EAE KNX Room Control Unit

Product Manual RCXXYYv2
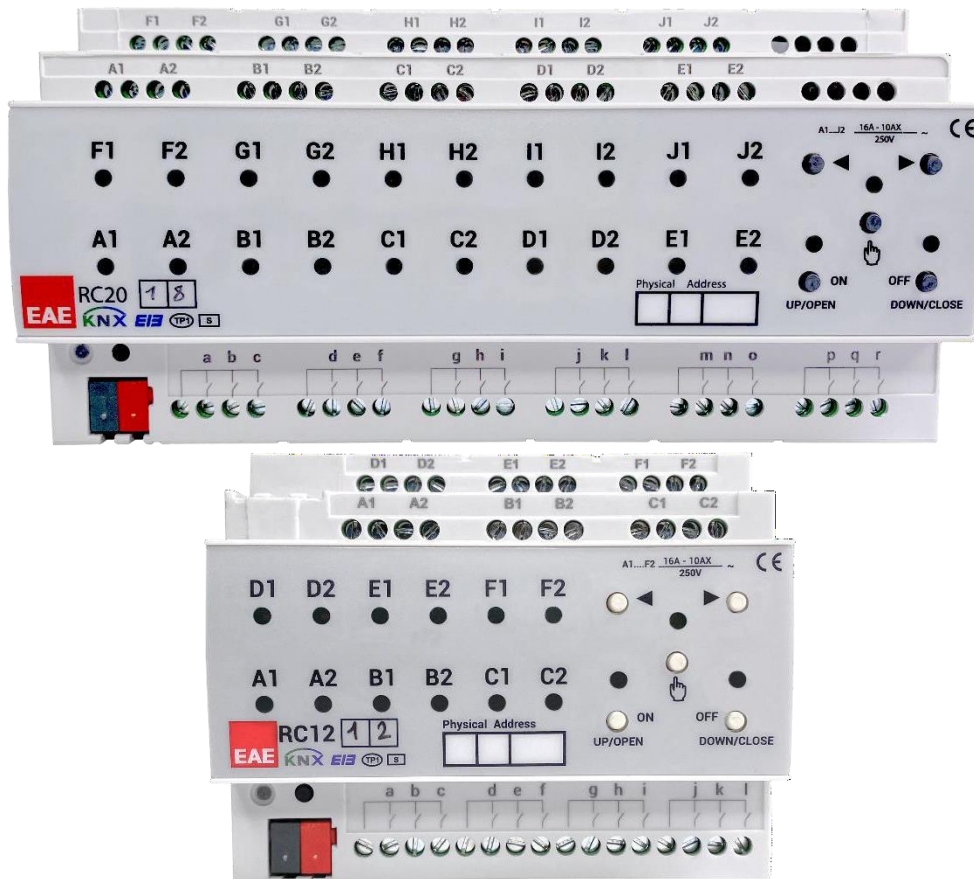
RC2018	20 Output, 18 Input
RC2000	20 Output, No Input
RC1616	16 Output, 16 Input
RC1600	16 Output, No Input
RC1212	12 Output, 12 Input
RC1200	12 Output, No Input
RC0808	8 Output, 8 Input
RC0800	8 Output, No Input

Note: RCXXYY where XX denotes the number of outputs and YY number of inputs.
Input and Output numbers are as in the table.

Index

1 General

1.1 Device Description

- Room Control Unit RC Series are designed as an all in one product for different room layouts such as apartments, hotel rooms, hospitals and residences.

- Room Control Unit covers all requirements of the electrical installation of room applications and offers following functions in one product.

  - ✓ Switching lighting
  - ✓ Switching loads
  - ✓ Controlling AC/DC blinds
  - ✓ Controlling fan coils (2 & 3-point valve)
  - ✓ Dry contact inputs

  - RCXXYY has XXx16A relay outputs. These outputs are grouped as 5/4/3/2 independent output channels for XX = 20/16/12/8 respectively. Each channel can be configured to have different modes of operation as follows,

    - ➤ Switching output   x4
    - ➤ AC Blind   x2
    - ➤ DC Blind   x1
    - ➤ 2 Point valve   x2
    - ➤ 3 point valve   x2

- Suitable for switching resistive, capacitive and inductive loads as well as fluorescent lamp loads according to EN 60 669. A single switch output provides following functions,

  - ➤ Staircase
  - ➤ External logic
  - ➤ Internal logic
  - ➤ Priority
  - ➤ Threshold

- RCXXYY has YY independent input channels. A single input channel provides following functions,

  - ➤ Switch / push button input
  - ➤ Dimmer control
  - ➤ Control of shutter/blinds
  - ➤ Value sending
  - ➤ Scene control
  - ➤ Counter for count pulse

- Manual control is possible for each channel through the built-in button panel.

