KNX S2

Actuator for drives up/down

Item number 70541

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.

▢ "Control unit"
The symbol is followed by a menu path. In this menu the settings just described can be changed.

🕮 "Manual"
The symbol is followed by chapter information with a page number. In this chapter you will find additional information about the setting just described.

1. Description

With the **Actuator KNX S2** with integrated facade control, the drives of shutters, awnings, blinds or windows are controlled. The connected drives can be directly operated with the switch pairs of the actuator.

With the potential-free design of the outputs, drives of up to 30 VDC and 230 VAC can be controlled, as well as other systems (e.g. manual switch input of a motor control unit).

The automation for the shading or window ventilation 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).

Functions:

- **2 potential-free outputs** for drives of shading or windows.
- Switch panel with **switch pairs** and status LEDs
- **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)
- Control via **internal or external automation functions**
- Integrated **shade control** for each drive output (with **slat tracking** according to sun position for shutters)
- Integrated **window ventilation control**
- **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 that safety functions always take precedence (e.g. wind block)
- **Manual or automatic control configuration** per time or communication object
- **5 security objects** for each channel
- **Brief time limit** (movement command blocked) and **2 movement limits**

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. Deliverables

- Actuator

1.1. Technical specifications

Housing	Plastic
Colour	White

Assembly	Series installation on mounting rail
Protection category	IP 20
Dimensions	approx. 53 x 88 x 60 (W x H x D, mm), 3 modules
Weight	approx. 150 g
Ambient temperature	Operation -20…+70°C, storage -55…+90°C
Ambient humidity	max. 95% RH, avoid condensation
Operating voltage	bus voltage
Current at the bus	approx. 22 mA
Outputs	2 × output up/down potential-free, up to 30 V DC or 230 V AC, max. 4 A per output with resistive load
Data output	KNX +/- bus plug terminal
BCU type	Integrated microcontroller
PEI type	0
Group addresses	max. 1024
Assignments	max. 1024
Communication objects	207

The product is compliant with the provisions of EC guidelines.

2. Installation and commissioning

2.1. Installation notes

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

DANGER!
Risk to life from live voltage (mains voltage)!
There are unprotected live components within the device.

- VDE regulations and national 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. Connection

When installing and laying the cables for the KNX connection, the regulations and standards governing SELV current circuits must be observed!

2.2.1. Overview

The device is designed for series installation on mounting rails and occupies 3U.

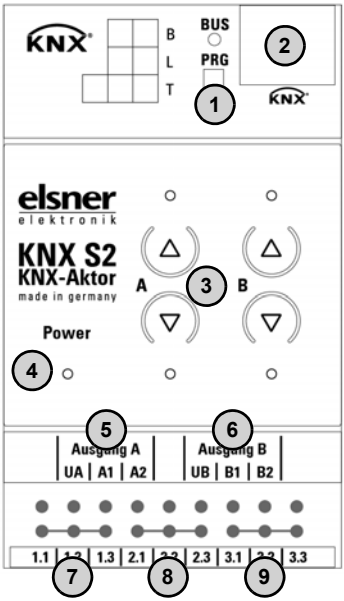


Fig. 1

1 *Programmable LED and programmable buttons (PRG)*
2 *Bus terminal socket (KNX +/-)*
3 *Up/Down button pairs and LEDs channel A-B*
4 *Power LED, operation status indicator. See "Display of operating status with the power supply LED", page 7.*
5 *Output A:*
UA (voltage) / A1 (up) / A2 (down), max. 4 A
6 *Output B:*
UB (voltage) / B1 (up) / B2 (down), max. 4 A
7 *Free clamps 1.1 to 1.3 (internally bridged), maxi. 10 A per clamp*
8 *Free clamps 2.1 to 2.3 (internally bridged), maxi. 10 A per clamp*
9 *Free clamps 3.1 to 3.3 (internally bridged), maxi. 10 A per clamp*

Insulation properties of the clamp groups:

The **Actuator KNX S2** is assigned to Overvoltage category III and Pollution degree 2 according to EN60664-1. According to this classification,
between 230 V power cables and FELV 4 kV surge voltage resistance and
between 230 V power cables and SELV 6 kV surge voltage resistance
must be provided. This provision must be observed during the installation.

