

Sun shading actuator KNX Actuator 1MPF.4 UP

Software Manual



Der SonnenLichtManager



General information

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Contact

Customer Centre Control Systems

Sales, order processing and applied engineering

Tel. +49 (0) 9391 20-3750 • Fax -3759

info.steuersysteme@warema.de

International

Tel. +49 (0) 9391 20-3740 • Fax -3749

steuerungssysteme.international@warema.de

Control Systems Helpline

Tel. +49 (0) 9391 20-9317 • Fax -6769

service@warema.de

Building automation systems sales

Dillberg 33, 97828 Marktheidenfeld

Tel. +49 (0) 9391 20-3720 • Fax -3719

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1 Description

The KNX actuator 1MPF.4 UP with integrated facade control has a multi-functional output, to which either a drive with Up/Down control (venetian blinds, awnings, windows) or two switchable power consumers (On/Off) are connected. The floating design of the output allows other systems to be controlled too, e.g using the manual switch input of a motor control device. Scenes can be saved and recalled via the bus (scene control with 16 scenes).
4 digital inputs are provided for connecting binary contacts.

Functions:

- ▶ Floating multifunctional output for a 230 V drive (shading, window) or for connecting two switchable devices (light)
- ▶ 4 binary inputs
- ▶ Position feedback on moving position
- ▶ Position memory (moving position) via 1 bit object (storage and recall via button, for example)
- ▶ Scene control with 16 scenes
- ▶ Safety objects of different priority with cyclical monitoring
- ▶ Activation or deactivation of the automatic inputs (e.g. sun control, slat tracking) with parameterisable control mode return function

The device is configured using the KNX software ETS 5 (Engineering Tool Software). The product database required for this (.knxprod) can be found in the online catalogue of the ETS or on the Internet at <http://www.warema.de/knx>.

Scope of delivery

- ▶ Actuator
- ▶ Braided hose for KNX line and inputs
- ▶ Connecting line for inputs

1.1 Technical data

Housing	Plastic
Colour	White
Installation	Flush-mounted (in electronics box); The housing of the device must not be opened
Degree of protection	IP 00
Dimensions	∅ approx. 53 mm, depth approx. 24 mm
Total weight	< 40 g
Ambient temperature	Operation -5...+45°C, Storage -30...+85°C
Ambient humidity	5... 80% RH, not condensing
Operating voltage	KNX bus voltage
Current consumption from KNX bus	Relays not pulled in: 12 mA 2 relays pulled in: 25 mA
Output switching capacity	5 A, maximum 270 V AC/30 V DC
Inputs	4x digital, max. line length 10 m
Data output	KNX +/- bus plug terminal
Medium	TP1-256
Configuration Mode	S-Mode
Group addresses	max. 254
Allocations	max. 254
Closing contact	μ (<1.2 mm)
Switching current (in ohms)	max. 4 A
Total current	max. 4 A (protected with integrated T4A/250 V fuse)
Motor	max. 600 VA
LEDi (SBL) Lamps per contact	max. 15 W
Fluorescent lamps / CFL/ LED (EVG) per contact	max. 36 W
Overvoltage category	III
Article number	2031050

The product conforms with the regulations of the EU directives.

2 Installation and commissioning

2.1 Installation information



WARNING

Only certified electricians (according to VDE 0100) may install, deinstall, examine, commission and troubleshoot the device.



CAUTION

Electrical voltage!
There are unprotected live components inside the device.
Observe the VDE regulations.

De-energise all lines to be connected and take safety precautions against accidental switch-on.
Do not commission the device if it is damaged.

Deactivate the device or unit and secure against accidental operation if hazard-free operation cannot be guaranteed.

The device is intended for proper use only. All warranties expire if the device is subjected to any improper adjustment or if the operating instructions are not complied with.

- The device must be inspected for potential mechanical damage immediately after being unpacked. If the device has been damaged during transport, the supplier must be notified of this immediately.
- The device may only be used as a fixed installation, i.e. only when fully assembled, after all installation and commissioning procedures are completed, and only in the intended surroundings.

WAREMA Renkhoff SE cannot be held liable for any changes to the norms and standards after publication of the operating instructions.

2.2 Information on installation and commissioning

- Never expose the device to water (rain). This can damage the electronics. The relative humidity may not exceed 95%. Avoid condensation.

After the bus voltage is applied, the device performs an initialising phase lasting a few seconds. No information can be received or sent by the bus during this time.

- In the case of KNX devices with safety functions (for example a wind or rain barrier), cyclical monitoring of the safety objects must be set up.

2.3 Instructions for use



WARNING

Risk of injury due to automatically moved components!

The automatic control may cause system parts to start up and put people in danger.

- Keep movement range of drives/curtains clear.
- Ensure that the return path/access is not blocked when outside the building (risk of being locked out).
- Put unit properly out of operation during maintenance and cleaning work.

NOTICE The system cannot function if the power fails. For this reason, shading should, for example, be moved into a safe position in good time when bad weather conditions are pending, unless this has already been carried out by the control function (product protection).

NOTICE If the 230 V AC operating voltage fails, the connected drive is switched off. If the operating voltage returns, the power consumer remains switched off until a new move command is received from the actuator.

2.4 Maintenance

The device must be regularly examined for proper function. There are no parts inside the device that require maintenance.

2.5 Connection

The KNX Actuator 1MPF.4 UP is installed flush mounted in a electronics box. The housing of the device must not be opened. It is connected to the KNX data bus via a KNX connection terminal. A power supply is also required for the connected drive and/or the power consumers (floating output).



CAUTION

During installation and line routing on the KNX connection and the inputs, observe the regulations and standards applicable for SELV power circuits! The connections of the binary inputs including the auxiliary voltage output comply with the requirements for SELV power circuits. A mixed installation with non-SELV circuits or the mixing of different auxiliary voltages is not permitted

2.6 Device structure

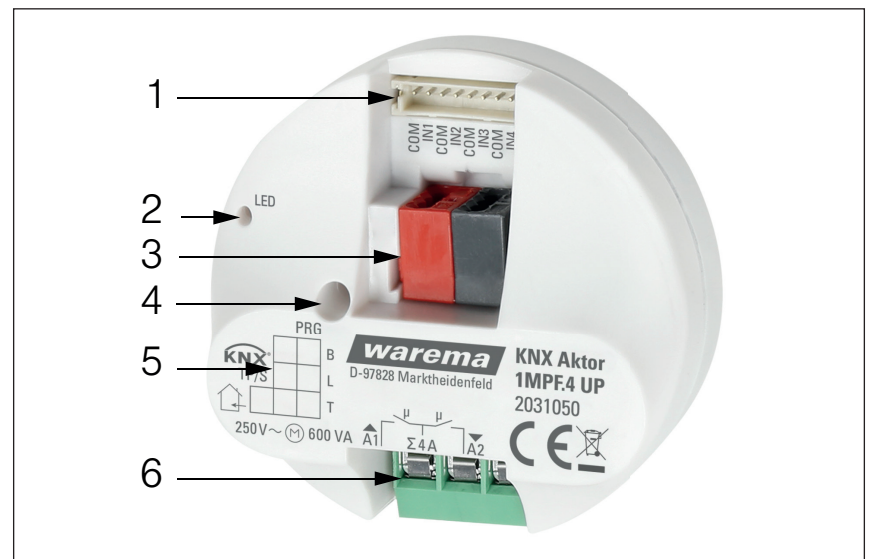



Fig. 1 View with connections

- ① Binary inputs: Slot for cable whip
- ② Programming LED (recessed)
- ③ KNX plug terminal +/-
- ④ Programming button (recessed)
- ⑤ Label field
- ⑥ Connection terminal for drive/power consumer (floating),
 U_A : voltage, maximum 270 V AC
 Up/A1: Switch motor upwards or power consumer 1
 Down/A2: Switch motor downwards or consumer 2

The physical address is assigned by ETS. The actuator is equipped with a push button, with control LED for this purpose.