- 220V auxiliary power is NOT required.

1.2 Technical Data RCXXYY Series

|		
Type of protection	IP 20	EN 60 529
Safety class	II	EN 61 140
Power supply :	- Voltage	21V... 30V DC, SELV
	- Current consumption	<15 mA
External supply	-	-
Connections	- Screw terminals	0,05...4 mm solid and stranded wire
		0,05...2,25 mm stranded wire with ferrule
	-Max tightening torque	0.8 Nm
	- KNX	Bus connect terminal
	- Number	XX output
	- Switching ratings	16A 250 VAC / $6x10^3$ OPS(Resistive)
	- Incandescent lamp	3500W
	- Halogen lamp	3500W
	- Inductive load, transformer	2000W
	- Electronic driver	1500W
	- Max. Inrush current	492A/1.5ms-165A/20ms
	- Max. switching power	4000VA
	- Mechanical life	$2 x 10^6$
Type of contact	- Potential-free, bistable	
Input	- Number	YY binary inputs
	- Scanning voltage	12 V
	- Current	0.3 mA
	- Cable length	< 300 m
Installation	- 35mm mounting rail	EN 60 715
Operating elements	- LED (red) and button	For physical address
Temperature range	- Operation	-5° C + 45° C
	- Storage	-25° C + 55° C
Dimensions	- RC2018/RC2000/RC1616/RC1600	66 x 180 x 90 mm
	- RC1212/RC1200/RC0808/RC0800	66 x 108 x 90 mm
Weight	0.65 kg	
Box	Plastic, polycarbonate, colour grey	
CE	In accordance with the EMC guideline and low voltage	

NOTE: Device factory default physical address is "15.15.255".

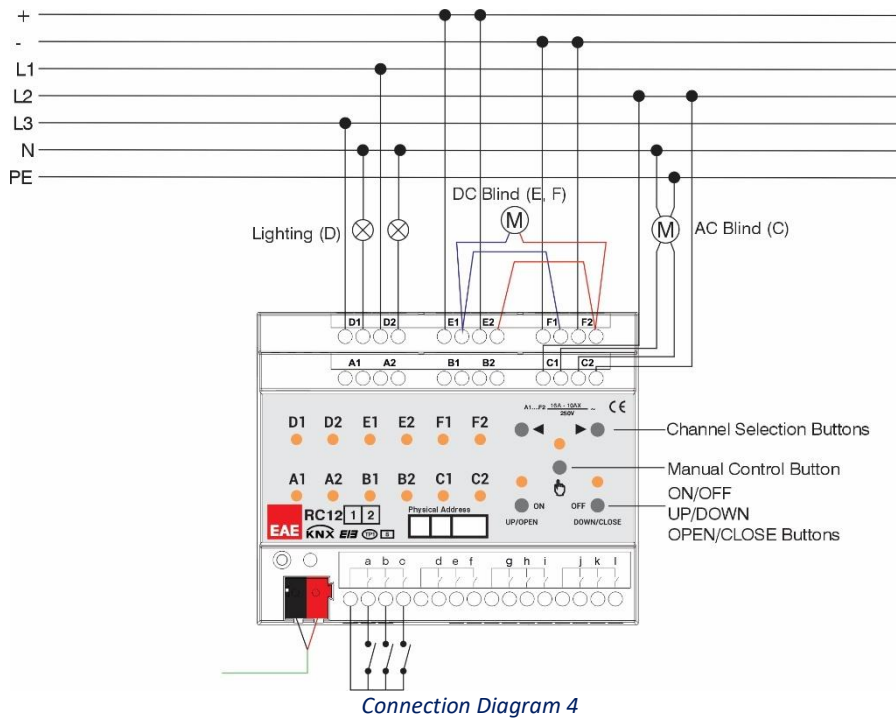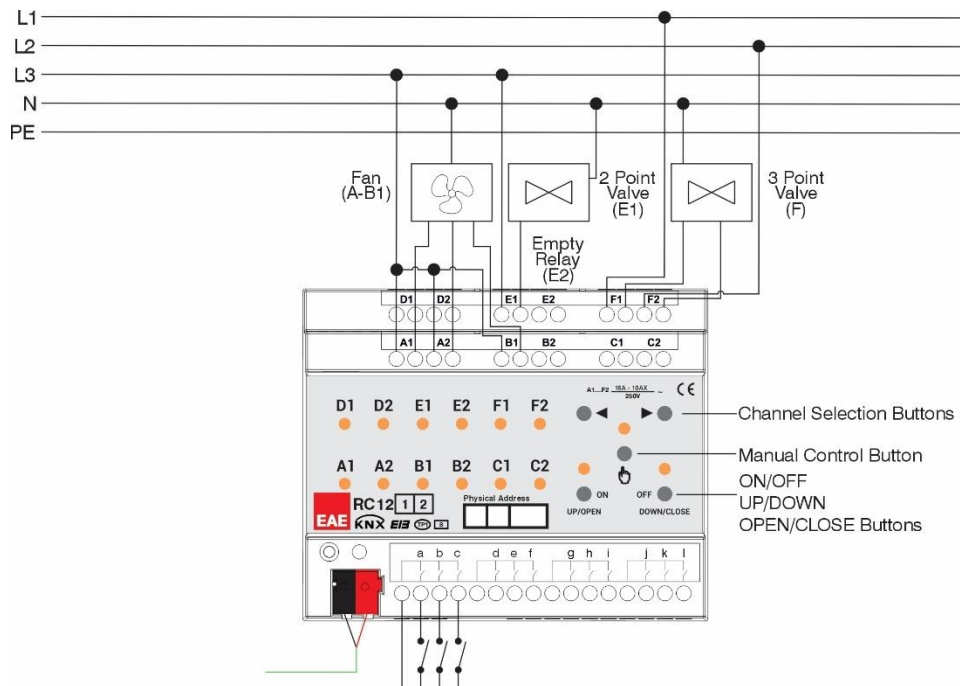## 1.3 Connection Example

