KNX S1R-B4-UP 24 V

Actuator for a 12/24 V DC motor

Item number 70206

elsner elektronik®

Installation and Adjustment

Installation, inspection, commissioning and troubleshooting of the device must only be carried out by a competent electrician.

This manual is amended periodically and will be brought into line with new software releases. The change status (software version and date) can be found in the contents footer. If you have a device with a later software version, please check **www.elsner-elektronik.de** in the menu area "Service" to find out whether a more up-to-date version of the manual is available.

Clarification of signs used in this manual

Safety advice.

Safety advice for working on electrical connections, components, etc.

DANGER! ... indicates an immediately hazardous situation which will lead to death or severe injuries if it is not avoided.

WARNING! ... indicates a potentially hazardous situation which may lead to death or severe injuries if it is not avoided.

CAUTION! ... indicates a potentially hazardous situation which may lead to trivial or minor injuries if it is not avoided.

ATTENTION! ... indicates a situation which may lead to damage to property if it is not avoided.

ETS   In the ETS tables, the parameter default settings are marked by underlining.

1.   Description

The **Actuator KNX S1R-B4-UP 24 V** with integrated façade controller regulates the 12 or 24 V DC motor for a shutter, an awning, a blind or window. Because the output is designed to be potential-free, other systems can also be controlled, e.g. via the manual switch input on a motor control unit.

Automation is specified externally or internally. Internally, there are numerous options available for blocking, locking (e.g. master-slave) and priority definitions (e.g. manual-automatic). Scenes are saved and called up via the bus (scene control with 16 scenes per drive).

The **KNX S1R-B4-UP 24 V** has four inputs that are used as binary inputs (switches, alarm messages etc.) or as analogue inputs for T-NTC temperature sensors.

Functions:
- **Potential-free output** with polarity changer for **a 12 V DC or 24 V DC drive** (shade, window)
- **4 inputs** for binary contacts or temperature sensor
- **Automatic runtime measurement** of the drives for positioning (incl. fault reporting object)
- Position feedback (movement position, also slat position for shutters)
- Position storage (movement position) via 1-bit object (storage and call-up e.g. via buttons)
- Parameters for taking drive and mechanics downtimes into account
- Control via **internal or external automation functions**
- Integrated **shade control** with **slat tracking** according to sun position for shutters
- **Scene control** for movement position with 16 scenes per drive (also slat position for shutters)
- Mutual **locking** of two drives using zero position sensors prevents collisions e.g. of shade and window (master–slave)
- Blocking objects and alarm reports have different priorities, so safety functions always take precedence (e.g. wind block)
- Manual or automatic priority setting via time or communication object
- **4 temperature switching outputs** in the application program with adjustable threshold values (presetting the parameters or communication object)
- **4 AND and 4 OR logic gates** each with 4 inputs. 16 logic inputs (in the form of communication objects) are available as inputs for the logic gates. The output from each gate can be configured optionally as 1-bit or 2 x 8-bit

Configuration is made using the KNX software ETS. The **product file** can be downloaded from the Elsner Elektronik website on **www.elsner-elektronik.de** in the "Service" menu.

1.0.1. Scope of delivery

- Actuator

1.1. Technical specification

Housing	Plastic
Colour	White
Assembly	Flush mounting (in junction box Ø 60 mm, 60 mm deep)
Protection category	IP 20
Dimensions	approx. 50 x 50 x 54 (W × H × D, mm)
Weight	approx. 100 g
Ambient temperature	Operation -20…+70°C, storage -30…+85°C
Ambient humidity	5...80% RH, non-condensing
Operating voltage	KNX bus voltage
Power	on bus: 10 mA at 12/24 V DC: typically 5 mA, max. 10 mA
Output	1 × Potential-free output with polarity changer for 12/24 V DC drive Up/Down (+/-/motor). Load capacity: max. 5 A withresistive load Starting current: max. 5 A
Minimum current for run-time measurement	DC effektive 100 mA
Inputs	4× analogue/ digital, max. cable length 10 m.
Setting range for the T-NTC temperature sensor at the input	-30°C...+80°C
Data output	KNX +/- bus plug-in terminals
BCU type	Integrated microcontroller
PEI type	0
Group addresses	max. 1024
Assignments	max. 1024
Communication objects	239

The product is compliant with the provisions of EU guidelines.

2.   Installation and commissioning

2.1. Installation notes

Installation, testing, operational start-up and troubleshooting should only be performed by an electrician.

CAUTION!
Live voltage!
There are unprotected live components inside the device.
• National legal regulations are to be followed.

- Ensure that all lines to be assembled are free of voltage and take precautions against accidental switching on.
- Do not use the device if it is damaged.
- Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.

The device is only to be used for its intended purpose. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.
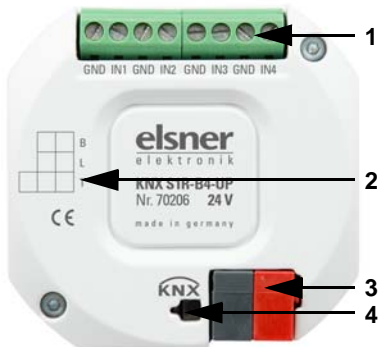
2.2.   Installation

Fig. 1: Bus side
1   Connector analogue/digital inputs
2   Label field
3   KNX plug terminal +/-
4   Programming LED and programming button (countersunk)

Analogue/digital inputs connector assignment:
1: GND | 2: IN1 | 3: GND | 4: IN2 | 5: GND | 6: IN3 | 7: GND | 8: IN4
All GND connectors are internally bridged.
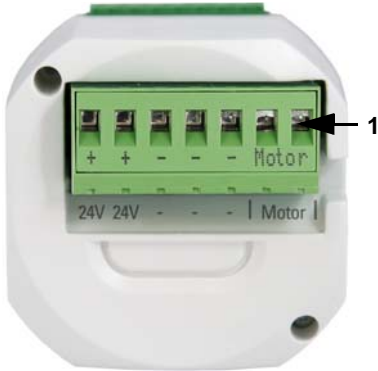
Fig. 2: Output side
1   Connector for 12 V DC or 24 V DC motor
(free of potential)

2.3. Connection

The **Actuator KNX S1R-B4-UP 24 V** is installed in a flush-mounted socket. The connection is made using a KNX connector on the KNX data bus. In addition, a power supply for the connected drive is necessary (potential-free output).

> ⚠ **Follow the guidelines and standards for SELV electric circuits while installing and cable laying of the KNX connection and inputs!**

> **STOP** **ATTENTION!**
> **When first switched on, relays may be live!**
> The bistable relays used in this product can switch themselves on when subjected to strong vibration, e.g. during transport.
> • First of all connect the bus voltage; this will switch off the relays. Only then can the power supply for the drive be switched on.

The physical address is assigned by the KNX software. There is a button with a control LED for this on the actuator.

2.3.1. Connection examples

Output:
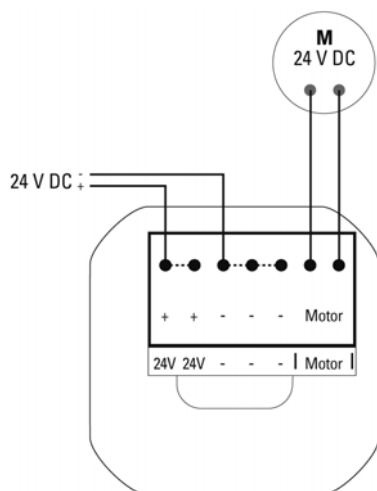
Fig. 3
Example for the connection of a 24 V DC motor.

Inputs:
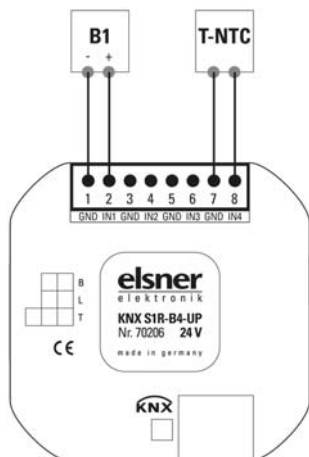
Fig. 4
Example KNX S1R-B4-UP with binary contact on input 1 and T-NTC temperature sensor on input 4.

Connection of the temperature sensor is independent of the polarity.

2.4. Instructions for assembly and initial start-up

Never expose the actuator to water (e.g. rain) or dust. This can damage the electronics. You must not exceed a relative air humidity of 80%. Avoid condensation.

After the auxiliary voltage has been applied, the device will enter an initialisation phase lasting a few seconds. During this phase no information can be received or sent via the bus.

For KNX devices with safety functions (e.g. wind or rain blocks), it is important to set up periodical monitoring of the safety objects. The ideal ratio is 1:3 (example: if the weather station sends a value every 5 minutes, the actuator must be configured for a monitoring period of 15 minutes).

3. Addressing of the device at the bus

The device is supplied with the bus address 15.15.250. You can program another address into the ETS by overwriting the 15.15.250 address or by teaching via the programming key.