Use the accompanying connecting line to connect the digital inputs (Fig. 1, No. 1). The lines for the inputs can be extended up to 10 m. All COM connections of the inputs are bridged internally (black lines).

2.7 Connecting line for digital inputs:

	Input 1: black (COM) / white
	Input 2: black (COM) / yellow
	Input 3: black (COM) / violet
	Input 4: black (COM) / blue

2.8 Output connection examples

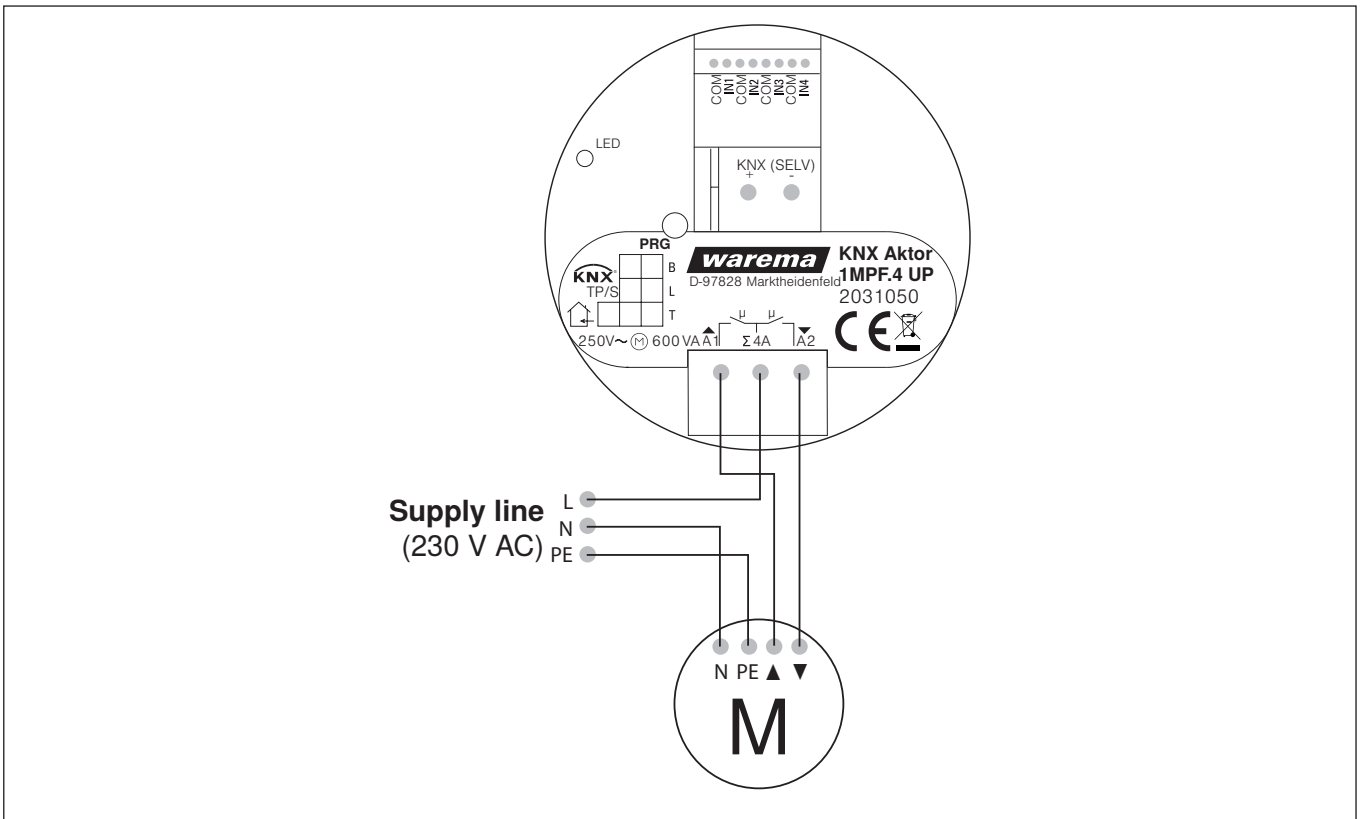


Fig. 2 Drive 230 V AC

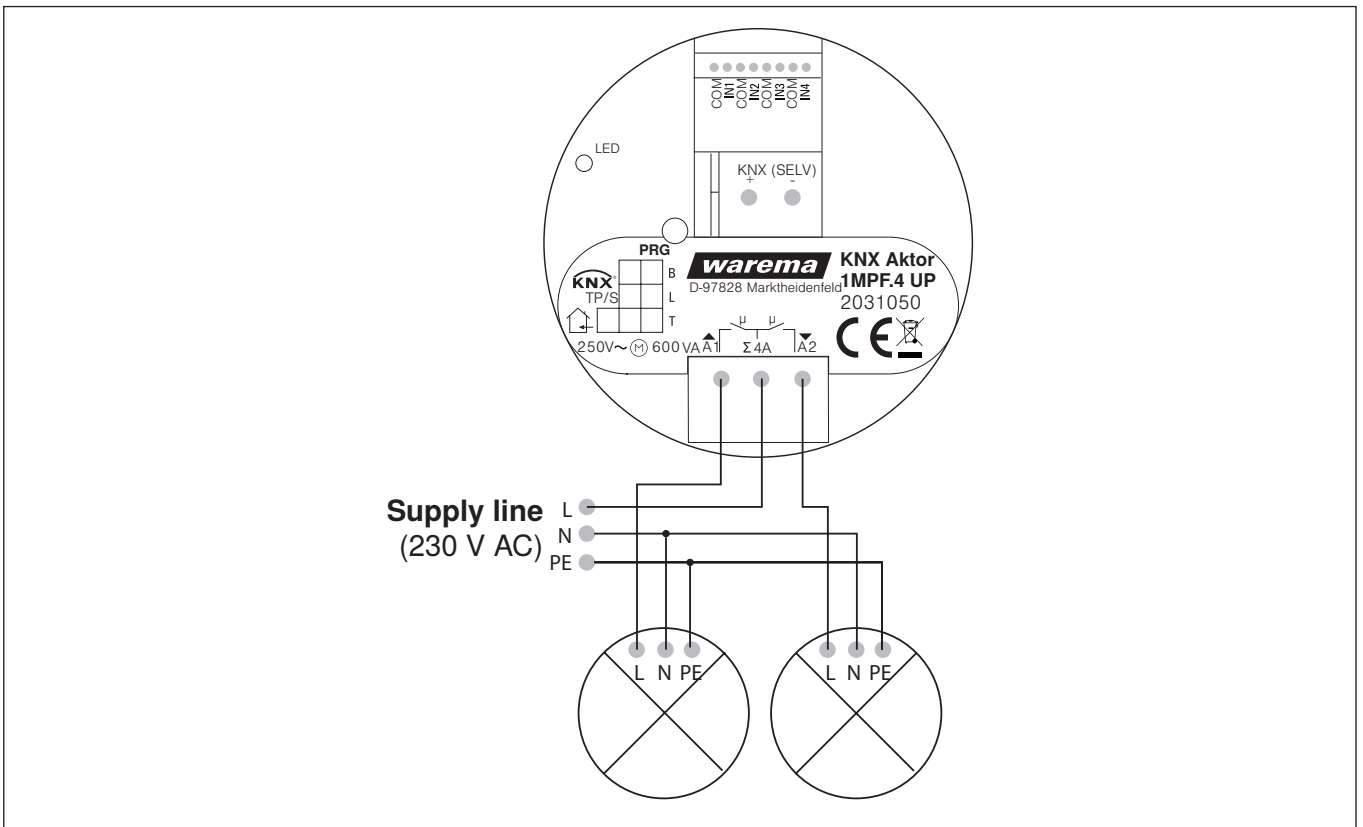


Fig. 3 2 consumers 230 V AC

2.9 Connection example inputs

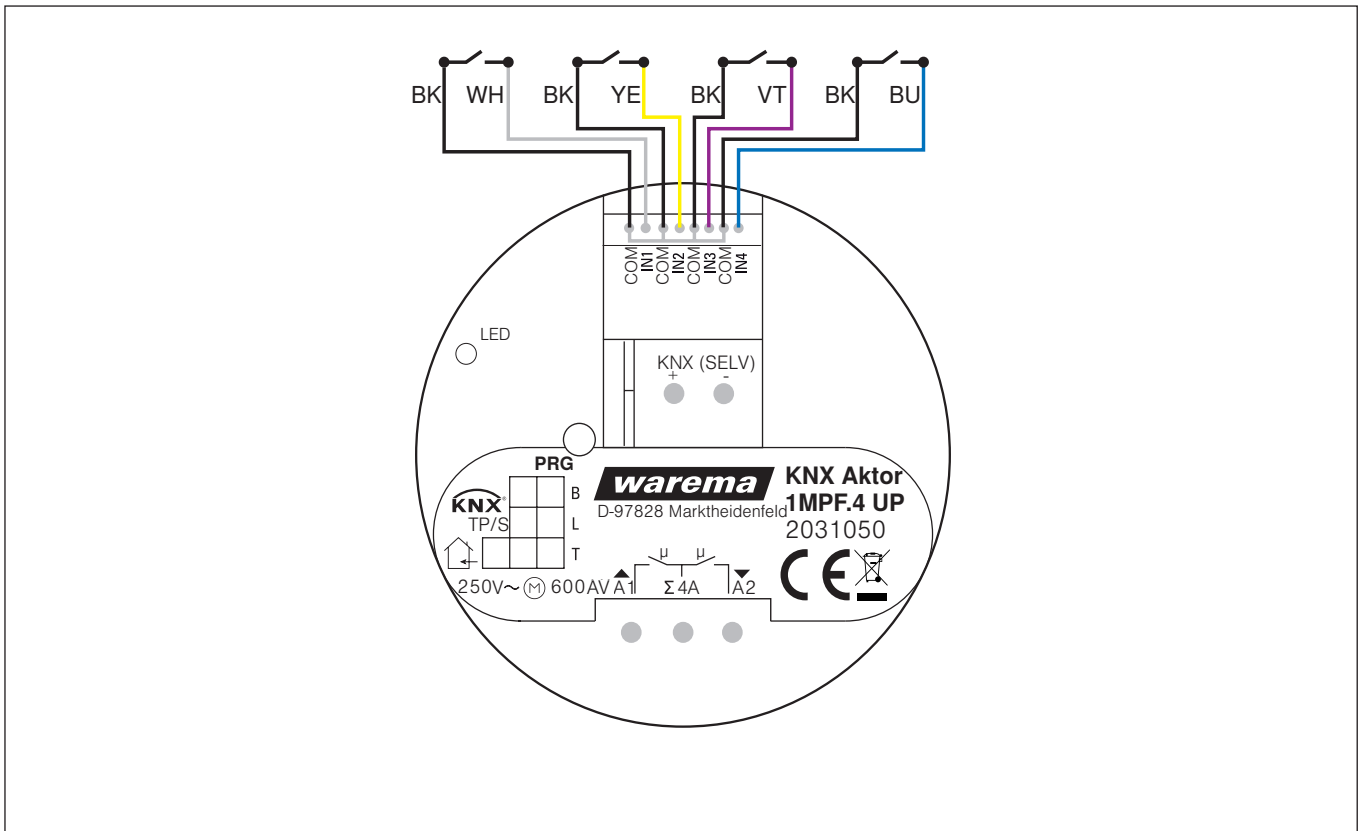


Fig. 4 Connection example with four push buttons

2.10 Information on installation and commissioning

Never expose the actuators to water (rain) or dust. This can damage the electronics. The relative humidity must not exceed 80%. Avoid condensation.

After the bus voltage is applied, the device performs an initialising phase lasting a few seconds. No information can be received or sent by the bus during this time.

In the case of KNX devices with safety functions (for example a wind or rain barrier), cyclical monitoring of the safety objects must be set up. A ratio of 1:3 is optimal (example: if the weather station transmits a value every 5 minutes, the monitoring time in the actuator should be set to 15 minutes).

2.11 Addressing device to bus

The device is delivered with the bus address 15.15.255. Another address can be programmed in the ETS by overwriting the address 15.15.255, or learned in using the programming button.

On the device there are a push-button and a control LED (Fig. 1 on page 9, No 2+4).

3 Transmission protocol

3.1 List of all group objects

