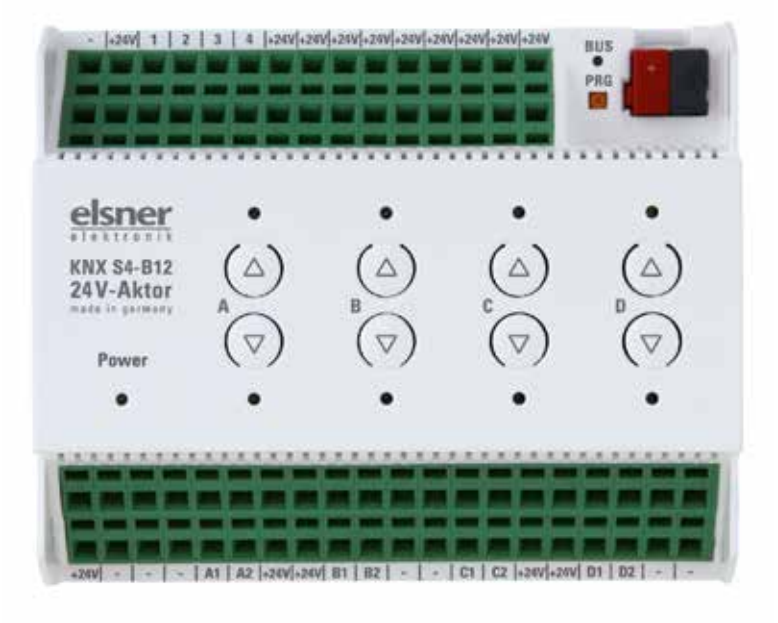
KNX S4-B12 24V

Actuator for 12/24 V Drives

Item number 70138



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 S4-B12 24V** with integrated facade control has 4 outputs for direct current drives (12...24V DC, Up/Down), 4 button pairs and control LEDs. The outputs are compatible with shutter, awning, blind or window drives. Connected drives can be operated directly at **KNX S4-B12 24V** and via a hand switch.

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

Twelve binary inputs can be used either for direct operation (e.g. hand switches) or as bus switches (or also for e.g. alarm notifications). The desired behaviour can be defined precisely through selection of the response times in Standard, Comfort or Deadman mode.

Functions:

- **4 outputs for commutator motors** 12...24V (shading, windows)
- 24V DC internal supply voltage for inputs and for outputs
- Keypad with **4 button pairs** and status LEDs
- **12 binary inputs** for use as hand switches or as bus switches with variable voltage (6...24 V DC)
- **Automatic runtime measurement** of the drives for positioning (including fault notification object)
- Position feedback (movement position, also slat position for blinds)
- Position storage (movement position) via 1-bit object (storage and call-up e.g. via buttons)
- Control via **internal or external automation**
- Integrated **shade control** for each drive output (with **slat tracking** according to sun position for blinds)
- **Scene control** for movement position with 16 scenes per drive (also slat position for blinds)
- Mutual **locking** of two drives using zero position sensors prevents collisions e.g. of shade and window (master–slave)
- Blocking objects and alarm notifications have different priorities, so safety functions always take precedence (e.g. wind block)
- Manual or automatic priority setting via time or communication object

Die Konfiguration erfolgt mit der KNX-Software ETS. Die **Produktdatei** steht auf der Homepage von Elsner Elektronik unter **www.elsner-elektronik.de** im Menübereich „Service“ zum Download bereit.

1.1. Technical data

Housing	Plastic
Colour	White
Assembly	Series installation on mounting rail

Protection class	IP 20
Dimensions	approx. 107 x 88 x 60 (W × H × D, mm) 6 dividing units
Weight	approx. 300 g
Ambient temperature	Operation -20…+70°C, storage -55…+90°C
Ambient humidity	max. 95% RH, avoid condensation
Operating voltage	24 V DC
Power consumption	typically 5 mA, max. approx. 80 mA
Power	on bus: 10 mA
Outputs	4 x commutator motors 12 V DC/24 V DC (+/-), max. 3A separate power supply for each channel (internal or external voltage)
Inputs	12 x binary inputs, low voltage (6...24 V DC)
Max. cable length Binary inputs	100 m
Data output	KNX +/- Bus connector terminal
BCU type	own microcontroller
PEI type	0
Group addresses	max. 1024
Assignments	max. 1024
Communication objects	497

The product conforms 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.

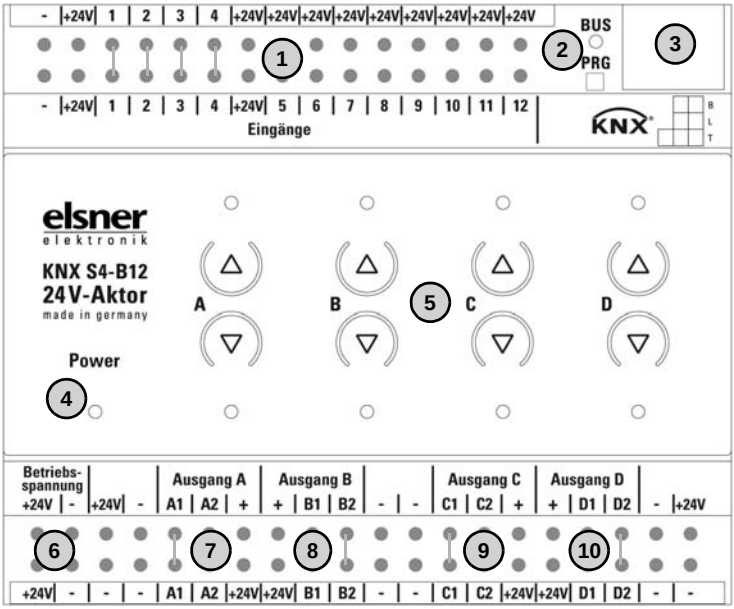
After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

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. Device design

The device is designed for series installation on mounting rails and occupies 6U.



1) *Binary inputs 1-12 (see also connection example)*
2) *Programming LED and programming buttons (PRG)*
3) *Bus terminal slot (KNX +/-)*
4) *LED "Power", mode display. See “Display of operating status by the power supply LED” on page 6.*
5) *Up/Down button pairs and LEDs channel A-D*
6) *24 V DC supply voltage input*
7) *Output A "Up"-"Down", max. 3 A*
8) *Output B "Up"-"Down", max. 3 A*
9) *Output C "Up"-"Down", max. 3 A*
10) *Output D "Up"-"Down", max. 3 A*

All +24 V terminals and the top terminal strip are bridged internally.
All +24 V terminals and the bottom terminal strip are bridged internally.