4.　Transfer protocol

4.1.　List of all communication objects

Abbreviations:

R　Read
W　Write
C　Communication
T　Transfer
DPT Data Point Type

No	Text	Function	Flags	DPT Typ	Size
1	Software version	Readable	R-C-	[217.1] DPT_Version	2 Bytes
10	Channel A - Automatic or manual status	Output	R-CT	[1] 1.xxx	1 Bit
11	Channel A - Manual extended	Input	RWC-	[1.8] DPT_UpDown	1 Bit
12	Channel A - Manual brief	Input	RWC-	[1.8] DPT_UpDown	1 Bit
13	Channel A - Manual movement position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
14	Channel A - Manual slat position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
15	Channel A - Automatic extended	Input	RWC-	[1.8] DPT_UpDown	1 Bit
16	Channel A - Automatic brief	Input	RWC-	[1.8] DPT_UpDown	1 Bit
17	Channel A - Automatic movement position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
18	Channel A - Automatic slat position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
19	Channel A - Switch from manual to automatic	Input	RWC-	[1] 1.xxx	1 Bit
20	Channel A - Automatic blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
21	Channel A - Current movement position	Output	R-CT	[5.1] DPT_Scaling	1 Byte
22	Channel A - Current slat position	Output	R-CT	[5.1] DPT_Scaling	1 Byte
23	Channel A - Status object	Output	R-CT	[1] 1.xxx	1 Bit
24	Channel A - Call up / saving scenes	Input	RWC-	[18.1] DPT_SceneControl	1 Byte
25	Channel A - Outdoor temperature blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit

No	Text	Function	Flags	DPT Typ	Size
26	Channel A - Outdoor temperature blocking measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
27	Channel A - Outdoor temperature blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
28	Channel A - Twilight object	Input	RWC-	[1.1] DPT_Switch	1 Bit
29	Channel A - Twilight measurement value	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
30	Channel A - Twilight status	Output	R-CT	[1.1] DPT_Switch	1 Bit
31	Channel A - Time control	Input	RWC-	[1.1] DPT_Switch	1 Bit
32	Channel A - Inside temperature release object	Input	RWC-	[1.1] DPT_Switch	1 Bit
33	Channel A - Inside temperature release measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
34	Channel A - Inside temperature release target value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
35	Channel A - Inside temperature release status	Output	R-CT	[1.1] DPT_Switch	1 Bit
36	Channel A - Shading object	Input	RWC-	[1.1] DPT_Switch	1 Bit
37	Channel A - Shading brightness measurement value 1	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
38	Channel A - Shading brightness measurement value 2	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
39	Channel A - Shading brightness measurement value 3	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
40	Channel A - Shading threshold value	Input / Output	RWCT	[9.4] DPT_Value_Lux	2 Bytes
41	Channel A - Shading threshold value 1 = + | 0 = -	Input	RWC-	[1] 1.xxx	1 Bit
42	Channel A - Shading threshold value +	Input	RWC-	[1] 1.xxx	1 Bit
43	Channel A - Shading threshold value -	Input	RWC-	[1] 1.xxx	1 Bit
44	Channel A - Shading status	Output	R-CT	[1.1] DPT_Switch	1 Bit
45	Channel A - Shading position learning object	Input	RWC-	[1] 1.xxx	1 Bit
46	Channel A - Azimuth	Input	RWC-	[9] 9.xxx	2 Bytes
47	Channel A - Elevation	Input	RWC-	[9] 9.xxx	2 Bytes

No	Text	Function	Flags	DPT Typ	Size
48	Channel A - Cold air intake blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
49	Channel A - Cold air intake outside temp. measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
50	Channel A - Cold air intake blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
51	Channel A - Forced ventilation	Input	RWC-	[1.1] DPT_Switch	1 Bit
52	Channel A - Warm air intake blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
53	Channel A - Warm air intake inside temp. measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
54	Channel A - Warm air intake outside temp. measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
55	Channel A - Warm air intake blocking target value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
56	Channel A - Warm air intake blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
57	Channel A - Inside temperature opening object	Input	RWC-	[1.1] DPT_Switch	1 Bit
58	Channel A - Inside temp. opening measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
59	Channel A - Inside temp. opening target value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
60	Channel A - Inside temp. opening threshold value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
61	Channel A - Inside temp. open threshold value 1 = +	Input	RWC-	[1] 1.xxx	1 Bit
62	Channel A - Inside temp. opening threshold value +	Input	RWC-	[1] 1.xxx	1 Bit
63	Channel A - Inside temp. opening threshold value -	Input	RWC-	[1] 1.xxx	1 Bit
64	Channel A - Inside temp. opening object	Output	R-CT	[1.1] DPT_Switch	1 Bit
65	Channel A - Inside humidity opening object	Input	RWC-	[1.1] DPT_Switch	1 Bit
66	Channel A - Inside humidity opening measurement value	Input	RWC-	[9.7] DPT_Value_Humidity	2 Bytes
67	Channel A - Inside humidity opening status	Output	R-CT	[1.1] DPT_Switch	1 Bit

No	Text	Function	Flags	DPT Typ	Size
68	Channel A - Approach position memory automatically	Input	RWC-	[1.1] DPT_Switch	1 Bit
69	Channel A - Learn object position memory automatically	Input	RWC-	[1.1] DPT_Switch	1 Bit
70	Channel A - Zero position reached	Input	RWC-	[1.1] DPT_Switch	1 Bit
71	Channel A - Zero position sensor disrupted	Output	R-CT	[1.1] DPT_Switch	1 Bit
72	Channel A - Master zero position status	Output	R-CT	[1.1] DPT_Switch	1 Bit
73	Channel A - Master zero position command	Output	R-CT	[1.1] DPT_Switch	1 Bit
74	Channel A - Slave zero position status	Input	RWC-	[1.1] DPT_Switch	1 Bit
75	Channel A - Master zero position status	Input	RWC-	[1.1] DPT_Switch	1 Bit
76	Channel A - Master zero position command	Input	RWC-	[1.1] DPT_Switch	1 Bit
77	Channel A - Slave zero position status	Output	R-CT	[1.1] DPT_Switch	1 Bit
78	Channel A - Drive is moving	Output	R-CT	[1] 1.xxx	1 Bit
79	Channel A - Object malfunction	Output	R-CT	[1] 1.xxx	1 Bit
80	Channel A - Blocking 1 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
81	Channel A - Blocking 1 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
82	Channel A - Blocking 1 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
83	Channel A - Blocking 1 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
84	Channel A - Blocking 1 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
85	Channel A - Blocking 2 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
86	Channel A - Blocking 2 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
87	Channel A - Blocking 2 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
88	Channel A - Blocking 2 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit

No	Text	Function	Flags	DPT Typ	Size
89	Channel A - Blocking 2 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
90	Channel A - Blocking 3 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
91	Channel A - Blocking 3 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
92	Channel A - Blocking 3 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
93	Channel A - Blocking 3 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
94	Channel A - Blocking 3 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
95	Channel A - Blocking 4 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
96	Channel A - Blocking 4 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
97	Channel A - Blocking 4 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
98	Channel A - Blocking 4 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
99	Channel A - Blocking 4 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
100	Channel A - Blocking 5 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
101	Channel A - Blocking 5 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
102	Channel A - Blocking 5 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
103	Channel A - Blocking 5 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
104	Channel A - Blocking 5 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
105	Channel A - Short time restriction	Input	RWC-	[1.1] DPT_Switch	1 Bit
Input 1 and 2 only for KNX S1E-B2-UP and KNX S1E-B4-UP					
150	Input 1 - Extended	Input / Output	RWCT	[1.8] DPT_UpDown	1 Bit
151	Input 1 - Short	Output	R-CT	[1.8] DPT_UpDown	1 Bit
152	Input 1 - Switching	Input / Output	RWCT	[1.1] DPT_Switch	1 Bit

No	Text	Function	Flags	DPT Typ	Size
153	Input 1 - Relative dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
154	Input 1 - 8-bit encoder	Output	R-CT	[5] 5.xxx	1 Byte
155	Input 1 - Temperature encoder	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
156	Input 1 - Brightness encoder	Output	R-CT	[9.4] DPT_Value_Lux	2 Bytes
157	Input 1 - Scene	Output	R-CT	[18.1] DPT_SceneControl	1 Byte
158	Input 1 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
160	Input 1 - Temperature sensor, malfunction	Output	--CT	[1.1] DPT_Switch	1 Bit
161	Input 1 - Temperature sensor, total value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
162	Input 1 - Temperature sensor, measured outside value	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
163	Input 1 - Temperature sensor, measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
170	Input 2 - Extended	Input / Output	RWCT	[1.8] DPT_UpDown	1 Bit
171	Input 2 - Short	Output	R-CT	[1.8] DPT_UpDown	1 Bit
172	Input 2 - Switching	Input / Output	RWCT	[1.1] DPT_Switch	1 Bit
173	Input 2 - Relative dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
174	Input 2 - 8-bit encoder	Output	R-CT	[5] 5.xxx	1 Byte
175	Input 2 - Temperature encoder	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
176	Input 2 - Brightness encoder	Output	R-CT	[9.4] DPT_Value_Lux	2 Bytes
177	Input 2 - Scene	Output	R-CT	[18.1] DPT_SceneControl	1 Byte
178	Input 2 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
180	Input 2 - Temperature sensor, malfunction	Output	--CT	[1.1] DPT_Switch	1 Bit
181	Input 2 - Temperature sensor, total value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
182	Input 2 - Temperature sensor, measured outside value	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
183	Input 2 - Temperature sensor, measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
Input 3 and 4 only for KNX S1E-B4-UP					