Flag abbreviations:

K Communication
 L Read
 S Write
 Ü Transmit
 DPT Data Point Type

No.	Text	Function	Flags	DPT type	Size
0	Software version	Readable	R-C—	[217.1] DPT_Version	2 bytes
1	Output 1	Status automatic or manual mode	R-CT—	[1.1] DPT_Switch	1 bit
2	Output 1	Up/down movement command for manual	RWC—	[1.8] DPT_UpDown	1 bit
3	Output 1	Stop/Step movement command for manual	RWC—	[1.8] DPT_UpDown	1 bit
4	Output 1	Approach curtain length for manual	RWC—	[5.1] DPT_Scaling	1 byte
5	Output 1	Approach slat position for manual	RWC—	[5.1] DPT_Scaling	1 byte
6	Output 1	Up/down movement command for automatic	RWC—	[1.8] DPT_UpDown	1 bit
7	Output 1	Stop/Step movement command for automatic	RWC—	[1.8] DPT_UpDown	1 bit
8	Output 1	Approach curtain length for automatic	RWC—	[5.1] DPT_Scaling	1 byte
9	Output 1	Approach slat position for automatic	RWC—	[5.1] DPT_Scaling	1 byte
10	Output 1	Change from manual to automatic mode	RWC—	[1.1] DPT_Switch	1 bit
11	Output 1	Automatic mode blocking object	RWC—	[1.1] DPT_Switch	1 bit
12	Output 1	Status curtain length	R-CT—	[5.1] DPT_Scaling	1 byte
13	Output 1	Status slat position	R-CT—	[5.1] DPT_Scaling	1 byte
14	Output 1	Leave upper end position	R-CT—	[1.1] DPT_Switch	1 bit
15	Output 1	Approach position memory for manual	RWC—	[1.1] DPT_Switch	1 bit
16	Output 1	Learn object position memory for manual 0	RWC—	[1.1] DPT_Switch	1 bit
17	Output 1	Learn object position memory for manual 1	RWC—	[1.1] DPT_Switch	1 bit
18	Output 1	Approach position memory for automatic	RWC—	[1.1] DPT_Switch	1 bit
19	Output 1	Learn object position memory for automatic 0	RWC—	[1.1] DPT_Switch	1 bit
20	Output 1	Learn object position memory for automatic 1	RWC—	[1.1] DPT_Switch	1 bit