2.2.1. Display of operating status by the power supply LED

Behaviour	Colour	
Flashes	Green (on), Orange (flashing)	Programming mode active.

2.2.2. Status display by 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, barrier active.
Flashes quickly	bottom	Drive in bottom position, barrier active.
Flashes quickly	both simultaneously	Drive in intermediate position, barrier active.
Extend	both	Drive in intermediate position.
Flashes	both alternately	Automatic runtime determination error. If the drive can be moved, drive it into the end position by hand (drive in/drive out completely or open/close) in order to restart the runtime determination. If the drive cannot be moved, check the connections.
"Runlight" above all LEDs	all channels	Incorrect application version was 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 electronics being damaged. A relative air humidity of 95% must not be exceeded. Avoid condensation.

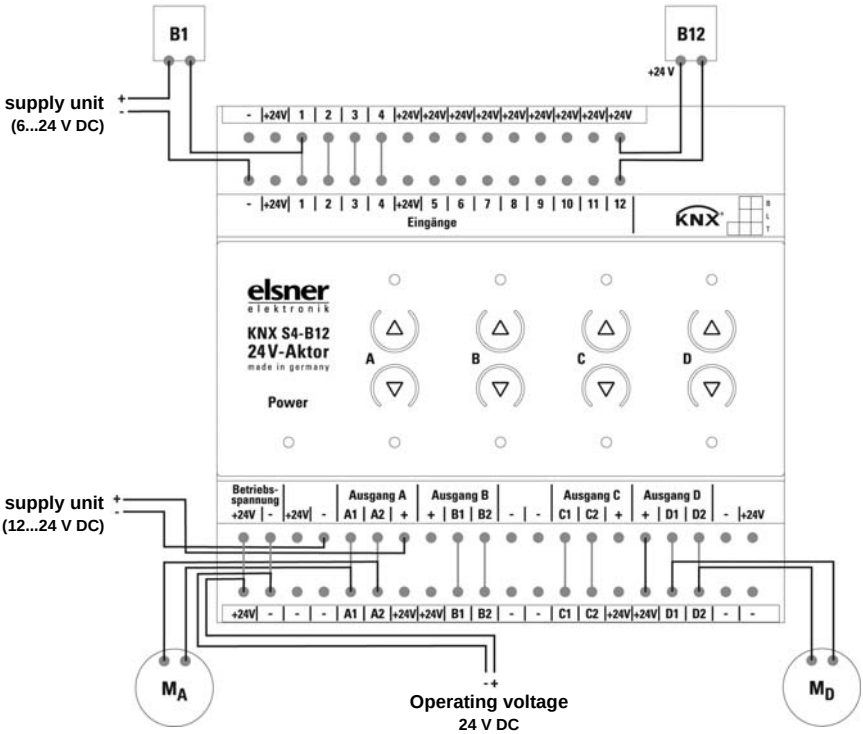
After the operating voltage has been applied, the device will enter an initialisation phase lasting a few seconds. During this phase no information can be received or sent via the bus.

For KNX devices with safety functions (e.g. wind or rain blocks), periodical monitoring of the safety objects must be set up. The optimal 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).

2.4. Connection examples

Use of binary input No. 1
with external auxiliary voltage
(6...24 V DC)

Use of binary input No. 12
with internal auxiliary voltage
(24 V DC)



Use of drive output A
with external auxiliary voltage
(12...24 V DC)

Use of drive output D
with internal auxiliary voltage
(24 V DC)
The +24 V internal voltage must be bridged to the + terminal of output D for this.

3. Transfer protocol

3.1. List of all communication objects

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

No.	Name	Function	DPT	Flags
1	Software version	Readable		R C
50	Input 1 long term	Input / output	DPST-1-8	RWCT
51	Input 1 short term	Output	DPST-1-10	R CT
52	Input 1 switching	Input / output	DPST-1-1	RWCT
53	Input 1 dim relative	Input / output	DPST-3-7	RWCT
54	Input 1 encoder 8 bit	Output	DPT-5	R CT
55	Input 1 encoder temperature	Output	DPST-9-1	R CT
56	Input 1 encoder brightness	Output	DPST-9-4	R CT
57	Input 1 scene	Output		R CT
58	Input 1 blocking object	Input	DPST-1-1	WC
60-68	Input 2 (see input 1)			
70-78	Input 3 (see input 1)			
80-88	Input 4 (see input 1)			
100	Channel A status automatic or manual	Output	DPST-1-3	R CT
101	Channel A manual long term	Input	DPST-1-10	RWC
102	Channel A manual short term	Input	DPST-1-8	RWC
103	Channel A manual movement position	Input	DPST-5-1	RWC
104	Channel A manual slat position	Input	DPST-5-1	RWC
105	Channel A automatic short term	Input	DPST-1-10	RWC
106	Channel A automatic long term	Input	DPST-1-8	RWC
107	Channel A automatic movement position	Input	DPST-5-1	RWC
108	Channel A automatic slat position	Input	DPST-5-1	RWC
109	Channel A switch from manual to automatic	Input	DPST-1-3	RWC
110	Channel A automatic blocking object	Input	DPST-1-1	RWCT
111	Channel A current movement position	Output	DPST-5-1	R CT