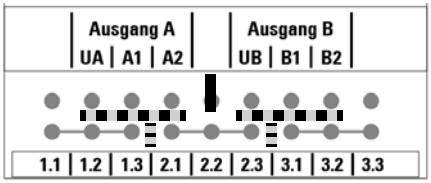


Fig. 2 Insulation properties of the clamp groups
Insulation 6 kV (increased insulation)
Insulation 4 kV (single insulation)

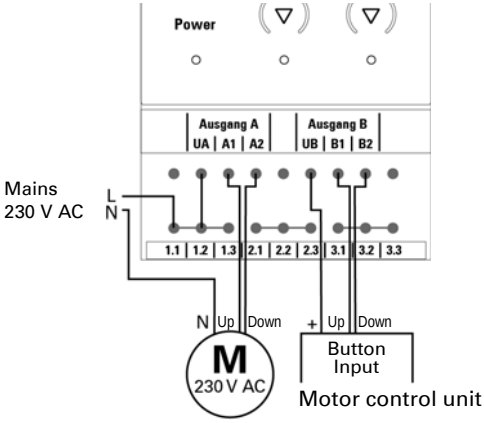
Non-labelled clams may not be used, to avoid influencing the insulation properties!

Neighbouring clamp groups [1.1 to 1.3], [2.1 to 2.3] and [3.1 to 3.3] may not be used with mixed voltages, as there is only single insulation between them.

2.2.2. Connection example KNX S2

Output A: Motor 230 V AC, up/down
Output B: External motor control unit. The **Actuator KNX S2** is suitable for the use with direct voltage (12 V DC, 24 V DC) through the potential-free output. In this case, the U-connection is used as “Com”.

Fig. 3



2.2.3. Display of operating status with the power supply LED

Behaviour	Colour	
To	Green	Normal operation. Bus connection/bus voltage present.
To	Orange	Device starts or is programmed via the ETS. No automatic functions are executed.
Flashes	Green (on), Orange (flashing)	Programming mode active.

2.2.4. Status display with the channel LEDs

Behaviour	LED	
To	top	Drive in top end position/device on.
To	bottom	Drive in bottom end position/drive on.
Flashes slowly	top	Drive moves up.
Flashes slowly	bottom	Drive moves down.
Flashes quickly	top	Drive in top end position, block active.
Flashes quickly	bottom	Drive in bottom end position, block active.
Flashes quickly	both simultane-ously	Drive in intermediate position, block active.
Off	both	Drive in intermediate position.
“Running light" over all LEDs	all channels	Incorrect application version loaded. Use the version compatible with the device!

2.3. Notes on mounting and commissioning

Device must not be exposed to water (rain). This could result in the electronic being damaged. A relative air humidity of 95% must not be exceeded. Avoid bedewing.

After the operating 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. Transfer protocol