No	Text	Function	Flags	DPT Typ	Size
190	Input 3 - Extended	Input / Output	RWCT	[1.8] DPT_UpDown	1 Bit
191	Input 3 - Short	Output	R-CT	[1.8] DPT_UpDown	1 Bit
192	Input 3 - Switching	Input / Output	RWCT	[1.1] DPT_Switch	1 Bit
193	Input 3 - Relative dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
194	Input 3 - 8-bit encoder	Output	R-CT	[5] 5.xxx	1 Byte
195	Input 3 - Temperature encoder	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
196	Input 3 - Brightness encoder	Output	R-CT	[9.4] DPT_Value_Lux	2 Bytes
197	Input 3 - Scene	Output	R-CT	[18.1] DPT_SceneControl	1 Byte
198	Input 3 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
200	Input 3 - Temperature sensor, malfunction	Output	--CT	[1.1] DPT_Switch	1 Bit
201	Input 3 - Temperature sensor, total value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
202	Input 3 - Temperature sensor, measured outside value	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
203	Input 3 - Temperature sensor, measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
210	Input 4 - Extended	Input / Output	RWCT	[1.8] DPT_UpDown	1 Bit
211	Input 4 - Short	Output	R-CT	[1.8] DPT_UpDown	1 Bit
212	Input 4 - Switching	Input / Output	RWCT	[1.1] DPT_Switch	1 Bit
213	Input 4 - Relative dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
214	Input 4 - 8-bit encoder	Output	R-CT	[5] 5.xxx	1 Byte
215	Input 4 - Temperature encoder	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
216	Input 4 - Brightness encoder	Output	R-CT	[9.4] DPT_Value_Lux	2 Bytes
217	Input 4 - Scene	Output	R-CT	[18.1] DPT_SceneControl	1 Byte
218	Input 4 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
220	Input 4 - Temperature sensor, malfunction	Output	--CT	[1.1] DPT_Switch	1 Bit
221	Input 4 - Temperature sensor, total value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes

No	Text	Function	Flags	DPT Typ	Size
222	Input 4 - Temperature sensor, measured outside value	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
223	Input 4 - Temperature sensor measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
300	Temp. threshold value 1: Measured value	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
301	Temp. threshold value 1: Absolute value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
302	Temp. threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
303	Temp. threshold value 1: Switching delay from 0 to 1	Input	-WC-	[7] 7.xxx[7.5] DPT_TimePeriodSec	2 Bytes
304	Temp. threshold value 1: Switching delay from 1 to 0	Input	-WC-	[7] 7.xxx[7.5] DPT_TimePeriodSec	2 Bytes
305	Temp. threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
306	Temp. threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
307	Temp. threshold value 2: Measured value	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
308	Temp. threshold value 2: Absolute value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
309	Temp. threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
310	Temp. threshold value 2: Switching delay from 0 to 1	Input	-WC-	[7] 7.xxx[7.5] DPT_TimePeriodSec	2 Bytes
311	Temp. threshold value 2: Switching delay from 1 to 0	Input	-WC-	[7] 7.xxx[7.5] DPT_TimePeriodSec	2 Bytes
312	Temp. threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
313	Temp. threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
314	Temp. threshold value 3: Measured value	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
315	Temp. threshold value 3: Absolute value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
316	Temp. threshold value 3: (1:+|0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
317	Temp. threshold value 3: Switching delay from 0 to 1	Input	-WC-	[7] 7.xxx[7.5] DPT_TimePeriodSec	2 Bytes
318	Temp. threshold value 3: Switching delay from 1 to 0	Input	-WC-	[7] 7.xxx[7.5] DPT_TimePeriodSec	2 Bytes

No	Text	Function	Flags	DPT Typ	Size
319	Temp. threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
320	Temp. threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
321	Temp. threshold value 4: Measured value	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
322	Temp. threshold value 4: Absolute value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
323	Temp. threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
324	Temp. threshold value 4: Switching delay from 0 to 1	Input	-WC-	[7] 7.xxx[7.5] DPT_TimePeriodSec	2 Bytes
325	Temp. threshold value 4: Switching delay from 1 to 0	Input	-WC-	[7] 7.xxx[7.5] DPT_TimePeriodSec	2 Bytes
326	Temp. threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
327	Temp. threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
340	Logic input 1	Input	-WC-	[1.2] DPT_Bool	1 Bit
341	Logic input 2	Input	-WC-	[1.2] DPT_Bool	1 Bit
342	Logic input 3	Input	-WC-	[1.2] DPT_Bool	1 Bit
343	Logic input 4	Input	-WC-	[1.2] DPT_Bool	1 Bit
344	Logic input 5	Input	-WC-	[1.2] DPT_Bool	1 Bit
345	Logic input 6	Input	-WC-	[1.2] DPT_Bool	1 Bit
346	Logic input 7	Input	-WC-	[1.2] DPT_Bool	1 Bit
347	Logic input 8	Input	-WC-	[1.2] DPT_Bool	1 Bit
348	Logic input 9	Input	-WC-	[1.2] DPT_Bool	1 Bit
349	Logic input 10	Input	-WC-	[1.2] DPT_Bool	1 Bit
350	Logic input 11	Input	-WC-	[1.2] DPT_Bool	1 Bit
351	Logic input 12	Input	-WC-	[1.2] DPT_Bool	1 Bit
352	Logic input 13	Input	-WC-	[1.2] DPT_Bool	1 Bit
353	Logic input 14	Input	-WC-	[1.2] DPT_Bool	1 Bit
354	Logic input 15	Input	-WC-	[1.2] DPT_Bool	1 Bit
355	Logic input 16	Input	-WC-	[1.2] DPT_Bool	1 Bit
360	AND logic 1: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
361	AND logic 1: 8-bit output A	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
362	AND logic 1: 8-bit output B	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
363	AND logic 1: Blocking	Input	-WC-	[1.1] DPT_Switch	1 Bit

No	Text	Function	Flags	DPT Typ	Size
364	AND logic 2: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
365	AND logic 2: 8-bit output A	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
366	AND logic 2: 8-bit output B	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
367	AND logic 2: Blocking	Input	-WC-	[1.1] DPT_Switch	1 Bit
368	AND logic 3: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
369	AND logic 3: 8-bit output A	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
370	AND logic 3: 8-bit output B	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
371	AND logic 3: Blocking	Input	-WC-	[1.1] DPT_Switch	1 Bit
372	AND logic 4: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
373	AND logic 4: 8-bit output A	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
374	AND logic 4: 8-bit output B	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
375	AND logic 4: Blocking	Input	-WC-	[1.1] DPT_Switch	1 Bit
376	OR logic 1: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
377	OR logic 1: 8-bit output A	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
378	OR logic 1: 8-bit output B	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
379	OR logic 1: Blocking	Input	-WC-	[1.1] DPT_Switch	1 Bit
380	OR logic 2: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
381	OR logic 2: 8-bit output A	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
382	OR logic 2: 8-bit output B	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
383	OR logic 2: Blocking	Input	-WC-	[1.1] DPT_Switch	1 Bit
384	OR logic 3: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
385	OR logic 3: 8-bit output A	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
386	OR logic 3: 8-bit output B	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
387	OR logic 3: Blocking	Input	-WC-	[1.1] DPT_Switch	1 Bit
388	OR logic 4: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit

No	Text	Function	Flags	DPT Typ	Size
389	OR logic 4: 8-bit output A	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
390	OR logic 4: 8-bit output B	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
391	OR logic 4: Blocking	Input	-WC-	[1.1] DPT_Switch	1 Bit

5.   Parameter setting

The default settings of the parameter are labeled by an <u>underscore</u>.

5.1. General settings

First set the general parameters for the bus communication (telegram rate, transmission delay). Additionally, you can indicate if for the programming of scenes all, or only the changed settings are applied to the bus.

Maximum telegram rate	1 • 2 • <u>5</u> • 10 • 20 <u>telegrams per second</u>
Send delay of threshold values after voltage returns	<u>5 s</u> ... 2 h
Send delay of switching and status outputs after voltage returns	<u>5 s</u> ... 2 h
For the use of scenes:	
Application when programming	<u>all parameters</u> • only changed parameters

5.2. Output

State here what is connected to the output channel.