No.	Name	Function	DPT	Flags
112	Channel A current slat position	Output	DPST-5-1	R CT
113	Channel A status object	Output		R CT
114	Channel A call saving scenes	Input		WC
115	Channel A outdoor temperature Blocking object	Input	DPST-1-1	RWC
116	Channel A outdoor temperature blocking measurement value	Input	DPST-9-1	WC
117	Channel A outdoor temperature blocking status	Output	DPST-1-3	R CT
118	Channel A twilight object	Input	DPST-1-1	RWC
119	Channel A twilight measurement value	Input	DPST-9-4	RWC
120	Channel A twilight status	Output	DPST-1-3	R CT
121	Channel A time control	Input	DPST-1-1	RWC
122	Channel A inside temperature release object	Input	DPST-1-1	RWC
123	Channel A inside temperature release measurement value	Input	DPST-9-1	RWC
124	Channel A inside temperature release target value	Input	DPST-9-1	RWC
125	Channel A inside temperature release status	Output	DPST-1-3	R CT
126	Channel A shading object	Input	DPST-1-1	RWC
127	Channel A shading brightness Measurement value 1	Input	DPST-9-4	RWC
128	Channel A shading brightness Measurement value 2	Input	DPST-9-4	RWC
129	Channel A shading brightness Measurement value 3	Input	DPST-9-4	RWC
130	Channel A shading threshold value	Input / output	DPST-9-4	RWCT
131	Channel A shading threshold value 1 0	Input	DPT-1	RWC
132	Channel A shading threshold value	Input	DPST-1-1	RWC
133	Channel A shading threshold value	Input	DPST-1-1	RWC
134	Channel A shading status	Output	DPST-1-3	R CT
135	Channel A shading position Teaching object	Input	DPST-1-1	RWC
136	Channel A azimuth	Input	DPT-9	RWC
137	Channel A elevation	Input	DPT-9	RWC
138	Channel A cold air supply blocking object	Input	DPST-1-1	RWC
139	Channel A cold air supply outside temperature measurement value	Input	DPST-9-1	RWC

No.	Name	Function	DPT	Flags
140	Channel A cold supply air blocking status	Output	DPST-1-3	R CT
141	Channel A forced ventilation	Input	DPST-1-1	RWC
142	Channel A warm air supply blocking object	Input	DPST-1-1	RWC
143	Channel A warm air supply inside temperature measurement value	Input	DPST-9-1	RWC
144	Channel A warm air supply outside temperature measurement value	Input	DPST-9-1	RWC
145	Channel A warm air supply blocking target value	Input	DPST-9-1	RWC
146	Channel A warm air supply blocking status	Output	DPST-1-3	R CT
147	Channel A inside temperature opening object	Input	DPST-1-1	RWC
148	Channel A inside temperature opening measurement value	Input	DPST-9-1	RWC
149	Channel A inside temperature opening target value	Input	DPST-9-1	RWC
150	Channel A inside temperature opening threshold value	Input / output	DPST-9-1	RWCT
151	Channel A inside temperature opening threshold value 1	Input	DPT-1	RWC
152	Channel A inside temperature opening threshold value	Input	DPST-1-1	RWC
153	Channel A inside temperature opening threshold value	Input	DPST-1-1	RWC
154	Channel A inside temperature opening status	Output	DPST-1-3	R CT
155	Channel A inside humidity opening object	Input	DPST-1-1	RWC
156	Channel A inside humidity opening Measurement value	Input	DPT-9	RWC
157	Channel A inside humidity opening status	Output	DPST-1-3	R CT
160	Channel A zero position reached	Input	DPST-1-2	RWC
161	Channel A zero position sensor malfunctioning	Output	DPST-1-2	R CT
162	Channel A master zero position status	Output	DPST-1-1	R CT
163	Channel A master zero position command	Output	DPST-1-1	R CT
164	Channel A slave zero position status	Input	DPST-1-1	RWC
165	Channel A master zero position status	Input	DPST-1-1	RWC

No.	Name	Function	DPT	Flags
166	Channel A master zero position command	Input	DPST-1-1	RWC
167	Channel A slave zero position status	Output	DPST-1-1	R CT
168	Channel A drive moving	Output	DPST-1-1	R CT
169	Channel A malfunction object	Output	DPST-1-2	R CT
170	Channel A block 1 blocking object	Input	DPST-1-1	RWC
171	Channel A block 1 wind blocking object	Input	DPST-1-1	RWC
172	Channel A block 1 wind blocking Measurement value	Input	DPST-9-5	RWC
173	Channel A block 1 wind blocking status	Output	DPST-1-3	R CT
174	Channel A block 1 rain blocking object	Input	DPST-1-1	RWC
175	Channel A block 2 blocking object	Input	DPST-1-1	RWC
176	Channel A block 2 wind blocking object	Input	DPST-1-1	RWC
177	Channel A block 2 wind blocking Measurement value	Input	DPST-9-5	RWC
178	Channel A block 2 wind blocking status	Output	DPST-1-3	R CT
179	Channel A block 2 rain blocking object	Input	DPST-1-1	RWC
180	Channel A block 3 blocking object	Input	DPST-1-1	RWC
181	Channel A block 3 wind blocking object	Input	DPST-1-1	RWC
182	Channel A block 3 wind blocking Measurement value	Input	DPST-9-5	RWC
183	Channel A block 3 wind blocking status	Output	DPST-1-3	R CT
184	Channel A block 3 rain blocking object	Input	DPST-1-1	RWC
185	Channel A block 4 blocking object	Input	DPST-1-1	RWC
186	Channel A block 4 wind blocking object	Input	DPST-1-1	RWC
187	Channel A block 4 wind blocking Measurement value	Input	DPST-9-5	RWC
188	Channel A block 4 wind blocking status	Output	DPST-1-3	R CT
189	Channel A block 4 rain blocking object	Input	DPST-1-1	RWC
190	Channel A block 5 blocking object	Input	DPST-1-1	RWC
191	Channel A block 5 wind blocking object	Input	DPST-1-1	RWC
192	Channel A block 5 wind blocking Measurement value	Input	DPST-9-5	RWC