3.1. List of all communication objects

Abbreviations:
R Read
W Write
C Communication
T Transfer

No.	Text	Function	Flags	Data Point Type	Size
1	Software version	Readable	R-C-	[217.1] DPT_Version	2 Bytes
100	Channel A - Automatic or manual status	Output	R-CT	[1] 1.xxx	1 Bit
101	Channel A - Manual extended	Input	RWC-	[1.8] DPT_UpDown	1 Bit
102	Channel A - Manual brief	Input	RWC-	[1.8] DPT_UpDown	1 Bit
103	Channel A - Manual movement position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
104	Channel A - Manual slat position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
105	Channel A - Automatic extended	Input	RWC-	[1.8] DPT_UpDown	1 Bit
106	Channel A - Automatic brief	Input	RWC-	[1.8] DPT_UpDown	1 Bit
107	Channel A - Automatic movement position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
108	Channel A - Automatic slat position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
109	Channel A - Switch from manual to automatic	Input	RWC-	[1] 1.xxx	1 Bit
110	Channel A - Automatic blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
111	Channel A - Current movement position	Output	R-CT	[5.1] DPT_Scaling	1 Byte
112	Channel A - Current slat position	Output	R-CT	[5.1] DPT_Scaling	1 Byte
113	Channel A - Status object	Output	R-CT	[1] 1.xxx	1 Bit
114	Channel A - Approach position memory manually	Input	RWC-	[1.1] DPT_Switch	1 Bit
115	Channel A - Learn object position memory manually 0	Input	RWC-	[1.1] DPT_Switch	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
116	Channel A - Learn object position memory manually 1	Input	RWC-	[1.1] DPT_Switch	1 Bit
119	Channel A - Approach position memory automatically	Input	RWC-	[1.1] DPT_Switch	1 Bit
120	Channel A - Learn object position memory automatically 0	Input	RWC-	[1.1] DPT_Switch	1 Bit
121	Channel A - Learn object position memory automatically 1	Input	RWC-	[1.1] DPT_Switch	1 Bit
124	Channel A - Call up / saving scenes	Input	RWC-	[18.1] DPT_SceneControl	1 Byte
125	Channel A - Outdoor temperature blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
126	Channel A - Outdoor temperature blocking measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
127	Channel A - Outdoor temperature blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
128	Channel A - Twilight object	Input	RWC-	[1.1] DPT_Switch	1 Bit
129	Channel A - Twilight measurement value	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
130	Channel A - Twilight status	Output	R-CT	[1.1] DPT_Switch	1 Bit
131	Channel A - Time control	Input	RWC-	[1.1] DPT_Switch	1 Bit
132	Channel A - Inside temperature release object	Input	RWC-	[1.1] DPT_Switch	1 Bit
133	Channel A - Inside temperature release measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
134	Channel A - Inside temperature release target value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
135	Channel A - Inside temperature release status	Output	R-CT	[1.1] DPT_Switch	1 Bit
136	Channel A - Shading object	Input	RWC-	[1.1] DPT_Switch	1 Bit
137	Channel A - Shading brightness measurement value 1	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes

No.	Text	Function	Flags	Data Point Type	Size
138	Channel A - Shading brightness measurement value 2	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
139	Channel A - Shading brightness measurement value 3	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
140	Channel A - Shading threshold value	Input / Output	RWCT	[9.4] DPT_Value_Lux	2 Bytes
141	Channel A - Shading threshold value 1 = + | 0 = -	Input	RWC-	[1] 1.xxx	1 Bit
142	Channel A - Shading threshold value +	Input	RWC-	[1] 1.xxx	1 Bit
143	Channel A - Shading threshold value -	Input	RWC-	[1] 1.xxx	1 Bit
144	Channel A - Shading status	Output	R-CT	[1.1] DPT_Switch	1 Bit
145	Channel A - Shading position learning object	Input	RWC-	[1] 1.xxx	1 Bit
146	Channel A - Azimuth	Input	RWC-	[9] 9.xxx	2 Bytes
147	Channel A - Elevation	Input	RWC-	[9] 9.xxx	2 Bytes
148	Channel A - Cold air intake blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
149	Channel A - Cold air intake outside temp. measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
150	Channel A - Cold air intake blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
151	Channel A - Forced ventilation	Input	RWC-	[1.1] DPT_Switch	1 Bit
152	Channel A - Warm air intake blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
153	Channel A - Warm air intake inside temp. measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
154	Channel A - Warm air intake outside temp. measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
155	Channel A - Warm air intake blocking target value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
156	Channel A - Warm air intake blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
157	Channel A - Inside temperature opening object	Input	RWC-	[1.1] DPT_Switch	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
158	Channel A - Inside temp. opening measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
159	Channel A - Inside temp. opening target value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
160	Channel A - Inside temp. opening threshold value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
161	Channel A - Inside temp. opening threshold value 1 = +	Input	RWC-	[1] 1.xxx	1 Bit
162	Channel A - Inside temp. opening threshold value +	Input	RWC-	[1] 1.xxx	1 Bit
163	Channel A - Inside temp. opening threshold value -	Input	RWC-	[1] 1.xxx	1 Bit
164	Channel A - Inside temp. opening object	Output	R-CT	[1.1] DPT_Switch	1 Bit
165	Channel A - Inside humidity opening object	Input	RWC-	[1.1] DPT_Switch	1 Bit
166	Channel A - Inside humidity opening measurement value	Input	RWC-	[9.7] DPT_Value_Humidity	2 Bytes
167	Channel A - Inside humidity opening status	Output	R-CT	[1.1] DPT_Switch	1 Bit
170	Channel A - Zero position reached	Input	RWC-	[1.1] DPT_Switch	1 Bit
171	Channel A - Zero position sensor disrupted	Output	R-CT	[1.1] DPT_Switch	1 Bit
172	Channel A - Master zero position status	Output	R-CT	[1.1] DPT_Switch	1 Bit
173	Channel A - Master zero position command	Output	R-CT	[1.1] DPT_Switch	1 Bit
174	Channel A - Slave zero position status	Input	RWC-	[1.1] DPT_Switch	1 Bit
175	Channel A - Master zero position status	Input	RWC-	[1.1] DPT_Switch	1 Bit
176	Channel A - Master zero position command	Input	RWC-	[1.1] DPT_Switch	1 Bit
177	Channel A - Slave zero position status	Output	R-CT	[1.1] DPT_Switch	1 Bit
178	Channel A - Drive is moving	Output	R-CT	[1] 1.xxx	1 Bit
179	Channel A - Object malfunction	Output	R-CT	[1] 1.xxx	1 Bit
180	Channel A - Blocking 1 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
181	Channel A - Blocking 1 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
182	Channel A - Blocking 1 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
183	Channel A - Blocking 1 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
184	Channel A - Blocking 1 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
185	Channel A - Blocking 2 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
186	Channel A - Blocking 2 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
187	Channel A - Blocking 2 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
188	Channel A - Blocking 2 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
189	Channel A - Blocking 2 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
190	Channel A - Blocking 3 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
191	Channel A - Blocking 3 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
192	Channel A - Blocking 3 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
193	Channel A - Blocking 3 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
194	Channel A - Blocking 3 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
195	Channel A - Blocking 4 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
196	Channel A - Blocking 4 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
197	Channel A - Blocking 4 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
198	Channel A - Blocking 4 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
199	Channel A - Blocking 4 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
200	Channel A - Blocking 5 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
201	Channel A - Blocking 5 - Wind blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
202	Channel A - Blocking 5 - Wind blocking measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
203	Channel A - Blocking 5 - Wind blocking status	Output	R-CT	[1.1] DPT_Switch	1 Bit
204	Channel A - Blocking 5 - Rain blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
205	Channel A - Movement limit 1 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
206	Channel A - Movement limit 2 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
207	Channel A - Short time restriction	Input	RWC-	[1.1] DPT_Switch	1 Bit
249	Channel A - Local operation blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
300	Channel B - Status automatic or manual	Output	R-CT	[1] 1.xxx	1 Bit
301	Channel B - Manual extended	Input	RWC-	[1.8] DPT_UpDown	1 Bit
302	Channel B - Manual brief	Input	RWC-	[1.8] DPT_UpDown	1 Bit
303	Channel B - Manual movement position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
304	Channel B - Manual slat position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
305	Channel B - Automatic extended	Input	RWC-	[1.8] DPT_UpDown	1 Bit
306	Channel B - Automatic brief	Input	RWC-	[1.8] DPT_UpDown	1 Bit
307	Channel B - Automatic movement position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
308	Channel B - Automatic slat position	Input	RWC-	[5.1] DPT_Scaling	1 Byte
309	Channel B - Switch from manual to automatic	Input	RWC-	[1] 1.xxx	1 Bit
310	Channel B - Automatic blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
311	Channel V - Current movement position	Output	R-CT	[5.1] DPT_Scaling	1 Byte
312	Channel B - Current movement position	Output	R-CT	[5.1] DPT_Scaling	1 Byte