Operating mode	
Channel A controls	• <u>shutter</u> • blind • awning • window

Thereafter, the setting options will appear:

Settings for drives (channel A):
*   General specifications for the connected drive
    (see *Channel settings – drives*, page 20)
*   Control functions: Movement range limit, blocking, type of automatic
    (see *Control (drives)*, page 23)
*   Automatic functions: Automatic can be specified externally or internally
    (see *Automatic for shading (drives)*, page 29 or *Automatic for windows (drives)*, page 34)
*   Scenes: Movement positions (see , page 38)
*   Button inputs: Configuration as actuator button, bust button or for zero position sensor (see *Button inputs (drives)*, page 38)

5.2.1. Channel settings – drives

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

Driving direction:

Up/down, on/off or open/close can be exchanged.

Exchange UP/DOWN *(shutter, blinds)* Exchange ON/OFF *(awning)* Exchange OPEN/CLOSE *(window)*	<u>no</u> • yes

Runtime:

The runtime between the end positions is the basis for moving into intermediate positions (e.g. for movement range limits and scenes). You can enter the runtime numerically (in seconds) or have the runtime determined automatically. The actuator specifies the end positions with help from the greater current on the drive output. For this, regular reference movements (see below) should be set.

Use an automatic runtime measurement	<u>no</u> • yes

Use an automatic runtime measurement	**no**
Runtime DOWN in sec *(shutter, blinds)* Runtime OFF in sec *(awning)* Runtime UP in sec *(window)*	1 … 320; <u>60</u>
Runtime OPEN in sec *(shutter, blinds)* Runtime ON in sec *(awning)* Runtime CLOSE in sec *(window)*	1 … 320; <u>65</u>

If a dead time is observed while starting the curtain, then this can be entered manually at this point or calculated automatically. Obey the manufacturer's instructions for the curtain.

Use dead times	• <u>no</u> • yes, enter by hand • yes, calculate automatically
during the position travel from closed position in 10 ms *(only for manual input)*	<u>0</u> … 600
for position movement from all other positions in 10 ms *(only for manual input)*	<u>0</u> … 600
for slat movement from closed position in 10 ms *(only for manual input)*	<u>0</u> … 600
for movement with change of direction in 10 ms *(only for manual input)*	<u>0</u> … 600
for slat movement from all other positions in 10 ms *(only for manual input)*	<u>0</u> … 600

Runtime zero position and step setting of slats:

(only for shutters)

Through the runtime in which the drive continues moving in the zero position (i.e. after reaching the top end position), different curtain lengths or assembly positions of the

end position switch may be balanced. The shading of a facade is completely retracted by adjusting the zero position runtimes, and thus provides a better overall image. Step time x step number determines the turning time of the slats.

Runtime zero position in 0.1 sec	0 ... 255
Step time in 10 ms	1 ... 100; 20
Step number slats	1 ... 255; 5

If the short time command for shutters (step command) is used only for slat adjustment, but not for positioning the curtain, the following parameter is set to "Yes". The parameter appears only for shutters.

Allow step commands only for slat adjustment	no • yes

Break time:
The required break times during a change of direction of the drive should be adjusted according to the specifications of the motor manufacturer.

Break time for a change of direction in 0.1 sec	5 ... 100; 10

Reference movement:
With the regular movement to the two end positions, the runtime and zero position are adjusted again. This is especially important for the automatic runtime determination. Therefore, it can be set here after how many movements before a positioning movement a reference movement will be performed. The reference movement is always in the direction of the secure position (retracting when shading, closing windows).

Perform a reference movement	no • yes

Perform a reference movement	**yes**
for more than movements before an auto positioning movement	1 ... 255; 10

Slat turning:
(only for shutters)
The slat turning should be adjusted according to the specifications of the motor manufacturer.

Turn slats	• never • only after positioning movement • after each movement

Status object and drive position:
The status and current position can be sent to the bus. By sending of 1, the status object indicates that the retracted or closed position has been exited and it is suitable for example for monitoring windows.

The exact drive position can be sent on the bus if required. The variable delay ensures that the bus is not blocked by too many data packets during a longer movement. The position can also be transmitted cyclically.

Use status object	no • yes
Use drive position feedback	no • yes
Position transmit delay after change in 0.1 s *(only for feedback)*	0...50; 10
Transmit drive position cyclically *(only for feedback)*	no • 5 s • 10 s • ... • 2 h

Scenes:
Here the scene menu is activated for this output channel.

Use scenes	no • yes

See , page 38.

5.2.1.1. Control (drives)

Set the behavior of the drive here.

Movement range limit:

The operating range limit is used in order to avoid that two units collide with each other (e.g. an awning and a window which is about to open).

One of two drive mechanisms is prioritised and is parameterised as master and the other one as slave. By means of zero position sensors, both actuators know the own current status and the current status of the other one. This one is either "in a safe position" or "not in a safe position". The safe position is reached as soon as the drive mechanism is in a sector where a collision is not possible (for an awning, for example, this might be an extension of 0 to 30%). In order to report the safe position of the drive mechanism, either a zero position sensor (e.g. final position switch or light barrier) may be connected at an input of the actuator, or the actuator receives the message of its zero position sensor by the bus (see graphic in chapter *Connection options for zero position sensors* in the general part).

Before the drive mechanism of the master actuator is moved, the slave actuator receives the command to move its drive mechanism to the safe position. As a consequence, the slave remains in safe position or it moves back if it is not within the safe range.

The master actuator knows from the communication object „Slave zero position status" whether the drive mechanism connected to the slave actuator is already in a safe position (then the master moves immediately) or not (then the master waits). Only if the master actuator is informed that the slave drive mechanism is in a safe position, it moves its drive mechanism beyond its own safe position.

Example:

The ventilation with the window shall take priority over the shading with the awning. Therefore, the window is parameterised as master, the awning as slave. Both are provided with a zero position sensor which reports whether the drive mechanism is in a safe position or not.

The awning is now extended and the window shall be opened. The window knows the status of the awning ("not safe position") and therefore submits a master command to the awning. This is the signal for the awning, to retract a little bit. As soon as the awning has reached a safe position, there is an according feedback signal of the zero position sensor of the awning. Only now the window opens.

⚠️ **Master and slave regularly exchange their positions ("safe" or "not safe"). By means of the monitoring period, you may adjust the frequency of information retrieval. The selected period should be shorter than the period which the monitored drive mechanism needs to travel from the limit of the safe range (last reported safe position) to a position where there is risk of collision.**

If the drive mechanism does not receive a master/slave or zero position object, it moves to the safe position. The same holds true for a bus voltage breakdown or for a malfunction message from the zero position sensor (is valid for the parameterisation as master and as slave).

Without movement range limitation:

Use movement range limit	**no**
Behaviour following a failure of the bus power supply	• no action • Stop • Up command (or On/Down) • Down command (or Off/Up)
Behaviour on bus voltage restoration and after programming	• no action • Up command (or On/Down) • Down command (or Off/Up)

With movement range limit:
Set if the zero position sensor of the drive is directly connected to the actuator (input channel) or if the zero position is received via the bus (communication object).

Use movement range limit	**yes**
Zero position sensor connected as	• communication object • input channel
Actuator is	master • slave

Actuator as master:

Actuator is	**master**
Send repetition for master command in sec	1 … 255; 10
Monitoring period for slave status (and zero position) object in sec	1 … 255; 10

Actuator as slave:

Actuator is	**slave**
Send repetition for slave commands in sec	1 … 255; <u>10</u>
Monitoring period for master status (and zero position) object in sec	1 … 255; <u>10</u>
Movement position for slave in % if input "Master zero position command" = 1	<u>0</u> … 100

Reference travel direction:

If the travel range is limited, the direction of the reference travel is fixed (safe position). The direction can be set without limiting the travel range.

Direction of reference travel	• <u>in safe position</u> • in closed position *(move out shading)* • in open position *(window)* • shortest route

Blocking objects:

The output channel can be blocked in case of rain, wind or other events. The manual operation is then not possible. Blocking and monitoring are configured here first. For setting the individual blocks, separate menu items "Blocking X" will appear (see chapter *Block – blocking objects*, page 27, *Block – wind blocking*, page 28 and *Block – rain blocking*, page 29).

The priorities of the blocking objects correspond to the sequence listed (Block 1 has the highest priority, Block 5 the lowest).

Use Block 1 (high priority)	• <u>no</u> • yes, with blocking object • yes, as wind blocking • yes, as rain blocking
Use block 2	• <u>no</u> • yes, with blocking object • yes, as wind blocking • yes, as rain blocking
Use block 3	• <u>no</u> • yes, with blocking object • yes, as wind blocking • yes, as rain blocking
Use block 4	• <u>no</u> • yes, with blocking object • yes, as wind blocking • yes, as rain blocking
Use Block 5 (low priority)	• <u>no</u> • yes, with blocking object • yes, as wind blocking • yes, as rain blocking

Priority is	• Block 5 over Manual • Manual over Block 5
Use monitoring of blocking objects	No • Yes
Monitoring period for blocking objects *(only if using monitoring of the blocking objects)*	5s... • 2 h; 5 min

Behaviour if a blocking object is not received
(only if blocking object monitoring is used)
	• Stop
	• Up command • Down command
	  (Shutters/roller blinds)
	• On command • Off command
	  (Awnings)
	• Close command • Open command
	  (Windows)

Short time restriction (for blinds):

If short time restriction is active, only short time movement commands are still possible manually. If the function "Allow step commands only for blind adjustment" is activated simultaneously, (see *Channel settings – drives*, page 20) only the slats can still be adjusted by hand but no longer the movement position of the shutter.
Restriction is active for object value 1.