No.	Name	Function	DPT	Flags
193	Channel A block 5 wind blocking status	Output	DPST-1-3	R CT
194	Channel A block 5 rain blocking object	Input	DPST-1-1	RWC
195	Channel A Short time limit	Input	DPST-1-1	RWC
249	Channel A local operation blocking object	Input	DPST-1-1	RWCT
250-258	Input 5 (see input 1)			
260-268	Input 6 (see input 1)			
300	Channel B status automatic or manual	Output	DPST-1-3	R CT
301	Channel B manual long term	Input	DPST-1-10	RWC
302	Channel B manual short term	Input	DPST-1-8	RWC
303	Channel B manual movement position	Input	DPST-5-1	RWC
304	Channel B manual slat position	Input	DPST-5-1	RWC
305	Channel B automatic short term	Input	DPST-1-10	RWC
306	Channel B automatic long term	Input	DPST-1-8	RWC
307	Channel B automatic movement position	Input	DPST-5-1	RWC
308	Channel B automatic slat position	Input	DPST-5-1	RWC
309	Channel B switch from manual to automatic	Input	DPST-1-3	RWC
310	Channel B automatic blocking object	Input	DPST-1-1	RWCT
311	Channel B current movement position	Output	DPST-5-1	R CT
312	Channel B current slat position	Output	DPST-5-1	R CT
313	Channel B status object	Output		R CT
314	Channel A call saving scenes	Input		WC
315	Channel B outdoor temperature Blocking object	Input	DPST-1-1	RWC
316	Channel B outdoor temperature blocking measurement value	Input	DPST-9-1	WC
317	Channel B outdoor temperature blocking status	Output	DPST-1-3	R CT
318	Channel B twilight object	Input	DPST-1-1	RWC
319	Channel B twilight measurement value	Input	DPST-9-4	RWC
320	Channel B twilight status	Output	DPST-1-3	R CT
321	Channel B time control	Input	DPST-1-1	RWC
322	Channel B inside temperature release object	Input	DPST-1-1	RWC
323	Channel B inside temperature release measurement value	Input	DPST-9-1	RWC

No.	Name	Function	DPT	Flags
324	Channel B inside temperature release target value	Input	DPST-9-1	RWC
325	Channel B inside temperature release status	Output	DPST-1-3	R CT
326	Channel B shading object	Input	DPST-1-1	RWC
327	Channel B shading brightness Measurement value 1	Input	DPST-9-4	RWC
328	Channel B shading brightness Measurement value 2	Input	DPST-9-4	RWC
329	Channel B shading brightness Measurement value 3	Input	DPST-9-4	RWC
330	Channel B shading threshold value	Input output	DPST-9-4	RWCT
331	Channel B shading threshold value 1 0	Input	DPT-1	RWC
332	Channel B shading threshold value	Input	DPST-1-1	RWC
333	Channel B shading threshold value	Input	DPST-1-1	RWC
334	Channel B shading status	Output	DPST-1-3	R CT
335	Channel B shading position Teaching object	Input	DPST-1-1	RWC
336	Channel B azimuth	Input	DPT-9	RWC
337	Channel B elevation	Input	DPT-9	RWC
338	Channel B cold air supply blocking object	Input	DPST-1-1	RWC
339	Channel B cold air supply outside temperature measurement value	Input	DPST-9-1	RWC
340	Channel B cold air supply blocking status	Output	DPST-1-3	R CT
341	Channel B forced ventilation	Input	DPST-1-1	RWC
342	Channel B warm air supply blocking object	Input	DPST-1-1	RWC
343	Channel B warm air supply inside temperature measurement value	Input	DPST-9-1	RWC
344	Channel B warm air supply Outside temperature measurement value	Input	DPST-9-1	RWC
345	Channel B warm air supply blocking target value	Input	DPST-9-1	RWC
346	Channel B warm air supply blocking status	Output	DPST-1-3	R CT
347	Channel B inside temperature opening object	Input	DPST-1-1	RWC
348	Channel B inside temperature opening measurement value	Input	DPST-9-1	RWC

No.	Name	Function	DPT	Flags
349	Channel B inside temperature opening target value	Input	DPST-9-1	RWC
350	Channel B inside temperature opening threshold value	Input output	DPST-9-1	RWCT
351	Channel B inside temperature opening threshold value 1	Input	DPT-1	RWC
352	Channel B inside temperature opening threshold value	Input	DPST-1-1	RWC
353	Channel B inside temperature opening threshold value	Input	DPST-1-1	RWC
354	Channel B inside temperature opening status	Output	DPST-1-3	R CT
355	Channel B inside humidity opening object	Input	DPST-1-1	RWC
356	Channel B inside humidity opening Measurement value	Input	DPT-9	RWC
357	Channel B inside opening status	Output	DPST-1-3	R CT
360	Channel B zero position reached	Input	DPST-1-2	RWC
361	Channel B zero position sensor malfunctioning	Output	DPST-1-2	R CT
362	Channel B master zero position status	Output	DPST-1-1	R CT
363	Channel B master zero position command	Output	DPST-1-1	R CT
364	Channel B slave zero position status	Input	DPST-1-1	RWC
365	Channel B master zero position status	Input	DPST-1-1	RWC
366	Channel B master zero position command	Input	DPST-1-1	RWC
367	Channel B slave zero position status	Output	DPST-1-1	R CT
368	Channel B drive moving	Output	DPST-1-1	R CT
369	Channel B malfunction object	Output	DPST-1-2	R CT
370	Channel A block 1 blocking object	Input	DPST-1-1	RWC
371	Channel B block 1 wind blocking object	Input	DPST-1-1	RWC
372	Channel B block 1 wind blocking Measurement value	Input	DPST-9-5	RWC
373	Channel B block 1 wind blocking status	Output	DPST-1-3	R CT
374	Channel B block 1 rain blocking object	Input	DPST-1-1	RWC
375	Channel B block 2 blocking object	Input	DPST-1-1	RWC
376	Channel B block 2 wind blocking object	Input	DPST-1-1	RWC
377	Channel B block 2 wind blocking Measurement value	Input	DPST-9-5	RWC