No.	Text	Function	Flags	DPT type	Size
21	Output 1	Call up / saving scenes	RWC—	[18.1] DPT_Scene-Control	1 byte
65	Output 1	Zero position reached	RWC—	[1.1] DPT_Switch	1 bit
67	Output 1	Master zero position status	R-CT—	[1.1] DPT_Switch	1 bit
68	Output 1	Master zero position command	R-CT—	[1.1] DPT_Switch	1 bit
69	Output 1	Slave zero position status	RWC—	[1.1] DPT_Switch	1 bit
70	Output 1	Master zero position status	RWC—	[1.1] DPT_Switch	1 bit
71	Output 1	Master zero position command	RWC—	[1.1] DPT_Switch	1 bit
72	Output 1	Slave zero position status	R-CT—	[1.1] DPT_Switch	1 bit
73	Output 1	Drive running	R-CT—	[1.1] DPT_Switch	1 bit
75	Output 1	Safety object A	RWC—	[1.1] DPT_Switch	1 bit
80	Output 1	Safety object B	RWC—	[1.1] DPT_Switch	1 bit
85	Output 1	Safety object C	RWC—	[1.1] DPT_Switch	1 bit
90	Output 1	Safety object D	RWC—	[1.1] DPT_Switch	1 bit
95	Output 1	Safety object E	RWC—	[1.1] DPT_Switch	1 bit
100	Output 1	Movement limitation 1 - Blocking object	RWC—	[1.1] DPT_Switch	1 bit
101	Output 1	Movement limitation 2 - Blocking object	RWC—	[1.1] DPT_Switch	1 bit
103	Output 1A	Switching	RWC—	[1.1] DPT_Switch	1 bit
104	Output 1A	Feedback	R-CT—	[1.1] DPT_Switch	1 bit
105	Output 1A	Status	R-C—	[1.1] DPT_Switch	1 bit
106	Output 1A	Blocking object	RWC—	[1.1] DPT_Switch	1 bit
107	Output 1A	Start staircase light function	-WC—	[1.10] DPT_Start	1 bit
108	Output 1A	Start/Stop staircase light function	RWC—	[1.10] DPT_Start	1 bit
109	Output 1A	Linking	RWC—	[1.2] DPT_Bool	1 bit
110	Output 1A	Recall / storage of scenes	RWC—	[18.1] DPT_Scene-Control	1 byte
111	Output 1B	Switching	RWC—	[1.1] DPT_Switch	1 bit
112	Output 1B	Feedback	R-CT—	[1.1] DPT_Switch	1 bit
113	Output 1B	Status	R-C—	[1.1] DPT_Switch	1 bit
114	Output 1B	Blocking object	RWC—	[1.1] DPT_Switch	1 bit
115	Output 1B	Start staircase light function	-WC—	[1.10] DPT_Start	1 bit
116	Output 1B	Start/Stop staircase light function	RWC—	[1.10] DPT_Start	1 bit
117	Output 1B	Linking	RWC—	[1.2] DPT_Bool	1 bit
118	Output 1B	Call up / saving scenes	RWC—	[18.1] DPT_Scene-Control	1 byte
120	Input 1	Extended	RWCT—	[1.8] DPT_UpDown	1 bit
121	Input 1	Brief	R-CT—	[1.8] DPT_UpDown	1 bit

No.	Text	Function	Flags	DPT type	Size
122	Input 1	Switching	RWCT-	[1.1] DPT_Switch	1 bit
123	Input 1	Relative dimming	RWCT-	[3.7] DPT_Control_Dimming	4 bit
124	Input 1	8 bit encoder	R-CT-	[5] 5.xxx	1 byte
125	Input 1	Temperature encoder	R-CT-	[9.1] DPT_Value_Temp	2 bytes
126	Input 1	Brightness encoder	R-CT-	[9.4] DPT_Value_Lux	2 bytes
127	Input 1	Scene	R-CT-	[18.1] DPT_Scene-Control	1 byte
128	Input 1	Blocking object	RWC-	[1.1] DPT_Switch	1 bit
133	Input 2	Extended	RWCT-	[1.8] DPT_UpDown	1 bit
134	Input 2	Brief	R-CT-	[1.8] DPT_UpDown	1 bit
135	Input 2	Switching	RWCT-	[1.1] DPT_Switch	1 bit
136	Input 2	Relative dimming	RWCT-	[3.7] DPT_Control_Dimming	4 bit
137	Input 2	8 bit encoder	R-CT-	[5] 5.xxx	1 byte
138	Input 2	Temperature encoder	R-CT-	[9.1] DPT_Value_Temp	2 bytes
139	Input 2	Brightness encoder	R-CT-	[9.4] DPT_Value_Lux	2 bytes
140	Input 2	Scene	R-CT-	[18.1] DPT_Scene-Control	1 byte
141	Input 2	Blocking object	RWC-	[1.1] DPT_Switch	1 bit
154	Input 3	Extended	RWCT-	[1.8] DPT_UpDown	1 bit
155	Input 3	Brief	R-CT-	[1.8] DPT_UpDown	1 bit
156	Input 3	Switching	RWCT-	[1.1] DPT_Switch	1 bit
157	Input 3	Relative dimming	RWCT-	[3.7] DPT_Control_Dimming	4 bit
158	Input 3	8 bit sensor	R-CT-	[5] 5.xxx	1 byte
159	Input 3	Temperature sensor	R-CT-	[9.1] DPT_Value_Temp	2 bytes
160	Input 3	Brightness sensor	R-CT-	[9.4] DPT_Value_Lux	2 bytes
161	Input 3	Scene	R-CT-	[18.1] DPT_Scene-Control	1 byte
162	Input 3	Disable object	RWC-	[1.1] DPT_Switch	1 bit
163	Input 4	Extended	RWCT-	[1.8] DPT_UpDown	1 bit
164	Input 4	Brief	R-CT-	[1.8] DPT_UpDown	1 bit
165	Input 4	Switch	RWCT-	[1.1] DPT_Switch	1 bit
166	Input 4	Relative dimming	RWCT-	[3.7] DPT_Control_Dimming	4 bit
167	Input 4	8 bit encoder	R-CT-	[5] 5.xxx	1 byte
168	Input 4	Temperature encoder	R-CT-	[9.1] DPT_Value_Temp	2 bytes
169	Input 4	Brightness encoder	R-CT-	[9.4] DPT_Value_Lux	2 bytes
170	Input 4	Scene	R-CT-	[18.1] DPT_Scene-Control	1 byte
171	Input 4	Blocking object	RWC-	[1.1] DPT_Switch	1 bit

4 Setting of parameters



The factory settings in the actuator are underlined.

4.1 General settings

- First set the general parameters for the bus communication here (telegram rate, transmission delays). In addition, you can specify whether all or only the changed settings are transmitted onto the bus during the programming of scenes.

Maximum telegram rate	1•2• <u>5</u> •10•20 telegrams per second
Transmission delay of switching and status outputs after power return	<u>5</u> s...2 h
When scenes:	
Transfer when programming	<u>All parameter</u> • Only changed parameter

4.2 Output

Enter here what is connected to the output channel.

Operating mode	
Channel A controls	<ul style="list-style-type: none"> ▶ Blind ▶ Roller shutter ▶ Awning ▶ Window ▶ Double switch function

4.2.1 Channel settings - Drives

- If a drive is connected to an output channel, first set the general specifications for the drive here.

Motor rotation direction

When activated, the two relay outputs of the channel are actuated in the reverse direction.

Reverse motor rotation direction	<u>No</u> • Yes
----------------------------------	-----------------

Run time

The run time between the limit positions is the basis for moving to intermediate positions (for example for movement range limits and scenes). You can enter the run time numerically (in seconds).

Run time Down in s	1...320; <u>60</u>
Run time Up in s	1...320; <u>65</u>

If a dead time must be observed when moving the blind, this can be entered manually here.

- Observe the blind manufacturer's specifications.

Use dead times	► <u>No</u> ► Yes, enter manually
For positioning movement from the closed position in 10 ms (only for manually entry)	<u>0</u> • 600
For positioning movement from all other positions in 10 ms (only for manual input)	<u>0</u> • 600
For slat movement from a closed positions in 10 ms (only for manual input)	<u>0</u> • 600
For movement with change in direction in 10 ms (only for manually entry)	<u>0</u> • 600
For slat movement from all other positions in 10 ms (only for manual input)	<u>0</u> • 600

Step setting of slats (for venetian blinds only):

The step time multiplied by the number of steps results in the tilting time of the slats.