Use short time limit	no • yes
Value of the object in front of 1. Communication and bus voltage restoration *(if short time restriction is used)*	0 • 1

Automatic reset:

With the manual operation the automatic of the drive is deactivated. Here it is set when the automatic is reactivated.

Manual switches to automatic after	• expiry of a waiting period • receiving an object • expiration of a waiting period or receipt of an object
Waiting period in min *(if "Expiration of a waiting period" was chosen)*	1...255; 20
Switch to automatic for an object value *(if "Receipt of an object" was chosen)*	0 • 1 • 0 or 1

Automatic blocking object:

With the automatic blocking object, the automatic can be deactivated for a short term (e.g. if present or during speeches in conference rooms).
Here it is also specified in which mode the channel is found when the voltage returns, i.e. after a power failure. The mode (manual or automatic) is send as a status object to the bus.

Use automatic blocking object	no • yes
Operating mode after power returns	• Automatic • Manual
Send status object	• 1 for automatic | 0 for manual • 0 for automatic | 1 for manual
Send delay of the status output Automatic or Manual in 0.1 sec	0...50

Type of automatic:

The automatic for the connected drive can be specified externally, however all the settings can also be configured internally. If "internal automatic" is chosen, a separate menu item "Automatic" (see chapter *Automatic for shading (drives)*, page 29 or *Automatic for windows (drives)*, page 34) appears.

Type of automatic	external automatic • internal automatic

Block – blocking objects

The menu item only appears if a block with blocking object was configured for "control". Here it is specified was happens for object value 1 and 0. Via the free blocking object, a fire alarm scenario may be configured for example (create escape routes by retracting the shading, smoke extraction via windows). This can prevent being locked out on the patio (opened window contact of the patio door blocks the shutter in front of the door).

Designation	[Block 1 ... 5] Enter a designation here!
If blocking object has value =1	• no action • stop • move into position • up-command • down-command *(shutter/blind)* • retract-command • extend-command *(awning)* • close-command • open-command *(window)*
If blocking object has value =0	
For manual operation before and after blocking	• no action • move into last position
For automatic operation after blocking	follow automatic
Value of the object before the 1st communication and bus voltage return	0...1

Block – wind blocking

The menu item only appears if a wind blocking was configured for "control". The input object "wind blocking" is linked with the output object of a wind sensor. The input can be a 1bit object (smaller or larger than a threshold value), as well as a 16bit object (measurement value).

Designation	[Wind blocking] Enter a designation here!
Type of input object	1 bit • 16 bit

1 bit input object:

Type of input object	**1 bit**
If blocking object has value =1	• no action • stop • move into position • up-command • down-command *(shutter/blind)* • retract-command • extend-command *(awning)* • close-command • open-command *(window)*
Waiting period in secure position in min after blocking	1...255; 5
Behavior after waiting period	
For manual operation before and after blocking	• no action • move into last position
For automatic operation after blocking	follow automatic

16 bit input object:

Type of input object	**16 bit**
As of wind speed in m/s blocking	2...30; 5
If blocking is active	• no action • stop • move into position • up-command • down-command *(shutter/blind)* • retract-command • extend-command *(awning)* • close-command • open-command *(window)*
Waiting period in secure position in min after blocking	1...255; 5
Behavior after waiting period	
For manual operation before and after blocking	• no action • move into last position

For automatic operation after blocking	follow automatic
Send current blocking status	no • yes

Block – rain blocking

The menu item only appears if a rain blocking was configured for "control". The input object "rain blocking" is linked with the output object of a rain sensor.

Designation	[rain blocking] Enter a designation here!
If blocking object has value =1	• no action • stop • move into position • up-command • down-command
Waiting period in secure position in min after blocking	1...255; 5
Behavior after waiting period	
For manual operation before and after blocking	• no action • move into last position
For automatic operation after blocking	follow automatic

5.2.1.2. Automatic for shading (drives)

The menu item "Automatic" only appears if internal automatic is selected for "control". The internal automatic functions take into account the brightness/position of the sun, outdoor and indoor temperature and allow a time and dimming control. A shading position can be specified or taught.

To be able to fully utilize the internal shading automatic, information about brightness/twilight, outdoor and indoor temperature, time and position of the sun must be present in the bus system (e.g. data from the Elsner weather stations Sun tracer KNX or Suntracer KNX-GPS).

Outdoor temperature block:

The input object "outdoor temperature block" is linked with the output object of a temperature sensor. The input object can be a 1bit object (smaller or larger than a threshold value), as well as a 16bit object (measurement value).

Use automatic blocking object	no • yes

Use automatic blocking object	**yes**
Type of temperature input object	1 bit • 16 bit

1 bit input object:

Type of temperature input object	**1 bit**

Shading is allowed if the bit is 0 and blocked if the bit is 1.

16 bit input object:

Type of temperature input object	**16 bit**
Threshold value in 0.1°C	-300 … 800; <u>50</u>
Hysteresis in 0.1°C	1 … 100; <u>20</u>
Send current blocking status	<u>no</u> • yes

Shading is allowed
if the measurement value is larger than the threshold value+hysteresis
and blocked
if the measurement value is smaller than or equal to the threshold value.

Twilight/time control:

The time control is provided via a communication object. The input object "twilight control" is linked with the output object of a brightness sensor. A 1bit object (smaller or larger than a threshold value), as well as a 16bit object (measurement value) can be used for the twilight control.

Use twilight/time control	• <u>no</u> • only twilight control • only time control • both (OR linking)

Use twilight/time control	**only twilight control / both**
Type of twilight object	<u>1 bit</u> • 16 bit

16 bit input object:

Type of twilight object	**16 bit**
Twilight threshold value in lux	1 … 1000; <u>10</u>
Switching delay	1 minute
Send current twilight status	<u>no</u> • yes

Indoor temperature release:

The input object "indoor temperature release" is linked with the output object of a temperature sensor. The input object can be a 1bit object (smaller or larger than a threshold value), as well as a 16bit object (measurement value or target and actual value).

Use inside temperature release	<u>no</u> • yes

Type of input object	<u>1 bit</u> • 16 bit • 16 bit target/actual temperature

16 bit input object:

Type of input object	**16 bit**
Threshold value in 0.1°C	-300 … 800; <u>200</u>

Hysteresis in 0.1°C	1 ... 100; <u>20</u>
Send current blocking status	<u>no</u> • yes

16 bit input object (target/actual temperature):
For this function the target value and actual value (measurement values) are imported from the 16bit object and evaluated.

Type of input object	**16 bit target/actual temperature**
Target value (SW) – actual value (MW) Difference in 0.1°C	1 ... 100; <u>20</u>
Hysteresis in 0.1°C	1 ... 100; <u>20</u>
Send current blocking status	<u>no</u> • yes

Shading is allowed if the measurement value is greater than or equal to the target value+difference
and blocked if the measurement value is smaller than the target value+hysteresis difference.

Automatic shading:

The automatic shading evaluates the input objects "brightness" and "position of the sun" of a weather station. The moving position for the automatic shading is specified here as well.

Use automatic shading	<u>no</u> • yes

Brightness:

For controlling brightness, a 1bit object (smaller or larger than a threshold value), as well as two or three 16bit objects (measurement values, e.g. East, South and West sun) can be used.

Type of shading input	<u>1 x 1 bit</u> • 1 x 16 bit • 2 x 16 bit • 3 x 16 bit

1 x 1 bit input object:
Set the delay times for shading (prevents constant opening and closing when light conditions change quickly).

Type of shading input	**1 x 1 bit**
Drive up delay in min	0 ... 255; <u>12</u>
Departure delay in min	0 ... 30; <u>1</u>

1 x 16 bit, 2 x 16 bit or 3 x 16 bit as an input object:
The brightness threshold value can be specified per parameter or communication object. For several brightness measurement values (2 x 16 bit or 3 x 16 bit) only the maximum brightness value is compared to the threshold value.

Type of shading input	**1 x 16 bit • 2 x 16 bit • 3 x 16 bit**
Shading threshold specification per	<u>parameter</u> • communication object

Threshold value per parameter:
Set the threshold value and delay times for shading (prevents constant opening and closing when light conditions change quickly).