No.	Name	Function	DPT	Flags
378	Channel B block 2 wind blocking status	Output	DPST-1-3	R CT
379	Channel B block 2 rain blocking object	Input	DPST-1-1	RWC
380	Channel B block 3 blocking object	Input	DPST-1-1	RWC
381	Channel B block 3 wind blocking object	Input	DPST-1-1	RWC
382	Channel B block 3 wind blocking Measurement value	Input	DPST-9-5	RWC
383	Channel B block 3 wind blocking status	Output	DPST-1-3	R CT
384	Channel B block 3 rain blocking object	Input	DPST-1-1	RWC
385	Channel B block 4 blocking object	Input	DPST-1-1	RWC
386	Channel B block 4 wind blocking object	Input	DPST-1-1	RWC
387	Channel B block 4 wind blocking Measurement value	Input	DPST-9-5	RWC
388	Channel B block 4 wind blocking status	Output	DPST-1-3	R CT
389	Channel B block 4 rain blocking object	Input	DPST-1-1	RWC
390	Channel B block 5 blocking object	Input	DPST-1-1	RWC
391	Channel B block 5 wind blocking object	Input	DPST-1-1	RWC
392	Channel B block 5 wind blocking Measurement value	Input	DPST-9-5	RWC
393	Channel B block 5 wind blocking status	Output	DPST-1-3	R CT
394	Channel B block 5 rain blocking object	Input	DPST-1-1	RWC
395	Channel B Short time limit	Input	DPST-1-1	RWC
449	Channel B local operation blocking object	Input	DPST-1-1	RWCT
450-458	Input 7 (see input 1)			
460-468	Input 8 (see input 1)			
500	Channel C status automatic or manual	Output	DPST-1-3	R CT
501	Channel C manual long term	Input	DPST-1-10	RWC
502	Channel C manual short term	Input	DPST-1-8	RWC
503	Channel C manual movement position	Input	DPST-5-1	RWC
504	Channel C manual slat position	Input	DPST-5-1	RWC
505	Channel C automatic short term	Input	DPST-1-10	RWC
506	Channel C automatic long term	Input	DPST-1-8	RWC

No.	Name	Function	DPT	Flags
507	Channel C automatic movement position	Input	DPST-5-1	RWC
508	Channel C automatic slat position	Input	DPST-5-1	RWC
509	Channel C switch from manual to automatic	Input	DPST-1-3	RWC
510	Channel C automatic blocking object	Input	DPST-1-1	RWCT
511	Channel C current movement position	Output	DPST-5-1	R CT
512	Channel C current slat position	Output	DPST-5-1	R CT
513	Channel C status object	Output		R CT
514	Channel C call saving scenes	Input		WC
515	Channel C outdoor temperature Blocking object	Input	DPST-1-1	RWC
516	Channel C outdoor temperature blocking measurement value	Input	DPST-9-1	WC
517	Channel C outdoor temperature blocking status	Output	DPST-1-3	R CT
518	Channel C twilight object	Input	DPST-1-1	RWC
519	Channel C twilight measurement value	Input	DPST-9-4	RWC
520	Channel C twilight status	Output	DPST-1-3	R CT
521	Channel C time control	Input	DPST-1-1	RWC
522	Channel C inside temperature release object	Input	DPST-1-1	RWC
523	Channel C inside temperature release measurement value	Input	DPST-9-1	RWC
524	Channel C inside temperature release target value	Input	DPST-9-1	RWC
525	Channel C inside temperature release status	Output	DPST-1-3	R CT
526	Channel C shading object	Input	DPST-1-1	RWC
527	Channel C shading brightness Measurement value 1	Input	DPST-9-4	RWC
528	Channel C shading brightness Measurement value 2	Input	DPST-9-4	RWC
529	Channel C shading brightness Measurement value 3	Input	DPST-9-4	RWC
530	Channel C shading threshold value	Input output	DPST-9-4	RWCT
531	Channel C shading threshold value 1 0	Input	DPT-1	RWC
532	Channel C shading threshold value	Input	DPST-1-1	RWC
533	Channel C shading threshold value	Input	DPST-1-1	RWC
534	Channel C shading status	Output	DPST-1-3	R CT

No.	Name	Function	DPT	Flags
535	Channel C shading position Teaching object	Input	DPST-1-1	RWC
536	Channel C azimuth	Input	DPT-9	RWC
537	Channel C elevation	Input	DPT-9	RWC
538	Channel C cold air supply blocking object	Input	DPST-1-1	RWC
539	Channel C cold air supply outside temperature measurement value	Input	DPST-9-1	RWC
540	Channel C cold air supply blocking status	Output	DPST-1-3	R CT
541	Channel C forced ventilation	Input	DPST-1-1	RWC
542	Channel C warm air supply blocking object	Input	DPST-1-1	RWC
543	Channel C warm air supply inside temperature measurement value	Input	DPST-9-1	RWC
544	Channel C warm air supply Outside temperature measurement value	Input	DPST-9-1	RWC
545	Channel C warm air supply blocking target value	Input	DPST-9-1	RWC
546	Channel C warm air supply blocking status	Output	DPST-1-3	R CT
547	Channel C inside temperature opening object	Input	DPST-1-1	RWC
548	Channel C inside temperature opening measurement value	Input	DPST-9-1	RWC
549	Channel C inside temperature opening target value	Input	DPST-9-1	RWC
550	Channel C inside temperature opening threshold value	Input output	DPST-9-1	RWCT
551	Channel C inside temperature opening threshold value 1	Input	DPT-1	RWC
552	Channel C inside temperature opening threshold value	Input	DPST-1-1	RWC
553	Channel C inside temperature opening threshold value	Input	DPST-1-1	RWC
554	Channel C inside temperature opening status	Output	DPST-1-3	R CT
555	Channel C inside humidity opening object	Input	DPST-1-1	RWC
556	Channel C inside humidity opening Measurement value	Input	DPT-9	RWC
557	Channel C inside humidity opening status	Output	DPST-1-3	R CT

No.	Name	Function	DPT	Flags
560	Channel C zero position reached	Input	DPST-1-2	RWC
561	Channel C zero position sensor malfunctioning	Output	DPST-1-2	R CT
562	Channel C master zero position status	Output	DPST-1-1	R CT
563	Channel C master zero position command	Output	DPST-1-1	R CT
564	Channel C slave zero position status	Input	DPST-1-1	RWC
565	Channel C master zero position status	Input	DPST-1-1	RWC
566	Channel C master zero position command	Input	DPST-1-1	RWC
567	Channel C slave zero position status	Output	DPST-1-1	R CT
568	Channel C drive moving	Output	DPST-1-1	R CT
569	Channel C malfunctioning object	Output	DPST-1-2	R CT
570	Channel C block 1 blocking object	Input	DPST-1-1	RWC
571	Channel C block 1 wind blocking object	Input	DPST-1-1	RWC
572	Channel C block 1 wind blocking Measurement value	Input	DPST-9-5	RWC
573	Channel C block 1 wind blocking status	Output	DPST-1-3	R CT
574	Channel C block 1 rain blocking object	Input	DPST-1-1	RWC
575	Channel C block 2 blocking object	Input	DPST-1-1	RWC
576	Channel C block 2 wind blocking object	Input	DPST-1-1	RWC
577	Channel C block 2 wind blocking Measurement value	Input	DPST-9-5	RWC
578	Channel C block 2 wind blocking status	Output	DPST-1-3	R CT
579	Channel C block 2 rain blocking object	Input	DPST-1-1	RWC
580	Channel C block 3 blocking object	Input	DPST-1-1	RWC
581	Channel C block 3 wind blocking object	Input	DPST-1-1	RWC
582	Channel C block 3 wind blocking Measurement value	Input	DPST-9-5	RWC
583	Channel C block 3 wind blocking status	Output	DPST-1-3	R CT
584	Channel C block 3 rain blocking object	Input	DPST-1-1	RWC
585	Channel C block 4 blocking object	Input	DPST-1-1	RWC
586	Channel C block 4 wind blocking object	Input	DPST-1-1	RWC
587	Channel C block 4 wind blocking Measurement value	Input	DPST-9-5	RWC