No.	Text	Function	Flags	Data Point Type	Size
313	Channel B - Status object	Output	R-CT	[1] 1.xxx	1 Bit
314	Channel B - Approach position memory manually	Input	RWC-	[1.1] DPT_Switch	1 Bit
315	Channel B - Learn object position memory manually 0	Input	RWC-	[1.1] DPT_Switch	1 Bit
316	Channel B - Learn object position memory manually 1	Input	RWC-	[1.1] DPT_Switch	1 Bit
319	Channel B - Approach position memory automatically	Input	RWC-	[1.1] DPT_Switch	1 Bit
320	Channel B - Learn object position memory automatically 0	Input	RWC-	[1.1] DPT_Switch	1 Bit
321	Channel B - Learn object position memory automatically 1	Input	RWC-	[1.1] DPT_Switch	1 Bit
324	Channel B - Call up / saving scenes	Input	RWC-	[18.1] DPT_SceneControl	1 Byte
325	Channel B - Outdoor temperature blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
326	Channel B - Outdoor temp. block measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
327	Channel B - Outdoor temperature block status	Output	R-CT	[1.1] DPT_Switch	1 Bit
328	Channel B - Twilight object	Input	RWC-	[1.1] DPT_Switch	1 Bit
329	Channel B - Twilight measurement value	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
330	Channel B - Twilight status	Output	R-CT	[1.1] DPT_Switch	1 Bit
331	Channel B - Time control	Input	RWC-	[1.1] DPT_Switch	1 Bit
332	Channel B - Inside temperature release object	Input	RWC-	[1.1] DPT_Switch	1 Bit
333	Channel B - Inside temp release measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
334	Channel B - Inside temp release target value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
335	Channel B - Inside temperature release status	Output	R-CT	[1.1] DPT_Switch	1 Bit
336	Channel B - Shading object	Input	RWC-	[1.1] DPT_Switch	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
337	Channel B - Shading brightness measurement value 1	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
338	Channel B - Shading brightness measurement value 2	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
339	Channel B - Shading brightness measurement value 3	Input	RWC-	[9.4] DPT_Value_Lux	2 Bytes
340	Channel B - Shading threshold value	Input / Output	RWCT	[9.4] DPT_Value_Lux	2 Bytes
341	Channel B - Shading threshold value 1 = + | 0 = -	Input	RWC-	[1] 1.xxx	1 Bit
342	Channel B - Shading threshold value +	Input	RWC-	[1] 1.xxx	1 Bit
343	Channel B - Shading threshold value -	Input	RWC-	[1] 1.xxx	1 Bit
344	Channel B - Shading status	Output	R-CT	[1.1] DPT_Switch	1 Bit
345	Channel B - Shading position learning object	Input	RWC-	[1] 1.xxx	1 Bit
346	Channel B - Azimuth	Input	RWC-	[9] 9.xxx	2 Bytes
347	Channel B - Elevation	Input	RWC-	[9] 9.xxx	2 Bytes
348	Channel B - Cold air intake blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
349	Channel B - Cold air intake outside temp. measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
350	Channel B - Cold air intake block status	Output	R-CT	[1.1] DPT_Switch	1 Bit
351	Channel B - Forced ventilation	Input	RWC-	[1.1] DPT_Switch	1 Bit
352	Channel B - Warm air intake blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
353	Channel B - Warm air intake inside temp. measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
354	Channel B - Warm air intake outside temp. measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
355	Channel B - Warm air intake block target value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes

No.	Text	Function	Flags	Data Point Type	Size
356	Channel B - Warm air intake block status	Output	R-CT	[1.1] DPT_Switch	1 Bit
357	Channel B - Inside temp. opening object	Input	RWC-	[1.1] DPT_Switch	1 Bit
358	Channel B - Inside temp. opening measurement value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
359	Channel B - Inside temp. opening target value	Input	RWC-	[9.1] DPT_Value_Temp	2 Bytes
360	Channel B - Inside temp. opening threshold value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
361	Channel B - Inside temp. opening threshold value 1 = +	Input	RWC-	[1] 1.xxx	1 Bit
362	Channel B - Inside temp. opening threshold value +	Input	RWC-	[1] 1.xxx	1 Bit
363	Channel B - Inside temp. opening threshold value -	Input	RWC-	[1] 1.xxx	1 Bit
364	Channel B - Inside temp. opening status	Output	R-CT	[1.1] DPT_Switch	1 Bit
365	Channel B - Inside humidity opening object	Input	RWC-	[1.1] DPT_Switch	1 Bit
366	Channel B - Inside humidity opening measurement value	Input	RWC-	[9.7] DPT_Value_Humidity	2 Bytes
367	Channel B - Inside humidity opening status	Output	R-CT	[1.1] DPT_Switch	1 Bit
370	Channel B - Zero position reached	Input	RWC-	[1.1] DPT_Switch	1 Bit
371	Channel B - Zero position sensor disrupted	Output	R-CT	[1.1] DPT_Switch	1 Bit
372	Channel B - Master zero position status	Output	R-CT	[1.1] DPT_Switch	1 Bit
373	Channel B - Master zero position command	Output	R-CT	[1.1] DPT_Switch	1 Bit
374	Channel B - Slave zero position status	Input	RWC-	[1.1] DPT_Switch	1 Bit
375	Channel B - Master zero position status	Input	RWC-	[1.1] DPT_Switch	1 Bit
376	Channel B - Master zero position command	Input	RWC-	[1.1] DPT_Switch	1 Bit
377	Channel B - Slave zero position status	Output	R-CT	[1.1] DPT_Switch	1 Bit
378	Channel B - Drive moving	Output	R-CT	[1] 1.xxx	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
379	Channel B - Malfunction object	Output	R-CT	[1] 1.xxx	1 Bit
380	Channel B - Blocking 1 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
381	Channel B - Blocking 1 - Wind block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
382	Channel B - Blocking 1 - Wind block measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
383	Channel B - Blocking 1 - Wind block status	Output	R-CT	[1.1] DPT_Switch	1 Bit
384	Channel B - Blocking 1 - Rain block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
385	Channel B - Blocking 2 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
386	Channel B - Blocking 2 - Wind block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
387	Channel B - Blocking 2 - Wind block measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
388	Channel B - Blocking 2 - Wind block status	Output	R-CT	[1.1] DPT_Switch	1 Bit
389	Channel B - Blocking 2 - rain block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
390	Channel B - Blocking 3 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
391	Channel B - Blocking 3 - Wind block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
392	Channel B - Blocking 3 - Wind block measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
393	Channel B - Blocking 3 - Wind block status	Output	R-CT	[1.1] DPT_Switch	1 Bit
394	Channel B - Blocking 3 - rain block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
395	Channel B - Blocking 4 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
396	Channel B - Blocking 4 - Wind block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
397	Channel B - Blocking 4 - Wind block measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
398	Channel B - Blocking 4 - Wind block status	Output	R-CT	[1.1] DPT_Switch	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
399	Channel B - Blocking 4 - Rain block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
400	Channel B - Blocking 5 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
401	Channel B - Blocking 5 - Wind block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
402	Channel B - Blocking 5 - Wind block measurement value	Input	RWC-	[9.5] DPT_Value_Wsp	2 Bytes
403	Channel B - Blocking 5 - Wind block status	Output	R-CT	[1.1] DPT_Switch	1 Bit
404	Channel B - Blocking 5 - Rain block object	Input	RWC-	[1.1] DPT_Switch	1 Bit
405	Channel B - Movement limit 1 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
406	Channel B - Movement limit 2 - Blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit
407	Channel B - Short time limit	Input	RWC-	[1.1] DPT_Switch	1 Bit
449	Channel B - Local operation blocking object	Input	RWC-	[1.1] DPT_Switch	1 Bit

4. Parameter setting

The default settings of the parameter are labelled by an underscore.

4.1. 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 • 5 • 10 • 20 telegrams per second
Send delay of threshold values after voltage returns	5 s ... 2 h
Send delay of switching and status outputs after voltage returns	5 s ... 2 h
For the use of scenes:	
Application when programming	all parameters • only changed parameters

4.1.1. Local operation

The Up/Down buttons on the device are firmly assigned to the channels. For blocking manual operation, blocking objects can be set for the button pairs (communication objects "Channel X local operation blocking object").