Shading threshold specification per	**Parameter**
Shading threshold value in klux	0 … 100; 30
Drive up delay in min	0 … 255; 12
Drive down delay in min	0 … 30; 1
Send current shading status	No • Yes

Threshold value per communication object:
The threshold value is received via the communication object and can be changed additionally (e.g. button for "more sensitive" and "less sensitive"). Set the delay times for shading here (prevents constant opening and closing when light conditions change quickly).

Shading threshold specification per	**communication object**
The value communicated last shall be retained	• not • after voltage returns • after voltage returns and programming
Start threshold value in klux valid until 1st communication	0 … 100; 30
Type of limit value change	• Absolute value with a 16bit comm. object • Lifting/lowering with a comm. object • Lifting/lowering with two comm. objects
Increments in klux *(only when "lifting/lowering with comm. object")*	1 … 5; 2
Drive up delay in min	0 … 255; 12
Drive down delay in min	0 … 30; 1
Send current shading status	no • yes

Position of the sun:

Assess position of the sun	no • yes

Assess position of the sun	**yes**
Position of the sun is defined via	• Discreet value of azimuth and elevation • Directions (regarding azimuth and elevation)

Defining position of sun via values:
Enter the range (direction and height) in which the sun must be located for the shading to be active.

Position of the sun is defined via	**discreet value of azimuth and elevation**
Azimuth from	0 … 360

Azimuth to	0 ... 360
Elevation from	0 ... 90
Elevation to	0 ... 90

Defining position of the sun via directions:
Enter the direction in which the sun must be positioned so that the shading is active.

Position of the sun is defined via	**directions** **(regarding azimuth and elevation)**
Directions	• East (azimuth: 0° ... 180°) • South east (azimuth: 45° ... 225°) • South (azimuth: 90° ... 270°) • South west (azimuth: 135° ... 315°) • West (azimuth: 180° ... 360°)

Slats and moving position (for shutters):

For shutters the angle of the slats can be firmly set, or the slats can automatically follow the elevation. This rule applies: Slats are closed at 100%, horizontal at 50%.

Should the slats follow the elevation	no • yes

The slats should **not** follow the elevation (fixed reversing angle):
Adjust the desired position of the slats and the curtain.

Should the slats follow the elevation	**no**
Slat position in %	0 ... 100; 75
Shutter position in %	0 ... 100; 75
Use teaching object for new shading position *(curtain and slat positions will be saved, see info below)*	no • yes

The slats shall follow the elevation:
Three different elevation ranges can be set. A fixed curtain and slat position is specified for each.

Should the slats follow the elevation	**yes**
For an elevation less than (in degrees)	0 ... 90; 10
Slat position in %	0 ... 100; 95
otherwise Slat position in %	0 ... 100
Shutter position in %	0 ... 100
Use teaching object for new shading position *(only the curtain position will be saved, see info below)*	no • yes

Moving position (for awnings and blinds):

Awning position in % or blind position in %	0 … 100; <u>75</u>
Use teaching object for new shading position	<u>no</u> • yes

Use teaching object for new shading position: The curtain position it can be specified numerically or taught manually. For teaching set "use teaching object: Yes" and the "channel X shading position teaching object" is used for saving the position reached. Saving occurs for value = 1 and can for example be realized via a button linked to the teaching object. Numerical specifications already set are overwritten by the teaching object.

5.2.1.3. Automatic for windows (drives)

The menu item "Automatic" only appears if internal automatic is selected for "Control". Depending on the setting, the internal automatic functions take the outdoor temperature, indoor temperature and room air humidity into account, and allow forced ventilation via a communication object.

In order to fully utilize the internal ventilation automatic, information about the outdoor and indoor temperature and the inside air humidity must be present in the bus system.

Cold supply air lock:

The input object "cold supply air block" is linked with the output object of a temperature sensor. The input object can be a 1bit object (smaller or larger than a threshold value), as well as a 16bit object (measurement value).

Use cold supply air block	<u>no</u> • yes

Use cold supply air block	**yes**
Type of temperature input object	<u>1 bit</u> • 16 bit

1bit input object:

Type of temperature input object	**1 bit**

Ventilation is allowed if the bit is 0 and blocked if the bit is 1.

16bit input object:

Type of temperature input object	**16 bit**
Threshold value in 0.1°C	-300 … 800; <u>50</u>
Hysteresis in 0.1°C	1 … 100; <u>20</u>
Send current blocking status	<u>no</u> • yes

Ventilation is allowed if the measurement value is larger than the threshold value+hysteresis
and blocked if the measurement value is smaller than or equal to the threshold value.

Forced ventilation:

Use forced ventilation	<u>no</u> • yes

If forced ventilation is active ("use forced ventilation: Yes"), ventilation is started as soon as the communication object "forced ventilation" = 1.

Warm supply air block:

The input object "warm supply air block" is linked with the output object of one or more temperature sensors. The input object can be a 1bit object (smaller or larger than a threshold value), as well as a 16bit object (measurement value indoor/outdoor or target and actual value).

Use warm supply air block	<u>no</u> • yes

Use warm supply air block	**yes**
Type of input object	<u>1 bit</u> • 16 bit • 16 bit target/actual temperature

1bit input object:

Type of input object	**1 bit**

Ventilation is allowed if the bit is 0 and blocked if the bit is 1.

16bit input object:

Type of input object	**16 bit**
Threshold value in 0.1°C	-100 … 200; <u>50</u>
Hysteresis in 0.1°C	1 … 100; <u>20</u>
Send current blocking status	<u>no</u> • yes

Ventilation is allowed if the outdoor measurement value is smaller than the indoor measurement value+difference-hysteresis and blocked if the outdoor measurement value is greater than or equal to the indoor measurement value+difference.

16bit input object (target/actual temperature):
For this function the target value and actual value (measurement values) are imported from the 16bit object and evaluated.

Type of input object	**16 bit target/actual temperature**
Close if outdoor temperature exceeds the target value by (in 0.1°C)	0...255; <u>50</u>
Hysteresis in 0.1°C	1...100; <u>20</u>
Send current blocking status	<u>no</u> • yes

Ventilation is allowed if the outdoor measurement value is smaller than the target value+difference-hysteresis and blocked if the outdoor measurement value is greater than or equal to the target value+difference.

Open by temperature/humidity:

Open window	• <u>never</u> • if too high temperature • if too high room air humidity • if too high temperature or room air humidity

Indoor temperature:

These parameters appear if ventilated at "too high temperature" / "too high temperature or room air humidity". The input object can be a 1bit object (smaller or larger than a threshold value), as well as a 16bit object (measurement value or target and actual value).

Type of temperature input object	<u>1 bit</u> • 16 bit • 16 bit target/actual temperature

1 bit input object:

Type of temperature input object	**1 bit**

Ventilation is activated if the bit is 0 and blocked if the bit is 1.

16 bit input object:
The threshold value specification can be provided via a parameter or communication object.

Type of temperature input object	**16 bit**
Indoor temperature of threshold specification via	<u>parameter</u> • communication object

Threshold value per parameter:

Indoor temperature of threshold specification via	**parameter**
Indoor temperature threshold value in 0.1?	-100 … 500; <u>300</u>
Hysteresis in 0.1?	1 … 100; <u>20</u>
Send current temperature status	<u>no</u> • yes

Threshold value per communication object:
The threshold value is received via the communication object and can be changed additionally (e.g. button for target temperature + and -).

Indoor temperature threshold specification via	**communication object**
The value communicated last shall be retained	• <u>not</u> • after voltage returns • after voltage returns and programming
Start threshold value in 0.1°C valid until 1st communication	100 … 500; <u>300</u>

Type of limit value change	• <u>Absolute value with a 16bit comm. object</u> • Lifting/lowering with a comm. object • Lifting/lowering with two comm. objects
Increments *(only when "lifting/lowering with comm. object")*	0.1°C ... 5°C; <u>1°C</u>
Hysteresis in 0.1?	1 … 100; <u>20</u>
Send current temperature status	<u>no</u> • yes

16 bit input object (target/actual temperature):
For this function the target value and actual value (measurement values) are imported from the 16bit object and evaluated.

Type of temperature input object	**16 bit target / actual temperature**
Open if actual value exceeds the target value (in 0.1°C)	0...255; <u>20</u>
Hysteresis in 0.1°C	1...100; <u>20</u>
Send current blocking status	<u>no</u> • yes

Room air humidity:

These parameter appear if ventilated at "too high room air humidity" / "too high temperature or room air humidity". The input object can be a 1bit object (smaller or larger than a threshold value), as well as a 16bit object (measurement value).

Type of humidity input object	<u>1 bit</u> • 16 bit

1 bit input object:

Type of humidity input object	**1 bit**

Ventilation is activated if the bit is 0 and blocked if the bit is 1.

16 bit input object:

Type of humidity input object	**16 bit**
Indoor humidity threshold value in %	0 … 100; <u>60</u>
Hysteresis in 0.1°C	1 … 100; <u>5</u>
Send current humidity status	<u>no</u> • yes

Window opening:

If the ventilation by temperature or humidity is controlled via a 1bit input object, then enter the opening position in %.