No.	Name	Function	DPT	Flags
588	Channel C block 4 wind blocking status	Output	DPST-1-3	R CT
589	Channel C block 4 rain blocking object	Input	DPST-1-1	RWC
590	Channel C block 5 blocking object	Input	DPST-1-1	RWC
591	Channel C block 5 wind blocking object	Input	DPST-1-1	RWC
592	Channel C block 5 wind blocking Measurement value	Input	DPST-9-5	RWC
593	Channel C block 5 wind blocking status	Output	DPST-1-3	R CT
594	Channel C block 5 rain blocking object	Input	DPST-1-1	RWC
649	Channel C local operation blocking object	Input	DPST-1-1	RWCT
650-658	Input 9 (see input 1)			
660-668	Input 10 (see input 1)			
700	Channel D status automatic or manual	Output	DPST-1-3	R CT
701	Channel D manual long term	Input	DPST-1-10	RWC
702	Channel D manual short term	Input	DPST-1-8	RWC
703	Channel D manual movement position	Input	DPST-5-1	RWC
704	Channel D manual slat position	Input	DPST-5-1	RWC
705	Channel D automatic short term	Input	DPST-1-10	RWC
706	Channel D automatic long term	Input	DPST-1-8	RWC
707	Channel D automatic movement position	Input	DPST-5-1	RWC
708	Channel D automatic slat position	Input	DPST-5-1	RWC
709	Channel D switch from manual to automatic	Input	DPST-1-3	RWC
710	Channel D automatic blocking object	Input	DPST-1-1	RWCT
711	Channel D current movement position	Output	DPST-5-1	R CT
712	Channel D current slat position	Output	DPST-5-1	R CT
713	Channel D status object	Output		R CT
714	Channel D call saving scenes	Input		WC
715	Channel D outdoor temperature Blocking object	Input	DPST-1-1	RWC
716	Channel D outdoor temperature blocking measurement value	Input	DPST-9-1	WC
717	Channel D outdoor temperature blocking status	Output	DPST-1-3	R CT
718	Channel D twilight object	Input	DPST-1-1	RWC

No.	Name	Function	DPT	Flags
719	Channel D twilight measurement value	Input	DPST-9-4	RWC
720	Channel D twilight status	Output	DPST-1-3	R CT
721	Channel D time control	Input	DPST-1-1	RWC
722	Channel D inside temperature release object	Input	DPST-1-1	RWC
723	Channel D inside temperature release measurement value	Input	DPST-9-1	RWC
724	Channel D inside temperature release target value	Input	DPST-9-1	RWC
725	Channel D inside temperature release status	Output	DPST-1-3	R CT
726	Channel D shading object	Input	DPST-1-1	RWC
727	Channel D shading brightness Measurement value 1	Input	DPST-9-4	RWC
728	Channel D shading brightness Measurement value 2	Input	DPST-9-4	RWC
729	Channel D shading brightness Measurement value 3	Input	DPST-9-4	RWC
730	Channel D shading threshold value	Input output	DPST-9-4	RWCT
731	Channel D shading threshold value 1 0	Input	DPT-1	RWC
732	Channel D shading threshold value	Input	DPST-1-1	RWC
733	Channel D shading threshold value	Input	DPST-1-1	RWC
734	Channel D shading status	Output	DPST-1-3	R CT
735	Channel D shading position Teaching object	Input	DPST-1-1	RWC
736	Channel D azimuth	Input	DPT-9	RWC
737	Channel D elevation	Input	DPT-9	RWC
738	Channel D cold air supply blocking object	Input	DPST-1-1	RWC
739	Channel D cold air supply outside temperature measurement value	Input	DPST-9-1	RWC
740	Channel D cold air supply blocking status	Output	DPST-1-3	R CT
741	Channel D forced ventilation	Input	DPST-1-1	RWC
742	Channel D warm air supply blocking object	Input	DPST-1-1	RWC
743	Channel D warm air supply inside temperature measurement value	Input	DPST-9-1	RWC
744	Channel D warm air supply outside temperature measurement value	Input	DPST-9-1	RWC

No.	Name	Function	DPT	Flags
745	Channel D warm air supply blocking target value	Input	DPST-9-1	RWC
746	Channel D warm air supply blocking status	Output	DPST-1-3	R CT
747	Channel D inside temperature opening object	Input	DPST-1-1	RWC
748	Channel D inside temperature opening measurement value	Input	DPST-9-1	RWC
749	Channel D inside temperature opening target value	Input	DPST-9-1	RWC
750	Channel D inside temperature opening threshold value	Input output	DPST-9-1	RWCT
751	Channel D inside temperature opening threshold value 1	Input	DPT-1	RWC
752	Channel D inside temperature opening threshold value	Input	DPST-1-1	RWC
753	Channel D inside temperature opening threshold value	Input	DPST-1-1	RWC
754	Channel D inside temperature opening status	Output	DPST-1-3	R CT
755	Channel D inside humidity opening object	Input	DPST-1-1	RWC
756	Channel D inside humidity opening Measurement value	Input	DPT-9	RWC
757	Channel D inside humidity opening status	Output	DPST-1-3	R CT
760	Channel D zero position reached	Input	DPST-1-2	RWC
761	Channel D zero position sensor malfunctioning	Output	DPST-1-2	R CT
762	Channel D master zero position status	Output	DPST-1-1	R CT
763	Channel D master zero position command	Output	DPST-1-1	R CT
764	Channel D slave zero position status	Input	DPST-1-1	RWC
765	Channel D master zero position status	Input	DPST-1-1	RWC
766	Channel D master zero position command	Input	DPST-1-1	RWC
767	Channel D slave zero position status	Output	DPST-1-1	R CT
768	Channel D drive moving	Output	DPST-1-1	R CT
769	Channel D malfunctioning object	Output	DPST-1-2	R CT
770	Channel D block 1 blocking object	Input	DPST-1-1	RWC
771	Channel D block 1 wind blocking object	Input	DPST-1-1	RWC
772	Channel D block 1 wind blocking measurement value	Input	DPST-9-5	RWC