Step time in 10 ms	1...100; <u>20</u>
Number of step slats	1...255; <u>5</u>

If the short-term command for venetian blinds (step command) should only be used to adjust the slats, but not to position the blind, the following parameters are set to "Yes". The parameter only appears for venetian blinds.

Allow step commands only for slat adjustment	<u>No</u> • Yes
Break period for changing direction in 0.1 s	5...100; <u>10</u>

Status object and drive position

The status and current position can be transmitted on the KNX bus. The status object indicates that the drive is in motion by sending 1. The exact drive position can be transmitted on the bus if required. The adjustable delay prevents too many data packages blocking the bus in case of longer travel. In addition, the position can be transmitted cyclically.

Use status object*	<u>No</u> • Yes
Use drive position feedback	<u>No</u> • Yes
Transmission delay of position after change in 0.1 s (only in case of feedback)	0...50; <u>10</u>
Send drive position cyclically (only in case of feedback)	<u>No</u> • 5 s • 10 s • ... • 2 h

*"Drive moves" and "Leave upper limit position" objects

Scenes

Here, the scene menu for this output channel is activated.

Use scenes	<u>No</u> • Yes
------------	-----------------

See Chapter 4.2.1.4 *Scenes on page 25*.

4.2.1.1 Control

Adjust the behaviour of the drive here.

Movement range limit

The movement range limit is used to avoid two devices colliding (for example an awning and an opening window).

Of the two drives, one receives priority and is parameterised as the master and the other as the slave. Through zero position sensors, both actuators know their current own status and that of the other sensor. This is either "in safe position" or "not in safe position". The safe position is reached when the drive is located in a range where no collision is possible (for an awning for example, this could be extended by between 0 to 30%). To report the safe position of the drive, a zero position sensor (for example a limit position switch or light barrier) can be connected to the actuator inputs, or the actuator receives the message from its zero position sensor via the bus (see graphics in Chapter 4.2.2 on page 27).

Before the master actuator drive is moved, the slave actuator receives the command to move its drive into safe position. The slave drive then remains in safe position or moves back if it is not in the safe range.

Through the group object "Slave zero position status", the master actuator knows whether the drive connected to the slave actuator is already in safe position (in which case the master moves immediately) or not (in which case it waits). The master actuator does not move its drive out of its own safe position until it receives the message that the slave drive is in safe position.

Example

Ventilation via a window should take priority over shading through an awning. The window is therefore parameterised as master and the awning as slave. Both of these have a zero position sensor which reports whether the drive is in a safe position or not.

Then the awning is extended and the window should be opened. The window knows the awning status ("not safe position") and therefore forwards a master command to the awning, which is the signal for the awning to retract a short distance. When the awning reaches the safe position, an appropriate feedback is provided from the shading zero position sensor. Only then will the window open.



Master and slave regularly conduct exchanges regarding their position ("safe" or "not safe"). It is possible to use the monitoring time period to adjust how frequently the information is queried. The time selected here should be shorter than the time which the monitored drive requires to move from the limit of the safe range (last reported safe position) to a position where there is a risk of collisions.

In the event that a master/slave status or zero position object are not received, the drive moves into safe position; the same applies in case of bus voltage failure or a fault message from the zero position sensor (applies to the parameterisation as master and as slave).

Use motion range limitation	<u>No</u> • Yes
Zero position sensor	<ul style="list-style-type: none"> ▶ <u>Via group object</u> ▶ Do not use
Actuator is	<u>Master</u> • Slave

Actuator as master

Actuator is	Master
Transmission repeat for master command in s	1 ... 255; <u>10</u>
Monitoring time period for slave status and zero position object in s	1 ... 255; <u>10</u>

Actuator as slave

Actuator is	Slave
Monitoring time period for master status and zero position object in s	1 ... 255; <u>10</u>
Movement position for slave in % if Input "Master zero position command" = 1	<u>0</u> ... 100

Use safety object A (high priority)	<ul style="list-style-type: none"> ▶ <u>No</u> ▶ Yes
Use safety object B	<ul style="list-style-type: none"> ▶ <u>No</u> ▶ Yes
Use safety object C	<ul style="list-style-type: none"> ▶ <u>No</u> ▶ Yes
Use safety object D	<ul style="list-style-type: none"> ▶ <u>No</u> ▶ Yes
Use safety object E (low priority)	<ul style="list-style-type: none"> ▶ <u>No</u> ▶ Yes
Priority is	<ul style="list-style-type: none"> ▶ <u>Safety object E before manual</u> ▶ Manual before safety object E
Use monitoring of safety objects	<u>No</u> • Yes
Monitoring period for safety objects (if safety object monitoring is used)	5s...2 h; <u>5 min</u>
Behaviour when not receiving a safety object (if safety object monitoring is used)	<ul style="list-style-type: none"> ▶ <u>Stop</u> ▶ <u>Up</u> • Down (venetian blind/roller shutter) ▶ <u>On</u> • Off (awning) ▶ <u>Open</u> • Closed (window)

Safety objects A - E

The menu item only appears if a safety object has been configured under "Control". This determines what happens in case of object values 1 and 0. Always disable safety objects at 1.

Designation	[Safety object 1... 5] Enter a designation here (optional)!
If the safety object value = 1	<ul style="list-style-type: none"> ▶ No action ▶ Stop Approach position ▶ <u>U</u>p • Down (venetian blind/roller shutter) ▶ <u>O</u>n • Off (awning) ▶ <u>O</u>pen • Closed (window)
Move in % (only when "Approach position" selected)	0... <u>100</u>
Slat position in % (only with venetian blinds and when "Approach position" selected)	0... <u>100</u>
If safety object value = 0	
During manual mode before and after safety	<ul style="list-style-type: none"> ▶ <u>N</u>o action ▶ Move into last position
During automatic operation after safety	Follow control mode
Value of object before first communication and bus voltage recovery	<u>0</u> • 1

Movement limitation

The menu item only appears if a move restriction has been activated under "Control" Manual moving can be restricted using Movement limitation. The limitation is active for object value 1.

Type of limitation	<ul style="list-style-type: none"> ▶ <u>Completely</u> ▶ Movement position ▶ Slat angle (for venetian blinds) ▶ Only UP ▶ Only DOWN
Value of object before first communication and bus voltage recovery	<u>0</u> • 1

When restricting the movement position:

Type of restriction	▶ Moving position
Allow movement in the position range:	
from (in %)	<u>0</u> ...100
up to (in %)	0... <u>100</u>

When limiting the slat angle (only venetian blinds)

Type of restriction	▶ Slat angle
Allow movement in the angle range:	
from (in %)	<u>0</u> ...100
up to (in %)	0... <u>100</u>

4.2.1.2 Manual

The position memory for manual movement can be activated here. The position specified here can be overwritten at any time via a learning object. The saved position can be retrieved again at a later date.

In the case of venetian blinds, both moving and slat positions can be saved.

Use position memory	No • Yes
Use different positions for object value 0 and 1	No • Yes (If "Yes" is selected, it is split into position for object value 0 and for object value 1)
Blind position in %	0...100
Slat position in %	0...100
Allow access by command sequence long-term=1, short-term=1	No • Yes
Use learning object for new position	No • Yes
Transfer the following during programming (if a learning object is used)	<ul style="list-style-type: none"> ▶ All parameters ▶ Only changed parameters

4.2.1.3 Automatic

The drive control mode is deactivated by a manual operation. Here, you can set when the control mode will be reactivated.