RC0808
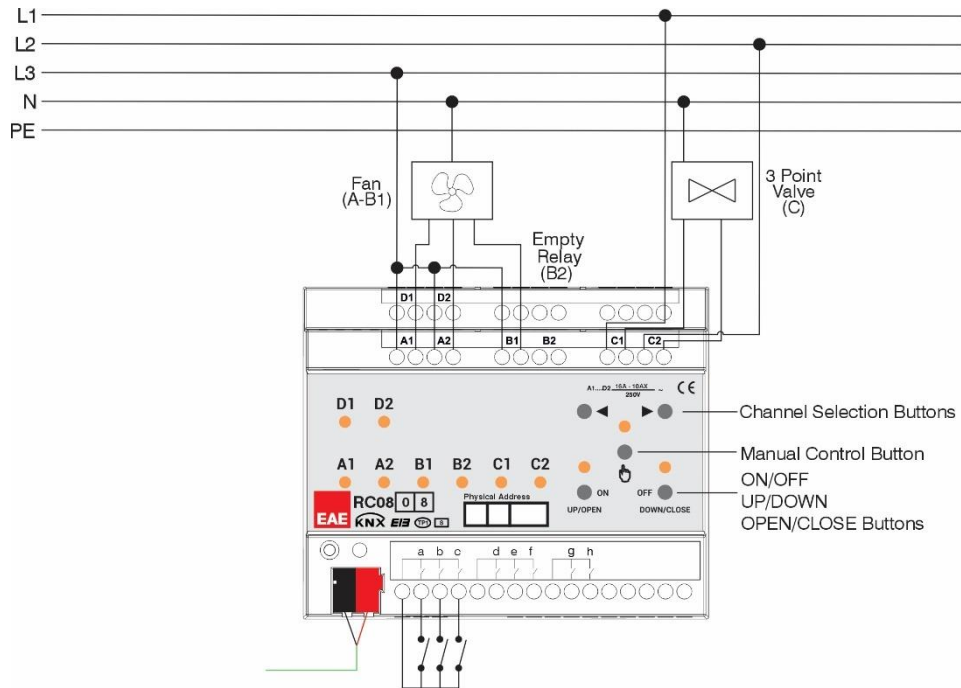
Connection Diagram 1