No.	Name	Function	DPT	Flags
773	Channel D block 1 wind blocking status	Output	DPST-1-3	R CT
774	Channel D block 1 rain blocking object	Input	DPST-1-1	RWC
775	Channel D block 2 blocking object	Input	DPST-1-1	RWC
776	Channel D block 2 wind blocking object	Input	DPST-1-1	RWC
777	Channel D block 2 wind blocking measurement value	Input	DPST-9-5	RWC
778	Channel D block 2 wind blocking status	Output	DPST-1-3	R CT
779	Channel D block 2 rain blocking object	Input	DPST-1-1	RWC
780	Channel D block 3 blocking object	Input	DPST-1-1	RWC
781	Channel D block 3 wind blocking object	Input	DPST-1-1	RWC
782	Channel D block 3 wind blocking measurement value	Input	DPST-9-5	RWC
783	Channel D block 3 wind blocking status	Output	DPST-1-3	R CT
784	Channel D block 3 rain blocking object	Input	DPST-1-1	RWC
785	Channel D block 4 blocking object	Input	DPST-1-1	RWC
786	Channel D block 4 wind blocking object	Input	DPST-1-1	RWC
787	Channel D block 4 wind blocking measurement value	Input	DPST-9-5	RWC
788	Channel D block 4 wind blocking status	Output	DPST-1-3	R CT
789	Channel D block 4 rain blocking object	Input	DPST-1-1	RWC
790	Channel D block 5 blocking object	Input	DPST-1-1	RWC
791	Channel D block 5 wind blocking object	Input	DPST-1-1	RWC
792	Channel D block 5 wind blocking measurement value	Input	DPST-9-5	RWC
793	Channel D block 5 wind blocking status	Output	DPST-1-3	R CT
794	Channel D block 5 rain blocking object	Input	DPST-1-1	RWC
795	Channel D Short time limit	Input	DPST-1-1	RWC
849	Channel D local operation blocking object	Input	DPST-1-1	RWCT
850-858	Input 11 (see input 1)			
860-868	Input 12 (see input 1)			

4. Parameter setting

The default settings of the parameter are labeled 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 A-D. 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
Local button Channel D Use blocking object	No • Yes

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. Inputs

Set the parameters for inputs 1 to 4 here. The inputs 5 to 12 are designated for operating the devices on the outputs (channels A-D), and are therefore parameterized directly in the settings of the output channels (see *Button inputs (drives)*, page 47).

Configuration options for the individual inputs:

Input 1 • Bus button
Input 2 • Bus button
Input 3 • Bus button

Input 4
- Bus button

Input 5
- Actuator button for output channel A
- Bus button
- For drives also zero position sensor

Input 6
- Actuator button for output channel A
- Bus button

Input 7
- Actuator button for output channel B
- Bus button
- For drives also zero position sensor

Input 8
- Actuator button for output channel B
- Bus button

Input 9
- Actuator button for output channel C
- Bus button
- For drives also zero position sensor

Input 10
- Actuator button for output channel C
- Bus button

Input 11
- Actuator button for output channel D
- Bus button
- For drives also zero position sensor

Input 12
- Actuator button for output channel D
- Bus button

Operating mode	
Use input 1	No • as bus button
Use input 2	No • as bus button
Use input 3	No • as bus button
Use input 4	No • as bus button
Use input 5 and 6	See parameterization channel A – button inputs
Use input 7 and 8	See parameterization channel B – button inputs
Use input 9 and 10	See parameterization channel C – button inputs
Use input 11 and 12	See parameterization channel D – button inputs

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 S4-B12 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	No • Yes

4.3. 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 29)
- Control functions: Movement range limit, blocking, type of automatic (see *Control (drives)*, page 32)
- Automatic functions: Automatic can be specified externally or internally (see *Automatic for shading (drives)*, page 38 or *Automatic for windows (drives)*, page 43)
- Scenes: Movement positions (see , page 47)
- Button inputs: Configuration as actuator button, bust button or for zero position sensor (see *Button inputs (drives)*, page 47)

4.3.1. 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). 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	no • 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; 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 , page 47.

4.3.1.1. 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; 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 36, *Block – wind blocking*, page 37 and *Block – rain blocking*, page 38).
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)*

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 29) 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 38 or *Automatic for windows (drives)*, page 43) 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

4.3.1.2. 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; 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.

4.3.1.3. 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	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

4.3.1.4. Button inputs (drives)

The inputs 5 to 12 are designated for operating the devices on the outputs (channel A-D), and are therefore parameterized directly in the settings of the output channels. They can be used as actuator button or bus button, for connected drives the inputs 5, 7, 9 and 11 can be used *alternatively* for zero position sensors.

Operating mode	
Use input 5 / 7 / 9 / 11	• no • as a bus button • as an actuator switch • as a zero position sensor
Use input 6 / 8 / 10 / 12	• no • as a bus button • as an actuator switch

Input as bus button

The settings correspond to input 1/2 (see *Input as bus button*, page 25)

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	Up • Down Up • Down • Up/ Down On • Off • On/Off Open • Closed • Open/Closed	(shutter) (blind) (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. No operation is possible for an active block.