Manual switches to automatic after	<ul style="list-style-type: none"> ▶ Expiry of a holding period ▶ Reception of an object ▶ Reception of an object or expiry of a holding period
Change to automatic for object value (if "Reception of an object" has been selected)	0 • 1
Holding time in min (if "Expiry of a holding period" has been selected)	1...255; 20
Resumption of power	

Disable automatic mode

Using the disable object control mode, the control mode can be deactivated short-term (for example in the case of absence or during presentations in conference rooms).

Here, the channel mode after voltage recovery, for example after power failure, is also specified. The mode (manual or control mode) is sent to the bus as a status object.

Use automatic blocking object	<u>No</u> • Yes
Automatic is blocked when (if "Yes" has been selected)	0 • <u>1</u>
Value of the blocking object after resumption of power (if "Yes" has been selected)	<u>0</u> • 1
Operating mode after power restoration	► <u>Automatic</u> ► Manual
Sends status object	<u>1</u> for automatic 0 for manual 0 for automatic 1 for manual
Transmission delay of status output automatic or manual in 0.1 s	<u>0</u>
Use position memory	<u>No</u> • Yes
Use different positions for object value 0 and 1	<u>No</u> • Yes
Venetian blind position in %	0 %...100 %; <u>75</u> %
Slat position in %	0 %...100 %; <u>75</u> %
Allow access by command sequence long-term=1, short-term=1	<u>No</u> • Yes
Use learning object for new shading position	<u>No</u> • Yes

4.2.1.4 Scenes

For scene control, a group address must be created for scenes in the KNX system. This group address is used to link input object "Channel X - Recall / save scenes" of the actuator.

If a scene recall occurs, the scene number is communicated to the actuator. The moving position saved in the actuator for this scene number is moved towards.

If a scene is saved, the current moving position for the scene number is stored the actuator.

The menu item "Scenes" only appears if "Use scenes: Yes" is selected for the settings of the drive channel.

You can save different moving positions as scenes for each drive and recall them via the bus. 16 scenes are available.

- Activate a scene memory.

Use scene memory X	<u>No</u> • Yes
--------------------	-----------------

- Assign a scene number to the scene memory. A moving position saved in the actuator is recalled/saved using this scene number. Ensure to only assign each scene number once per drive channel.

Scene number	<u>0</u> ... 63
--------------	-----------------

- Enter the moving position. If scene storing is permitted via the bus, this position is only valid after the ETS download until the first manual storing. After this, the new moving position that is saved in the actuator applies.

Blind position in % or roller shutter position in % or awning position in % or window position in %	0 ... 100; <u>50</u>
Slat position in % (only for slat position)	0 ... 100; <u>70</u>



The WAREMA KNX 1MPF.4 UP always receives the raw value (0-63) as a scene number from the KNX bus.

Both in the ETS group monitor and in some actuators, the values are however interpreted depending on data type (0-63 or 1-64).

Example If the raw value 0 is sent by the WAREMA KNX room controller, for example, the group monitor then may display the value 1 depending on the data type. The subsequent values increase by 1 accordingly (e.g. raw value 4, display value 5).

Zielname	Info	Quellname
Szene	\$04 5	KNX Raumcontroller
Szene	\$03 4	KNX Raumcontroller
Szene	\$01 2	KNX Raumcontroller

Fig. 5 Interpretation of the scene number in the ETS group monitor

4.2.2 Channel settings - Double switch functions

If two switchable devices are connected to the output channel, two separate channels appear (e.g. "Channel A1 - Switching function" and "Channel A2 - Switching functions"). First, set the general specifications for the connected device and activate links, time functions and disable objects if necessary. A diagram for this can be found in *Fig. 8 on page 39*.

Relay operation	<u>C</u> loser • Opener
Behaviour after reset and ETS download	▶ <u>O</u> pened ▶ Closed
Use status object	▶ <u>N</u> o ▶ As active feedback object ▶ As passive status object
Use linking function (see 4.2.2 on page 27)	<u>N</u> o • Yes
Use time function (see 4.2.2 on page 27)	▶ <u>N</u> o ▶ As a switch on delay ▶ As a switch off delay ▶ As a switch on and off delay ▶ As a staircase time switch
Use blocking object	<u>N</u> o • Yes
Use scenes	<u>N</u> o • Yes

4.2.2.1 Linking (logic)

The menu item "Connection" only appears if "Use logic functions: Yes" is selected for the settings of the switching function channel. In the connection object (group object "Connection"), objects can be connected with AND or OR. For example, a light can then only be switched on if push button input AND dawn/dusk are active (combination of group object "Switch" and "Connection").

Type of linking	<u>A</u> ND • OR
Value of the linking object after resumption of bus power	<u>0</u> • 1

4.2.2.2 On/off delay, time switch

The menu item only appears if a time function is selected for the settings for the switching function channel. The menu item has the same name as the selected function.

With the on and off delay, a switch can be used for the ventilation unit and light, for example. With the on delay, the fan only starts if the light has already been on for a few minutes. The off delay causes the fan to continue to run even after the switch has been pressed again and the light is already off. The stairwell lighting time function ensures that the light is on for a while and then turns off by itself, for example.

On delay:

An on delay is set with a time basis and a time factor, (e.g. 1 min x 4 corresponds to 4 minutes). Whether the time period is extended when a switch-on telegram is received again can be additionally defined ("retriggerable", e.g. by pressing the switch again) and what happens if a switch-off telegram arrives from the bus.

Time basis	0.1 s • 1 s • <u>1_min</u> • 1 h
Time factor	4...255; <u>10</u>
On delay is	Cannot be retriggered • <u>Can be retriggered</u>
Off-telegramm during switch on delay effects	<u>Nothing</u> • Cancel the switch on delay

Off delay:

An off delay is set with a time basis and a time factor, (e.g. 1 min x 4 corresponds to 4 minutes). Whether the time period is extended when a switch-off telegram is received again can be additionally defined ("retriggerable", e.g. by pressing the switch again) and what happens if a switch-on telegram arrives from the bus.

Time basis	0.1 s • 1 s • <u>1_min</u> • 1 h
Time factor	4...255; <u>10</u>
Off delay is	Cannot be retriggered • <u>Can be retriggered</u>
On-telegramm during switch off delay effectsy	<u>Nothing</u> • Cancel the switch on delay

Staircase time switch:

The duration for which the light stays on for the Staircase time switch is set via the time basis and time factor (e.g. 1 s x 10 corresponds to 10 seconds). Whether the time period is extended when a switch-on telegram is received again can be additionally defined ("retriggerable", e.g. by pressing the switch again) and what happens if a switch-off telegram arrives from the bus.

Time basis	0.1 s • 1 s • <u>1_min</u> • 1 h
Time factor	4...255; <u>10</u>
Staircase light time is	Cannot be retriggered • <u>Can be retriggered</u>
Off-telegramm during staircase light time effects	<u>Nothing</u> • Switch off directly

4.2.2.3 Block function

The menu item "Block function" only appears if "Use disable functions: Yes" is selected for the settings of the switching function channel.

The output channel can be disabled by a disable telegram. What happens during the disabling, at bus voltage recovery and after the disabling is set here. Manual operation is not possible when a disable is active.

The function can be used for a lamp, for example, which turns on when a "Panic button" (= trigger for the disable function) is pressed and cannot be turned off.

Block function disables at	0 • <u>1</u>
Value of the blocking object after reset and ETS download	0 • <u>1</u>
Response when blocking	No change • <u>Open</u> • Closed
Response at release	<u>Follows switch command</u> • Open • Closed

4.2.2.4 Scenes

For scene control, a group address must be created for scenes in the KNX system. This group address is used to link input object "Recall / save scenes" of the actuator.

If a scene recall occurs, the scene number is communicated to the actuator. The switching state saved in the actuator for this scene number is recalled. If a scene is saved, the current switching state for the scene number is stored the actuator.