Local button Channel A Use blocking object	No • Yes
Local button Channel B Use blocking object	No • Yes
Local button Channel C Use blocking object	No • Yes (KNX S4 only)
Local button Channel D Use blocking object	No • Yes (KNX S4 only)

Note: If monitoring periods or movement range limits are used, operation via the local buttons is not possible in case of a bus voltage supply failure.

4.2. Outputs

State here what is connected to the individual output channels.

Operating mode	
Channel A / B / C / D controls	• shutter • blind • awning • window

Thereafter, the setting options for the individual outputs will appear:

Settings for drives (channel A, B, C, D):
- General specifications for the connected drive (see *Channel settings – drives*, page 22)
- Control functions: Movement range limit, blocking, type of automatic (see *Control (drives)*, page 24)
- Automatic functions: Automatic can be specified externally or internally (see *Automatic - internal for shading (drives)*, page 32 or *Automatic for windows (drives)*, page 37)
- Scenes: Movement positions (see *Scenes:*, page 24)

4.2.1. 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)*	no • yes

Runtime:
The runtime between the end positions is the basis for moving into intermediate positions (e.g. for movement range limits and scenes). Enter the runtime numerically (in seconds).

Runtime DOWN in sec *(shutter, blinds)* Runtime OFF in sec *(awning)* Runtime UP in sec *(window)*	1 ... 320; 60
Runtime OPEN in sec *(shutter, blinds)* Runtime ON in sec *(awning)* Runtime CLOSE in sec *(window)*	1 ... 320; 65

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	• no • yes, enter by hand • yes, calculate automatically
during the position travel from closed position in 10 ms *(only for manual input)*	0 ... 600
for position movement from all other positions in 10 ms *(only for manual input)*	0 ... 600
for slat movement from closed position in 10 ms *(only for manual input)*	0 ... 600

for movement with change of direction in 10 ms *(only for manual input)*	0 ... 600
for slat movement from all other positions in 10 ms *(only for manual input)*	0 ... 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 *Scenes:*, page 24.

4.2.1.1. Control (drives)

Set the behaviour 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; 10
Monitoring period for master status (and zero position) object in sec	1 ... 255; 10
Movement position for slave in % if input "Master zero position command" = 1	0 ... 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	• in safe position • 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 28, *Block – wind blocking*, page 29 and *Block – rain blocking*, page 30).
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)	• no • yes, with blocking object • yes, as wind blocking • yes, as rain blocking

Use block 2	• no • yes, with blocking object • yes, as wind blocking • yes, as rain blocking
Use block 3	• no • yes, with blocking object • yes, as wind blocking • yes, as rain blocking
Use block 4	• no • yes, with blocking object • yes, as wind blocking • yes, as rain blocking
Use Block 5 (low priority)	• no • 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)*

Use movement limit 1/2:

The movement limits are activated here, and can them be configured in their own menu items. See 'Movement limits' on Page 30.

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 22) 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 • reception of 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 *Movement limits*, page 31 or *Automatic for windows (drives)*, page 37) 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)*
Position in % (only if by using a block, a specific position is achieved)	0...100
Slat position in % (only if by using a block, a specific shutter position is achieved)	0...100
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)*
Position in % (only if by using a block, a specific position is achieved)	0...100

Slat position in % (only if by using a block, a specific shutter position is achieved)	0...100
Waiting period in secure position in min after blocking	1...255; 5
Behaviour 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
Behaviour 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 *(shutter/blind)* • retract-command • extend-command *(awning)* • close-command • open-command *(window)*

Position in % (only if by using a block, a specific position is achieved)	0...100
Slat position in % (only if by using a block, a specific shutter position is achieved)	0...100
Waiting period in secure position in min after blocking	1...255; 5
Behaviour after waiting period	
For manual operation before and after blocking	• no action • move into last position
For automatic operation after blocking	follow automatic

Movement limits

The menu item appears only if a movement limit was activated in 'Control'. Movement limits can be used to restrict manual movement. The limit is active for object value 1

Limitation type	• full • movement position • slat angle (for shutters) • allow UP only • allow DOWN only
Value of the object in front of 1. Communication and bus voltage restoration	0 • 1

If limiting the movement position:

Limitation type	• movement position
Movement allowed in the position range	
from (in %)	0...100
to (in %)	0...100

If limiting the slat angle (shutters only):

Limitation type	• slat angle
Movement allowed in the angle range	
from (in %)	0...100
to (in %)	0...100

4.2.1.2. Manual

Position memory for the manual movement can be activated here. The position set here can be overwritten via a learning object at any time. The memorised position can be retrieved again at a later time.