Window opening in %	1...<u>100</u>

If the ventilation is controlled by temperature and humidity via a 16bit input object, then you can either set an opening position or open the windows incrementally. In the

step operation the temperature/humidity deviation is checked after a specified period of time, and may be increased/decreased by one step.

Window opening	absolute in % • incrementally
Window opening in % *(only if "window opening is absolute in %")*	1...100
incrementally by (in %) *(only if "window opening is in increments")*	1...100; 25
every (in minutes) *(only if "window opening is in increments")*	1...60; 3

5.2.1.4. Button inputs (drives)

Depending on the model, there are no inputs, two or four inputs.

The inputs can be used as actuator button or bus button. If a temperature sensor (eg. T-NTC) is connected, the input is configured as a push button with function „temperature sensor (NTC)".

The input 1 can be used *alternatively* for a zero position sensor.

Operating mode	
Use input 1	• no • as a bus button • as an actuator switch • as a zero position sensor
Use input 2 (3 / 4)	• no • as a bus button • as an actuator switch

Input as bus button

If an input is used as a free bus button, it will send a previously set value to the bus when activated. In the program file of the actuator **KNX S1R-B4-UP 24 V** different parameters are integrated for frequently needed bus functions. Thus, the inputs can easily be configured as a switch, drive control, dimmer for sending values and for the scene calls.

Bus function	• Switch • Selector switch • Shutter • Blind • Awning • Window • Dimmer • 8 bit encoder • Temperature encoder • Brightness encoder • Scenes

Input as switch:

If a button with switch function is assigned to the input, select the bus function "Switch" and specify which value is sent when pressing/releasing the button and when it will be sent.

Bus function	**Switch**
Command when pressing the button	• send 0 • send 1 • do not send telegram
Command when releasing the button	• send 0 • send 1 • do not send telegram
Send value	• no change • for change to 1 • for change to 0 • for change and cyclical • for change to 1 and cyclical • for change to 0 and cyclical
Send all values *(only if sent as "cyclical")*	5 s ... 2 h

The input can be blocked using a blocking object. Set what is transmitted to the bus when (de)activating blocking.
For active blocking there is *no* cyclical transmission.

Use blocking object	No • **Yes**
Once when activating the blocking	• send 0 • send 1 • do not send telegram
Once when deactivating the blocking	• send 0 • send 1 • do not send telegram • send current state

Input as selector switch:

If a button with switch function is assigned to the input, select the bus function "Selector switch" and specify if the button should switch when pressed/released.

Bus function	**Selector switch**
Command when pressing the button	• selector switch • do not send telegram
Command when releasing the button	• selector switch • do not send telegram

The input can be blocked using a blocking object. For active blocking there is *no bus communication*.

Use blocking object	No • Yes

Input to shutter, blinds, awning or window control:

If the input to the drive control is used via the bus, select the bus function "shutter", "awning", "blinds" or "window" and specify the button function and control mode.

Bus function	Shutter / blinds / awning / window	
Button function	Up • Down Up • Down • Up/ Down On • Off • On/Off Open • Closed • Open/Closed	(shutter) (blinds) (awning) (window)
Control mode*	• Standard • Standard inverted • Comfort mode • Dead man's switch	

*A detailed description of the setting options for the individual control modi can be found in the general part of chapter *Control modi for drive control*, page 49.

The input can be blocked using a blocking object. For active blocking there is *no bus communication*.

Use blocking object	No • Yes

Input as dimmer:

If the input is used as a dimmer, select the bus function "Dimmer" and specify the button function, time interval (switching/dimming) and if requested, the repeat interval for a long button press.

Bus function	Dimmer
Button function	brighter • darker • brighter/darker
Time between switching and dimming in 0.1 seconds	1...50; 5
Repeat the dimm command	no • yes
Repeat the dimm command for a long button press *(only if dimm command is repeated)*	every 0.1 s • every 2 sec; every 1 sec
Dim by *(only if dimm command is repeated)*	1,50% • 3% • 6 % • 12,50% • 25% • 50%

The input can be blocked using a blocking object. For active blocking there is *no bus communication*.

Use blocking object	No • Yes

Input 8 bit encoder:

If the input is to be used as an 8bit encoder, select the "8 bit encoder" bus function and specify which value will be sent.

Bus function	**8 bit encoder**
Value	0...255

The input can be blocked using a blocking object. For active blocking there is *no bus communication*.

Use blocking object	No • Yes

Input as temperature encoder:

If the input is used as a temperature encoder, then choose the bus function "Temperature encoder" and specify which value between -30°C and +80°C will be sent. By sending a temperature value, the target value of the temperature control may be changed for example (e.g. Elsner KNX T-UP).

Bus function	**Temperature encoder**
Temperature in 0.1°C	-300...800; 200

The input can be blocked using a blocking object. For active blocking there is *no bus communication*.

Use blocking object	No • Yes

Input as brightness encoder:

If the input is assigned and shall be used as a brightness encoder (e.g. switch output of a sun sensor), select "brightness encoder" and specify which value will be sent. By sending a brightness value, the threshold value of the sun sensor may be changed for example (e.g. Elsner KNX L).

Bus function	**Brightness encoder**
Brightness in klux	0...100; 20

The input can be blocked using a blocking object. For active blocking there is *no bus communication*.

Use blocking object	No • Yes

Input for scene control:

If scenes are called and saved with the input, then choose the "Scenes" bus function and specify the saving, time difference (call/save) and scene number.

Bus function	**Scenes**
Button operation	• without saving • with saving
Time between calling and saving in 0.1 seconds *(only if selected "with saving")*	1...50; 10
Scene No.	0...127

The input can be blocked using a blocking object. For active blocking there is *no bus communication*.

Use blocking object	<u>No</u> • Yes

Input with temperature sensor (NTC):

If a temperature sensor is connected to the input, then choose the bus function „temperature sensor" and set specifications for malfunction object, offset, mixed vaue and sending behavior.

The offset compensates measurement errors, for example caused by interference sources.

Bus function	**Temperature sensor (NTC)**
Use malfunction object	<u>No</u> • Yes
Offset in 0.1°C	-50...50; <u>0</u>
Use external measured value	<u>No</u> • Yes
Ext. MV ratio of the total value *(only if an ext. MV is used)*	5% • 10% • ... • <u>50%</u> • ... 95% • 100%
Transmit behaviour	• cyclically • <u>on change</u> • on change and cyclically
Send value all *(only when sending cyclically)*	<u>5 s</u> ... 2 h
On change of *(only when sending on change)*	0.1°C ... 5°C; <u>5.0°C</u>

If a mixed value from own and external measuring value has been set, then all the following settings pertain to the total measured value.

Input as actuator button

If this channel is used for the input to the control of the drive, then specify the button function and the control mode.

Button function	<u>Up</u> • Down <u>Up</u> • Down • Up/Down <u>On</u> • Off • On/Off <u>Open</u> • Closed • Open/Closed	(shutter) (blind) (awning) (window)
Control mode*	• <u>Standard</u> • Standard inverted • Comfort mode • Dead man's switch	

*A detailed description of the setting options for the individual control modi can be found in the general part of chapter *Control modi for drive control*, page 49.

The input can be blocked using a blocking object. No operation is possible for an active block.

Use blocking object	<u>No</u> • Yes

If monitoring periods or movement range limits are used, no operation via the local button is possible in case of a bus voltage failure.

Input as zero position sensor

The zero position sensor is used for the movement range limit of the respective drive (see *Channel settings – drives*, page 20). In case of a defect zero position sensor a malfunctioning message can be sent to the bus.

Send malfunction message when zero position sensor is defective	<u>No</u> • Yes

5.3. Temperature threshold values

Activate the threshold values that you want to use here. The **Actuator KNX S1R-B4-UP 24 V** provide four threshold values for temperature.

Use threshold value 1/2/3/4	Yes • <u>No</u>

5.3.1. Temperature threshold value 1, 2, 3, 4

Threshold value:

Set the threshold values directly in the application program using parameters, or define them via the bus using a communications object.

Threshold value setpoint using parameter:
Set the threshold values and hysteresis directly.

Threshold value setpoint using	**Parameter** • Communications object
Temperature: Threshold value in 0.1°C *Humidity:* Threshold value in % rH	-300 … 800; <u>200</u> 0...100; <u>70</u>
Hysteresis of the threshold value in %	0 … 50; <u>20</u>

Threshold value setpoint using a communications object:
Beforehand, enter how the threshold value will be received from the bus. Basically, a new value can be received, or simply a command to increase or decrease.

During initial commissioning, a threshold value must be defined which will be valid until the 1st communication of a new threshold value. For units which have already been taken into service, the last communicated threshold value can be used. Basically, a temperature range is given in which the threshold value can be changed (object value limit).

A set threshold value will be retained until a new value or a change is transferred. The current value is saved in EEPROM, so that this is retained in the event of a power supply failure and will be available once the power supply is restored.