The menu item "Scenes" only appears if "Use scenes: Yes" is selected for the settings of the channel.

16 scenes are available.

- Activate a scene memory.

Use memory X	<u>No</u> • Yes
--------------	-----------------

- Assign a scene number to the scene memory. A switching state saved in the actuator is recalled/saved using this scene number. Ensure to only assign each scene number once per drive channel.

Scene number	<u>0</u> ... 63
--------------	-----------------

- Enter the moving position. If scene storing is permitted via the bus, this position is only valid after the ETS download until the first manual storing. After this, the new moving position that is saved in the actuator applies.

Use scene 1	No • <u>Yes</u>
Scene number	0
Switching status	<u>Inactive</u> • Active



The WAREMA KNX 1MPF.4 UP always receives the raw value (0-63) as a scene number from the KNX bus.

Both in the ETS group monitor and in some actuators, the values are however interpreted depending on data type (0-63 or 1-64).

Example If the raw value 0 is sent by the WAREMA KNX room controller, for example, the group monitor then may display the value 1 depending on the data type. The subsequent values increase by 1 accordingly (e.g. raw value 4, display value 5).

Zielname	Info	Quellname
Szene	\$04 5	KNX Raumcontroller
Szene	\$03 4	KNX Raumcontroller
Szene	\$01 2	KNX Raumcontroller

Fig. 6 Interpretation of the scene number in the ETS group monitor

4.3 Inputs

The inputs can be used as actuator push buttons or bus push buttons. Input 1 can be used alternatively for a zero position sensor when a drive is connected.

Operating mode	
Use input 1/2/3/4	<ul style="list-style-type: none"> ▶ No ▶ As bus push button ▶ As actuator push button

4.3.1 Push button inputs (Input as bus push button)

If an input is used as a free bus push button, it transmits a previously set value to the KNX bus upon activation. Various parameters for frequently-required bus functions have been integrated into the actuator application. In this way, the inputs can very easily be configured as switches, drive controls, dimmers and for the transmission of values and for scene recalls.

Bus function	<ul style="list-style-type: none"> ▶ <u>Switch</u> ▶ Change-over switch ▶ Venetian blind ▶ Roller shutter ▶ Awning ▶ Window ▶ Dimmer ▶ 8 bit encoder ▶ Temperature encoder ▶ Brightness encoder ▶ Scenes
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4.3.1.1 Input as switch

If the input is allocated to a push button with switching function, select the "Switch" bus function and determine which value is transmitted when pressing/releasing the push button and when it is transmitted.

Function	Switch
Command when pressing the button	<ul style="list-style-type: none"> ▶ send 0 ▶ send 1 ▶ <u>Do not send telegram</u>
Command when releasing the button	<ul style="list-style-type: none"> ▶ send 0 ▶ send 1 ▶ <u>Do not send telegram</u>
Send value	<ul style="list-style-type: none"> ▶ <u>In case of change</u> ▶ In case of change to 1 ▶ In case of change to 0 ▶ In case of change and periodically ▶ In case of change to 1 and periodically ▶ In case of change to 0 and periodically
Send all readings (in case of cyclical transmission)	<u>5 s</u> • 10 s • 30 s • 1 min • 2 min • 5 min • 10 min • 20 min • 30 min • 45 min • 1 h • 1.5 h • 2 h

The input can be disabled using a blocking object.

- Set what is to be transmitted upon (de)activation of the disable on the bus.

In case of active disable, *no* cyclical transmission is performed.

Use disable object	<u>No</u> • Yes
When activating the block once	<ul style="list-style-type: none"> ▶ send 0 ▶ <u>send 1</u> ▶ Do not send telegram
When deactivating the block once	<ul style="list-style-type: none"> ▶ <u>send 0</u> ▶ send 1 ▶ Do not send telegram ▶ Send current state

4.3.1.2 Input as change-over switch

If the input is allocated to a push button with change-over function, select the "Change-over switch" bus function and determine whether it is changed over when pressing or releasing the button.

Function	Change-over switch
Command when pressing the button	<ul style="list-style-type: none"> ▶ <u>Changeover</u> ▶ Do not send telegram
Command when releasing the button	<ul style="list-style-type: none"> ▶ <u>Changeover</u> ▶ Do not send telegram

The input can be disabled using a disable object. In case of active disable, *no bus communication*.

Use blocking object	<u>No</u> • Yes
---------------------	-----------------

4.3.1.3 Input for venetian blind, roller shutter, awning or window control

If the input is used for the control of a drive via the bus, select the bus function "Venetian blind", "Awning" "Roller shutter" or "Window" and determine the push button function and the control mode.

Function	Venetian blind / roller shutter / awning / window	
Push button function	Up • <u>Down</u> Up • <u>Down</u> • Up/Down Off • On • On/Off <u>Open</u> • Closed • Closed/Open	(Venetian blind) (Roller shutter) (Awning) (Window)
Control mode*	<ul style="list-style-type: none"> ▶ <u>Standard</u> ▶ Standard inverted ▶ Comfort mode ▶ Dead man's switch 	

* You can find a detailed description of the adjustment possibilities for the individual control modes in Chapter 5.1 on page 38. Control modes for drive control.

The input can be disabled using a blocking object. In case of active disable, *no bus communication*.

Use blocking object	<u>No</u> • Yes
---------------------	-----------------

4.3.1.4 Input as dimmer

If the input is used as a dimmer, select the bus function "Dimmer" and determine the push button function, time intervals (switching/dimming) and, if required, the repeat intervals in case of long keystrokes.

Function	Dimmer
Push button function	<u>Brighter</u> • darker • brighter/darker
Time between switching and dimming (in 0.1 s)	0 ... 50; <u>5</u>
Repetition of the dimming command	<u>No</u> • Yes
Repetition of dimming command for long key pressure (if dimming command is repeated)	Every 0.1 s... • Every 2 s; <u>Every 1 s</u>
Dimming by (if dimming command is repeated)	1.50% • 3% • <u>6 %</u> • 12.50% • 25% • 50%

The input can be disabled using a blocking object. In case of active disable, *no bus communication*.

Use blocking object	<u>No</u> • Yes
---------------------	-----------------

4.3.1.5 Input as 8 bit encoder

If the input is to be used as an 8 bit sensor, select the bus function "8 bit sensor" and determine which value is transmitted.

Function	8 bit encoder
Value	<u>0</u> ... 255

The input can be disabled using a blocking object. In case of active disable, *no bus communication*.

Use blocking object	<u>No</u> • Yes
---------------------	-----------------

4.3.1.6 Input as temperature encoder

If the input is to be used as a temperature sensor, select the bus function "Temperature sensor" and determine which value between -30°C and +80°C is transmitted.

By transmitting a temperature value, the set value of the temperature control can, for example, be changed.

Function	Temperature encoder
Temperature in 0.1°C	-300...800; <u>200</u>

The input can be disabled using a blocking object. In case of active disable, *no bus communication*.

Use blocking object	<u>No</u> • Yes
---------------------	-----------------

4.3.1.7 Input as brightness encoder

If the input is to be used as a brightness sensor (is allocated as the limit value of a sun sensor, for example), select "brightness sensor" and determine which value is transmitted.

Function	Brightness encoder
Brightness in kLux	0...100; <u>20</u>

The input can be disabled using a blocking object. In case of active disable, *no bus communication*.

Use blocking object	<u>No</u> • Yes
---------------------	-----------------

4.3.1.8 Input for scene control

If scenes are retrieved and saved using the input, select the bus function "Scenes" and determine the storage, time difference (recall/storage) and the scene number.

Function	Scenes
Push button activation	► <u>Without storage</u> ► With storage
Time between recall and storage in 0.1 seconds (if "With storage" has been selected)	0...50; <u>20</u>
Scene No.	<u>0</u> ...127

The input can be disabled using a blocking object. In case of active disable, *no bus communication*.

