLE TIME** field.

- **RESTRICTION** The sending of the **1 bit functions RESULT** can be restricted to ("**0**" or "**1**"). **1 byte and 2 bytes functions RESULT** sending can be also restricted depending on the following options:
  - Values equals reference one
  - Values not equal to reference one
  - Values lower than reference one
  - Values higher than reference one
  - **Reference Value**: For the **RESULT Type = 1 byte**, possible reference value range is **[0…..255]**. For the **RESULT Type = 2 bytes**, possible reference value range is **[0……65535]**

- **DELAY** Time to pass before sending the RESULT to the BUS. If no delay is needed please set value "0" in this field.

- **INTERNAL LINKS** To internally link the function result with the rest of the objects in the ACTinBOX.
  - **Outputs**: When RESULT is 1 bit type, this can be sent to any 1 bit objects in the outputs.
  - **Shutter Channel**: When RESULT is 1 bit type, this can be sent to any shutter channel control object.
  - **Logical Functions**: The function RESULT can be always sent to any of the Logical Functions data entry objects (this way, the result can be also used by any other function in the actuator).

4. COMMUNICATIONS OBJECTS

Communication Objects in the Logical Function section can be two types:

- **DATA**-7 Data coming from the BUS, these are the data the operations work with.
- **RESULTS**-7 These are the Functions RESULTS. Depending on its size, these are divided in 3 types: 1 bit, 1 byte and 2 bytes.

4.1.NOMENCLATURE:

- **DATA OBJECT TYPE**

  [LF] Data ("size") "X" where size can be 1 bit, 1 byte or 2 bytes; and "**X**" is the Data number (1…..16 for 1 bit data, 1…..8 for 1 byte & 2 bytes).

- **RESULT OBJECT TYPE**

  [LF] RESULT FUNCTION "X" ("size"). Where size can be 1 bit, 1 byte or 2 bytes (depending on the data function result), and "**X**" is the function number (1….5).

- **INTERNAL VARIABLES**

  b1,……, b16 (1 bit type)

  n1,……, n8 (1 byte type)

  x1,……, x8 (2 bytes type)

ANNEX I: COMMUNICATION OBJECTS

SECTION	NUMBER	SIZE	IN/OUT	FLAGS	VALUES			NAME	DESCRIPTION
					RANGE	1ST TIME	RESET		
INDIVIDUAL OUTPUTS	0-3	1bit	I	W	0/1	No difference	No difference	[Sx] ON/OFF	N.A. (0=Open Relay; 1=Close) N.C. (0=Close Relay; 1=Open)
	4-7	1 bit	O	R-T	0/1	Parameter	Parameter	[Sx] Status	0=Output OFF; 1=Output ON
	8-11	1 bit	I	W	0/1	No difference	No difference	[Sx] Timer	0=OFF Timer;1=ON Timer
	12-15	1 bit	I	W	0/1	No difference	No difference	[Sx] Flashing	1=Flashing; 0=End Flashing
	16-19	1byte	I	W	0-63 128-192	No difference	No difference	[Sx] Scenes	0-63(Esc. 1-64);128-191(Save.)
	20-23	1 bit	I	W	0/1	0	Previous	[Sx] Block	1=Block; 0=Unblock
	24-27	1bit	I	W	0/1	Parameter	Previous	[Sx] Alarm	1=Alarm; 0=No Alarm 0=Alarm; 1=No Alarm
	28-31	1 bit	I	W	0/1	No difference	No difference	[Sx] Frozen	Alarm=0+Encl.=1 -> Alarm end
SHUTTER CHANNEL	32-33	1 bit	I	W	0/1	No difference	No difference	[Cx] Raise/Lower	0=Raise; 1=Lower
	34-35	1bit	I	W	0/1	No difference	No difference	[Cx] Stop	0 ó 1 = Stop Shutter
								[Cx] Stop/Step	0=stop/step up; 1=stop/step down
	36-37	1byte	O	R-T	0/1	0	Calcular	[Cx] Current position	0=0%=Up; 255=100%=Down
	38-39	1byte	I	W	0-255	No difference	No difference	[Cx] Specific Position	0=0%=Up; 255=100%=Down
	40-41	1byte	I	W	0-255	No difference	No difference	[Cx] Scenes	0-63(Esc. 1-64);128-191(Save.)
	42-43	1 bit	I	W	0-63 128-192	0	Previous	[Cx] Block	1=Block; 0=Unblock
	44-45	1bit	I	W	0/1	Parameter.	Previous	[Cx] Alarm	1=Alarm; 0=No Alarm 0=Alarm; 1=No Alarm
	46-47	1bit	I	W	0/1	Parameter.	Previous	[Cx] Alarm 2	1=Alarm; 0=No Alarm 0=Alarm; 1=No Alarm
	48-49	1 bit	I	W	0/1	No difference	No difference	[Cx] Frozen	Alarm=0+Encl.=1 ->Alarm end
	50-51	1 bit	I	W	0/1	No difference	No difference	[Cx] Reversed moving	0=lower; 1=Raise
	52-53	1 bit	I	W	0/1	No difference	No difference	[Cx] Direct positioning	1=go to position; 0=Nothing
	54-55	1 bit	I	W	0/1	No difference	No difference	[Cx] Direct Positioning 2	1=go to position 2; 0=Nothing
	55-57	1 bit	I	W	0/1	No difference	No difference	[Cx] Save Position	1=Save Positionn; 0=Nothing
	58-59	1 bit	I	W	0/1	No difference	No difference	[Cx] Save position 2	1=Save Position 2; 0=Nothing
LOGICAL FUNCTIONS	60-75	1bit	I	W	0/1	0	Previous	[FL] Data (1bit) 1 ... [FL] Data (1bit) 16	Binary data entry (0/1) ... Binary data entry (0/1)
	76-83	1byte	I	W	0-255	0	Previous	[FL] Data (1byte) 1 ... [FL] Data (1byte) 8	Data de entr. de 1byte (0-255) ... Data de entr. de 1byte (0-255)
	84-91	2bytes	I	W	0-FFFF	0	Previous	[FL] Data (2bytes) 1 ... [FL] Data (2bytes) 8	Data de entr. de Temperature ... Data de entr. de Temperature
	92-96	1bit	O	R-T	0/1	0	Previous	[FL] RESULT FUNCTION 1 (1bit) ... [FL] RESULT FUNCTION 5 (1bit)	FUNCTION Result 1 ... FUNCTION Result 5
	97-101	1byte	O	R-T	0-255	0	Previous	[FL] RESULT FUNCTION 1 (1byte) ... [FL] RESULT FUNCTION 5 (1byte)	FUNCTION Result 1 ... FUNCTION Result 5
	102-106	2bytes	O	R-T	0ºC-120ºC	25ºC	Previous	[FL] RESULT FUNCTION 1 (2bytes) ... [FL] RESULT FUNCTION 5 (2bytes)	FUNCTION Result 1 ... FUNCTION Result 5
RESET	107	1bit	O	T	O	O	O	Reset 0	Power recover->Send 0
	108	1bit	O	T	1	1	1	Reset 1	Power recover->Send 1

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