For shutters, both the movement and the slat position can be stored.

Use position memory	no • yes

Use different positions for object values 0 and 1	no • yes (if 'yes' is selected, there will be a division into positions for object value 0 and object value 1)
Position in %	0...100
Allow calling via command sequence: long-term = 1, short-term = 1	no • yes
Use learning object for new position	no • yes
Transfer when programming (when learning object is used)	• all parameters • changed parameters only

4.2.1.3. Automation - external

The 'External automation' menu item appears if the external automation is selected in 'Control'. In this case, the position memory can be activated for the automatic movement. The position set here can be overwritten via a learning object at any time. The memorised position can be retrieved again at a later time. For configuration options, see Chapter 'Manual' on Page 31.

4.2.1.4. Automatic - internal for shading (drives)

The menu item "Automatic internal" 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.

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; 50

Hysteresis in 0.1°C	1 ... 100; 20
Send current blocking status	no • 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	• no • only twilight control • only time control • both (OR linking)

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

16 bit input object:

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

Type of input object	1 bit • 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; 200
Hysteresis in 0.1°C	1 ... 100; 20
Send current blocking status	no • 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; 20
Hysteresis in 0.1°C	1 ... 100; 20
Send current blocking status	no • 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	no • 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	1 x 1 bit • 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; 12
Departure delay in min	0 ... 30; 1

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	parameter • 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; 75
Use teaching object for new shading position	no • 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.

4.2.1.5. 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	no • yes

Use cold supply air block	**yes**
Type of temperature input object	1 bit • 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; 50
Hysteresis in 0.1°C	1 ... 100; 20
Send current blocking status	no • 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	no • 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	no • yes

Use warm supply air block	**yes**
Type of input object	1 bit • 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; 50
Hysteresis in 0.1°C	1 ... 100; 20
Send current blocking status	no • 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; 50
Hysteresis in 0.1°C	1...100; 20
Send current blocking status	no • 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	• never • 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	1 bit • 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	parameter • communication object

Threshold value per parameter:

Indoor temperature of threshold specification via	**parameter**
Indoor temperature threshold value in 0.1?	-100 ... 500; 300
Hysteresis in 0.1?	1 ... 100; 20
Send current temperature 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 target temperature + and -).

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

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 *(only when "lifting/lowering with comm. object")*	0.1°C ... 5°C; 1°C
Hysteresis in 0.1?	1 ... 100; 20
Send current temperature status	no • 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; 20
Hysteresis in 0.1°C	1...100; 20
Send current blocking status	no • 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	1 bit • 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; 60
Hysteresis in 0.1°C	1 ... 100; 5
Send current humidity status	no • 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...100

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

4.2.1.6. Scenes (drives)

A group address for scenes must be filed in the KNX system to control the scenes. The input object 'Channel X: call/save scenes' of the actuator is linked to this group address.

A scene is **called**, then the **scene number** is communicated to the actuator. The movement position saved for this scene number in the actuator is then taken.
If the scene **saving** function is used, then the current movement position is saved for this scene number in the actuator.

The 'Scenes' menu item of the actuator is only shown if 'Use scenes: yes' was selected in the settings for the drive channel. Every drive can **have up to 16 scene save points** for movement positions.

Activate a scene save point.

Use scene save point X	no • **yes**

Assign a scene number to the scene save point. Use this scene number to call/save the movement position stored in the actuator. Make sure that every scene number is used only once per drive channel.

Scene number	0...127

Set the movement position. If it is allowed to save scenes via the bus, this position only applies after the ETS download until the first manual saving. Afterwards, the new movement position saved in the actuator is used.

Shutter position in % or Blind position in % or Awning position in % or Window position in %	0...100; 50
Slat position in % *(only for shutters)*	0...100; 70

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