Use blocking object	No • 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 29). 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	No • Yes

5. General part

5.1. Output channel with drive

5.1.1. 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

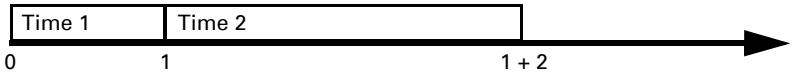
Comfort mode:

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. 1
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:

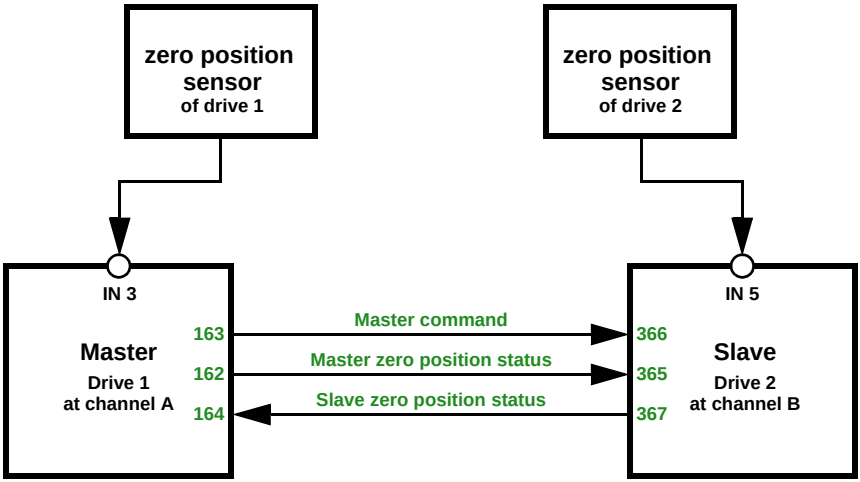
The drive moves as soon as the button is pushed and stops as soon as the button is released.

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

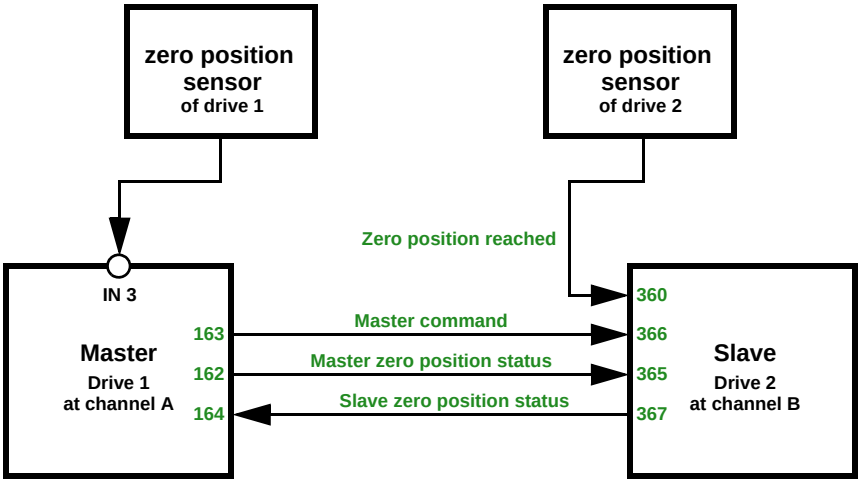
5.1.2. Connection option for zero position sensors

See also section *Movement Range Limit* in chapter *Control (drives)*, page 32. The examples and the communication object numbers refer to the mutual master-slave coupling of drives at the output channel A and channel B.

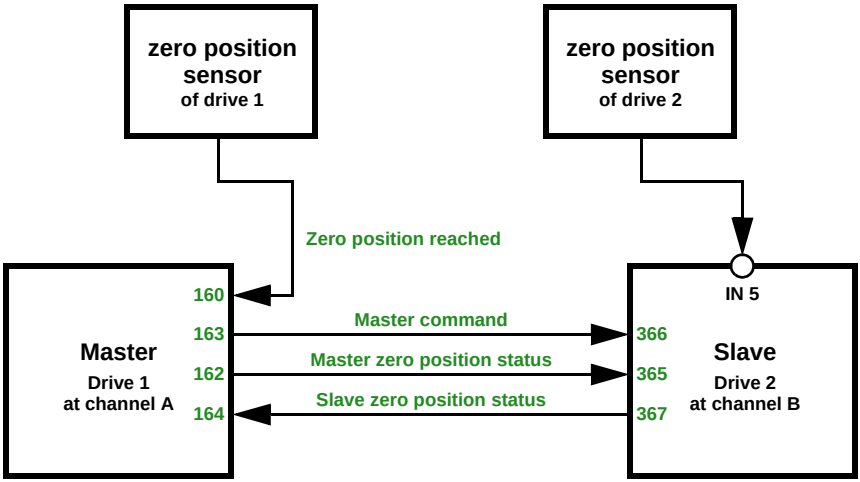
Drive channel A is Master, zero position sensor at input 3 of the actuator, drive channel B is Slave, zero position sensor at input 5 of the actuator:



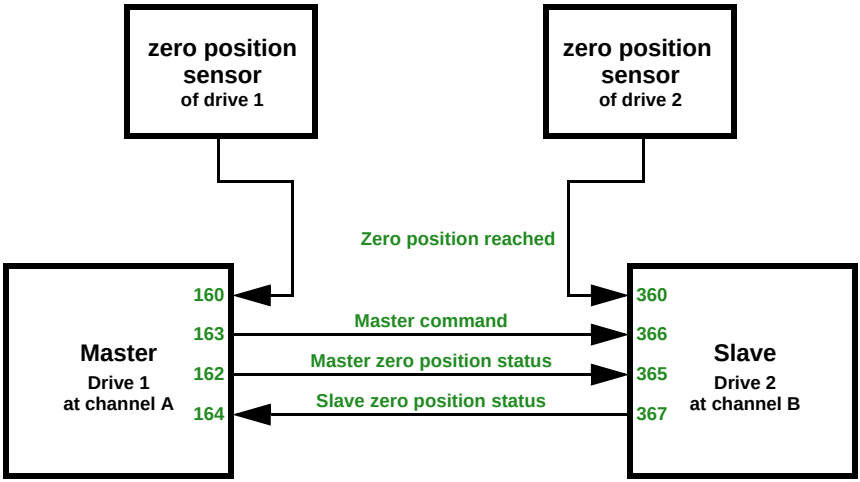
Drive channel A is Master, zero position sensor at input 3 of the actuator, drive channel B is Slave, zero position sensor via bus:



Drive channel A is Master, zero position sensor via bus, drive channel B is Slave, zero position sensor at input 5 of the actuator:



Drive channel A is Master, zero position sensor via bus, drive channel B is Slave, zero position sensor via bus:



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