Threshold value setpoint using	Parameter • **Communications object**
The last communicated value should be retained	• <u>never</u> • after restoration of power • after restoration of power and programming
Start threshold value in 0.1°C valid till 1st communication	-300 … 800; <u>200</u>
Object value limit (min) in 0.1°C	<u>-300</u>…800
Object value limit (max) in 0.1°C	-300…<u>800</u>
Type of threshold change	<u>Absolute value</u> • Increase/decrease
Step size *(upon increase/decrease change)*	0.1°C • ... • <u>1°C</u> • ... • 5°C
Hysteresis of the threshold value in %	0 … 50; <u>20</u>

Switching output:

Set the behaviour of the switching output when a threshold value is exceeded/undercut. The output switching delay can be set using objects or directly as a parameter.

When the following conditions apply, the output is (LV = Threshold value)	• LV above = 1 |LV - hysteresis below = 0 • LV above = 0 |LV - hysteresis below = 1 • <u>LV below = 1 |LV + hysteresis above = 0</u> • LV below = 0 |LV + hysteresis above = 1
Delays can be set via objects (in seconds)	<u>No</u> • Yes
Switching delay from 0 to 1 *(when delay is not set using objects)*	<u>None</u> • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching delay from 1 to 0 *(when delay is not set using objects)*	<u>None</u> • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching output sends	• <u>on change</u> • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Send cycle *(is only sent if "periodically" is selected)*	<u>5 s</u> • 10 s • 30 s... • 2 h

Block:

The switching output can be blocked using an object. Define specifications here for the behaviour of the output when blocked.

Use switching output block	<u>No</u> • Yes
Analysis of the blocking object	• <u>At value 1: block | At value 0: release</u> • At value 0: block | At value 1: release
Blocking object value before 1st communication	<u>0</u> • 1
Behaviour of the switching output	
With blocking	• <u>Do not send message</u> • send 0 • send 1
On release (with 2 seconds release delay)	[Dependent on the "Switching output sends" setting]

The behaviour of the switching output on release is dependent on the value of the parameter "Switching output sends" (see "Switching output")

Switching output sends on change	• Do not send message • Send switching output status
Switching output sends on change to 1	• Do not send message • If switching output = 1 ➔ send 1
Switching output sends on change to 0	• Do not send message • If switching output = 0 ➔ send 0
Switching output sends on change and periodically	Send switching output status
Switching output sends on change to 1 and periodically	If switching output = 1 ➔send 1
Switching output sends on change to 0 and periodically	If switching output = 0 ➔send 0

5.3.2. Logic

Activate the logic inputs and assign object values up to 1st communication. Then, activate the required logic outputs.

Use logic inputs	<u>No</u> • **Yes**
Object value prior to 1. communication for:	
Logic input 1... 16	<u>0</u> • 1

AND logic

Logic 1/2/3/4/5/6/7/8	<u>not active</u> • active

OR logic

Logic 1/2/3/4/5/6/7/8	<u>not active</u> • active

5.3.3. AND and/or OR logic 1/2/3/4

AND- and OR logic gates provide the same setting options. Assign the inputs to a switching event and set the send behaviour.

1. / 2. / 3. / 4. Input	• do not use • all switching events which are available to the devoice (siehe *AND logic connection inputs*, Seite 47)")
Logic output sends	• one 1-bit object • two 8-bit objects

If the logic output sends one 1-bit object:

Logic output sends	**one 1 bit object**
if logic = 1 ➔ object value	1 • 0
if logic = 0 ➔ object value	0 • 1

If the logic output sends two 8-bit objects:

Logic output sends	**two 8 bit objects**
Type of objects	• Value (0 ... 255) • Percent (0% ... 100%) • Angle (0°... 360°) • Scenario load (0 ... 127)
if logic = 1 ➔ object A value	Setting dependent on "type of object"
if logic = 0 ➔ object A value	Setting dependent on "type of object"
if logic = 1 ➔ object B value	Setting dependent on "type of object"
if logic = 0 ➔ object B value	Setting dependent on "type of object"

Send behaviour	• on change of logic • on change of logic to 1 • on change of logic to 0 • on change of logic and periodically • on change of logic to 1 and periodically • on change of logic to 0 and periodically • on change of logic + receipt of object • on change of logic + receipt of object and periodically
Send cycle *(is only sent if "periodically" is selected)*	5 s • 10 s • 30 s • 1 min • ... • 2 h

Block

Logic outputs can also be blocked using objects.

Analysis of the blocking object	• at value 1: block | at value 0: release • at value 0: block | at value 1: release
Blocking object value before 1st communication	0 • 1

Behaviour of the switching output	
With blocking	• do not send message • send value for logic = 0 • send value for logic = 1

Behaviour on release of the switching output is dependent on send behaviour

Value of the parameter "Send behaviour":	Settings options "Behaviour of the switching output on release":
on change of logic	• do not send message • send value for current logic status
on change of logic to 1	• do not send message • if logic = 1 ➜ send value for 1
on change of logic to 0	• do not send message • if logic = 0 ➜ send value for 0
on change of logic and periodically	send value for current logic status (no selection)
on change of logic to 1 and periodically	if logic = 1 ➜ send value for 1 (no selection)
on change of logic to 0 and periodically	if logic = 0 ➜ send value for 0 (no selection)
on change of logic and receipt of object	• do not send message • Status object/s send/s
on change of logic and receipt of object and periodically	send value for current logic status (no selection)

5.3.4. AND logic connection inputs

do not use
Logic input 1
Logic input 1 inverted
Logic input 2
Logic input 2 inverted
Logic input 3
Logic input 3 inverted
Logic input 4
Logic input 4 inverted
Logic input 5
Logic input 5 inverted
Logic input 6
Logic input 6 inverted
Logic input 7
Logic input 7 inverted
Logic input 8
Logic input 8 inverted
Logic input 9
Logic input 9 inverted

Logic input 10
Logic input 10 inverted
Logic input 11
Logic input 11 inverted
Logic input 12
Logic input 12 inverted
Logic input 13
Logic input 13 inverted
Logic input 14
Logic input 14 inverted
Logic input 15
Logic input 15 inverted
Logic input 16
Logic input 16 inverted

5.3.5. Connection inputs of the OR logic

The OR logic connection inputs correspond to those of the AND logic. In addition the following inputs are available for the OR logic:

Switching output AND logic 1
Switching output AND logic 1 inverted
Switching output AND logic 2
Switching output AND logic 2 inverted
Switching output AND logic 3
Switching output AND logic 3 inverted
Switching output AND logic 4
Switching output AND logic 4 inverted

6. General part

6.1. Output channel with drive

6.1.1. Control modi for drive control

If inputs are used as buttons for operating shading or windows, then different control modi can be set.

Control mode	• Standard
	• Standard inverted
	• Comfort mode
	• Dead man's switch

Standard:

If briefly operated, the drive will move incrementally or stops. If operated longer, the drive will move up to the end position. The time difference between "short" and "long" is set individually.

Control mode	Standard
Behavior during button operation: short = stop/increment long = Up or Down	
Time between short and long in 0.1 seconds	1...50; 10

Standard inverted:

When pushed shortly, the drive moves up to the end position. When pushed for longer, the drive moves incrementally or stops. The time difference between "short" and "long" and the repeat interval is set individually.

Control mode	Standard inverted
Behavior during button operation: short = Up or Down long = Stop/Step	
Time between short and long in 0.1 seconds	1...50; 10
Repeat the step command for a long button press	every 0.1 s • every 2 sec; every 0.5 sec

Comfort mode:

In the **comfort mode** pushing the button briefly, a bit longer and long will trigger different responses of the drive. The time intervals are set individually.

By pushing the button (shorter than adjustable time 1) the drive will be positioned (resp. stopped) incrementally.

If the drive is to be moved a bit farther, then a little longer push is needed (longer than time 1 but shorter than time 1+2). The drive stops immediately when releasing the button.

If the drive must be moved independently into the end position, the button is released only after times 1 and 2 have expired. The move can be stopped by briefly pushing.

Fig. 5
Time interval comfort mode diagram
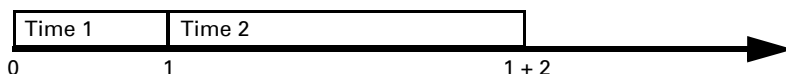
Point in time 0:	Push of button, start of time 1
Release before time 1 expired:	step (or stop if drive is moving)
Point in time 1:	End of time 1, start of time 2 Moving command
Release after time 1 expired but before time 2 expires:	Stop
Release after time 1 + 2 expired:	Move into end position

Control mode	Comfort mode
Behavior during button operation: Button is pushed and released before time 1 expired = stop/step held longer than time 1 = Up or Down released between time 1 and 1-2= stop released after time 1 +2 = no more stop	
Time 1	0.0s ... • 2 s; 0.4 s
Time 2	0 s • 2 s; 2 s

Dead man's switch:

The drive moves as soon as the button is pushed and stops as soon as the button is released.

Control mode	Dead man's switch
Behavior during button operation: Push button = Up or Down command Release button = Stop command	