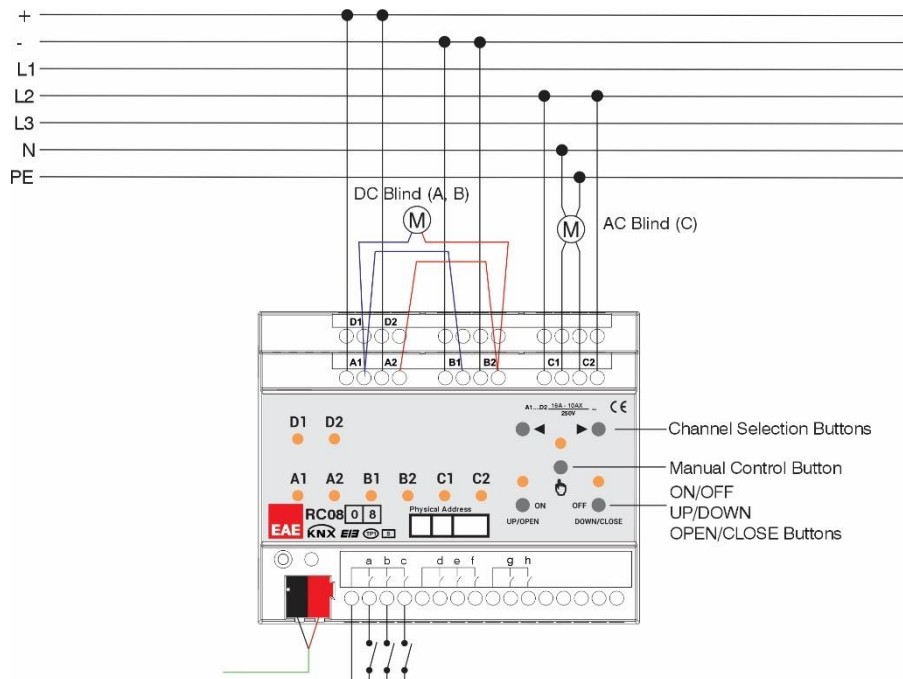
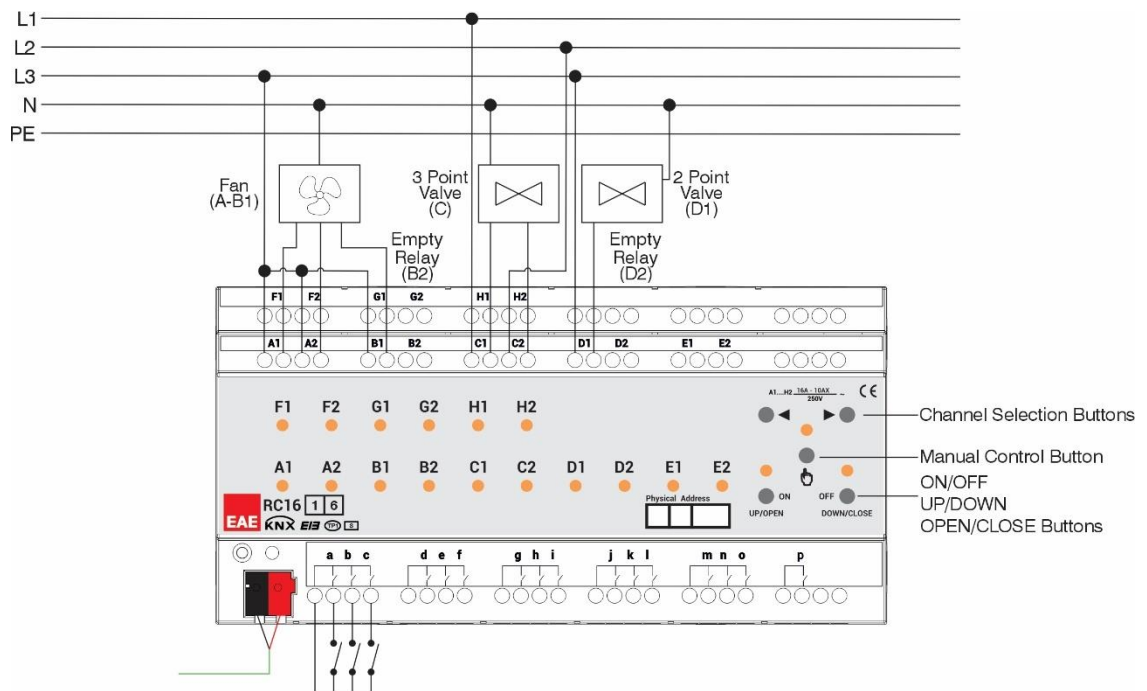*Connection Diagram 2*