Use blocking object	<u>No</u> • Yes
---------------------	-----------------

4.3.2 Push button inputs (Input as actuator push button)

4.3.2.1 Settings - Drives

If the input is used to control the drive on this channel, then you must determine the push button function and the control mode.

Push button function	<u>Up</u> • Down <u>Up</u> • Down • Up / Down <u>Retract</u> • Extend • Retract / Extend <u>Close</u> • Open • Close / Open	(Blind) (Roller shutter) (Awning) (Window)
Control mode*	<ul style="list-style-type: none"> ▶ <u>Standard</u> ▶ Standard inverted ▶ Comfort mode ▶ Dead man's switch 	

* You can find a detailed description of the adjustment possibilities for the individual control modes in Chapter 5.1 on page 38.

The input can be disabled using a blocking object. In case of an active blocking, no operation is possible.

Use disable object	<u>No</u> • Yes
--------------------	-----------------

If monitoring time periods or movement range limits are used, no operation is possible via the local push buttons in case of bus power failure.

4.3.2.2 Settings - Switching functions

If the input is used to control the device on this channel, then you must determine the push button function and the control mode.

Push button function	<u>Switch</u> • Change-over switch
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If the input is allocated to a push button with switching function, select the "Switch" push button function and determine what happens when the button is pressed/released and when it is transmitted.

Push button function	Switch
Command when pushing the button	<ul style="list-style-type: none"> ▶ <u>Activate</u> ▶ Switch off ▶ Nothing
Command when releasing the button	<ul style="list-style-type: none"> ▶ Activate ▶ <u>Switch off</u> ▶ Nothing

The input can be disabled using a blocking object. Set what happens upon (de)activation of the disable on the bus. In case of an active disable, no operation is possible.

Use blocking object	<u>No</u> • Yes
Use blocking object	Yes
When activating the block once	<ul style="list-style-type: none"> ▶ <u>Activate</u> ▶ Switch off ▶ Nothing
When desactivating the block once	<ul style="list-style-type: none"> ▶ Activate ▶ <u>Switch off</u> ▶ Nothing ▶ Evaluate current state

If the input is allocated to a push button with changeover function, select the "Change-over switch" push button function and determine what happens when the button is pressed and what happens when it is released.

Push button function	Change-over switch
Command when pressing the button	<ul style="list-style-type: none"> ▶ <u>Switching</u> ▶ Nothing
Command when releasing the button	<ul style="list-style-type: none"> ▶ Switching ▶ <u>Nothing</u>

The input can be disabled using a blocking object. Set what happens upon (de)activation of the disable on the bus. In case of an active disable, no operation is possible.

Use blocking object	<u>No</u> • Yes
---------------------	-----------------

Coherence of the connection between Time switch - Disable

Application 1: Stairwell light to channel A1 that should only be switchable during dusk/dawn or night (connection) and that is switched on in the event of a fire alarm (disable).

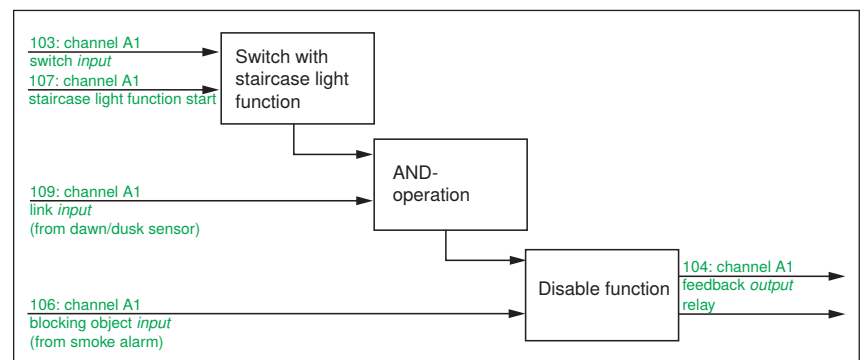


Fig. 7 Connection between Time switch - Disable

When switching via the group object "Switch channel A1" (103), the light is switched on or off normally. When switching via the object "Channel A1 Start stairwell light function" (107), the stairwell light time function is activated. The time function therefore has priority, i.e. the status triggered by normal switching is overwritten.

5 General section

5.1 Control modes for drive control

If inputs are used as push buttons for the operation of shading or windows, different control modes can be set.

Control mode	<ul style="list-style-type: none"> ▶ Standard ▶ Standard inverted ▶ Communication Object ▶ Dead man's switch
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Standard

If pressed briefly, the drive moves stepwise or stops. If pressed for a longer time, the drive moves to limit position. The time difference between "short" and "long" is adjusted individually.

Control mode	Standard
Behaviour in case of push button activation: short = stop/step long = up/down	
Time between short and long in 0.1 seconds	0 ... 50; <u>10</u>

Standard inverted

If pressed briefly, the drive moves into motor limit position. If pressed for a longer time, the drive moves in steps or stops. The time difference between "short" and "long" and the repeat interval is adjusted individually.

Control mode	Standard inverted
Behaviour in case of push button activation: Short = up/down long = stop/step	
Time between short and long in 0.1 seconds	0 ... 50; <u>10</u>
Repetition of step command when button pressed for a longer time	Every 0.1 s... • Every 2 s; <u>every 0.5 s</u>

Communication Object

In comfort mode, short, slightly longer and long pressing of the push button trigger different reactions from the drive. The time intervals are adjusted individually.

By pressing the push button briefly (shorter than the adjustable time 1), the drive is positioned stepwise (or stopped).

If the drive has to be moved a little, then press for a slightly longer time (longer than time 1 but shorter than times 1+2). The drive stops immediately when the push button is released.

If the drive should be supposed to move independently into its limit position, the push button is not released until after the expiry of times 1 and 2. The movement can be stopped by pressing the push button briefly.

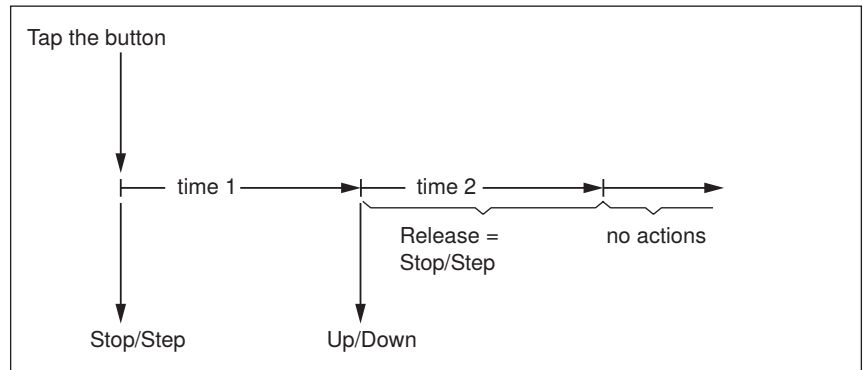


Fig. 8 Diagram showing comfort mode time intervals

Time 0	A stop/step command is transmitted
Release prior to expiry of time 1	Only the "stop/step" command is executed.
Time 1	If the push button is pressed for longer than time 1, an up/down (move command) command is transmitted
Release after expiry of time 1 but before expiry of time 2	If the push button is pressed for longer than time 1 but shorter than times 1+2, a stop/step command is transmitted
Release after expiry of times 1 + 2	Move to limit position

Control mode	Communication Object
Time 1	0 s ... 5 s; <u>0,4 s</u>
Time 2	0 s ... 5 s; <u>2 s</u>

Dead man control

The drive moves as soon as the push button is pressed and stops when the push button is released.

Control mode	Dead man control
Behaviour in case of push button activation: Press push button =Up or down command Release push button = Stop command	