RC1212

Connection Diagram 3
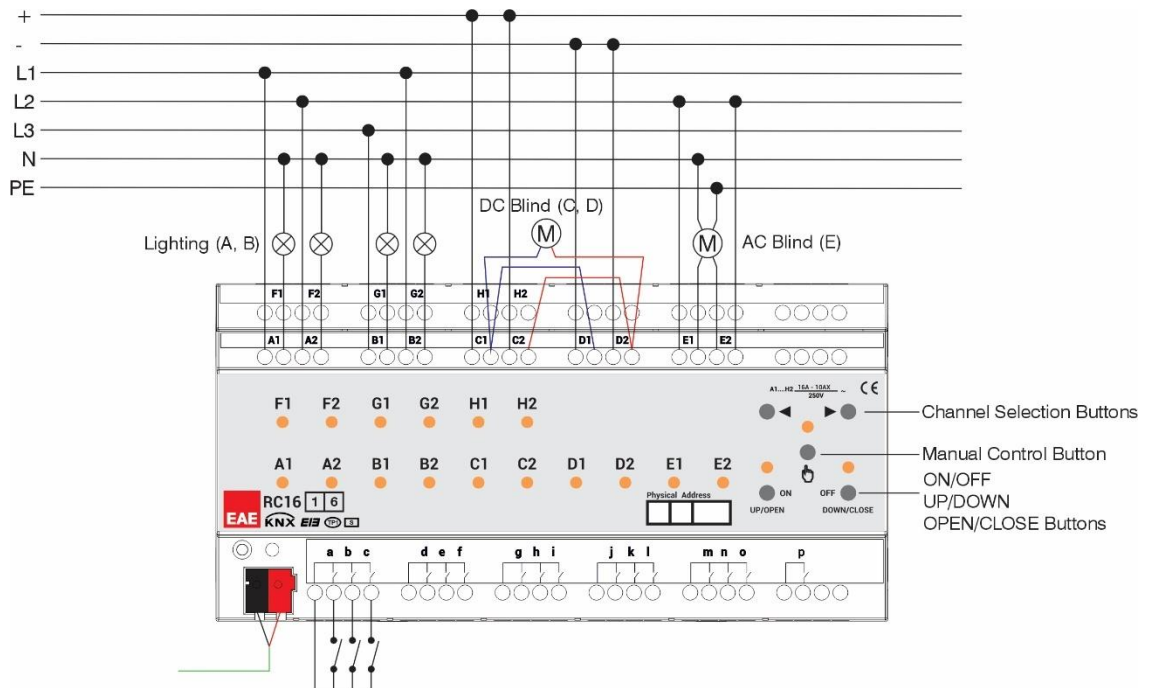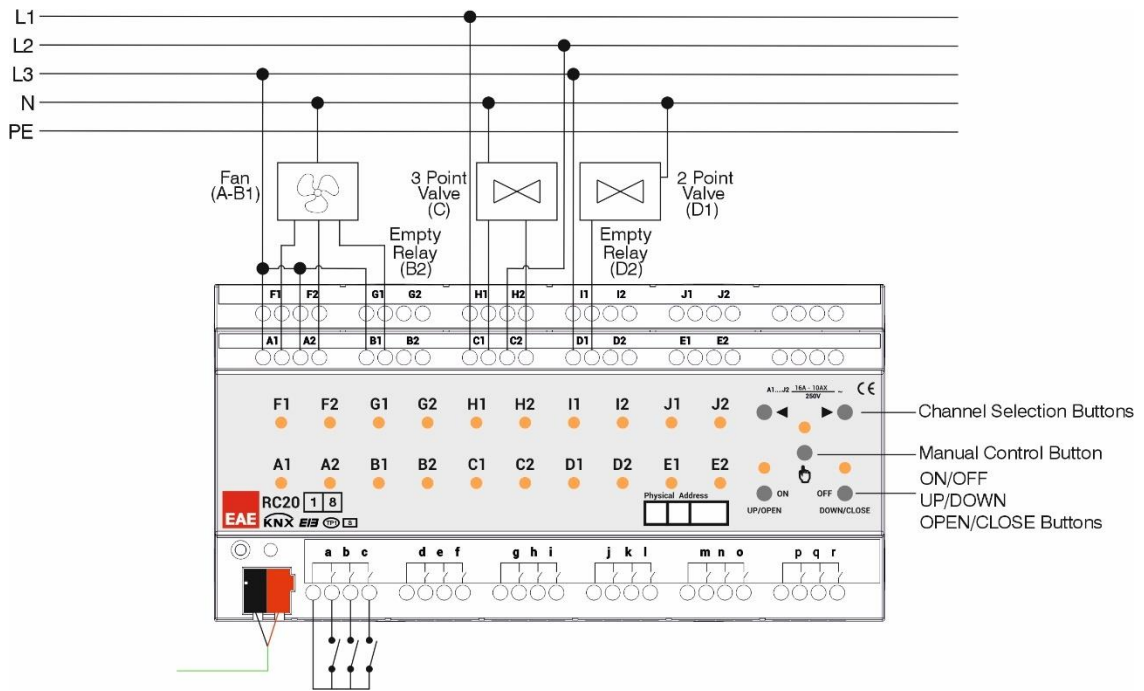

Connection Diagram 4

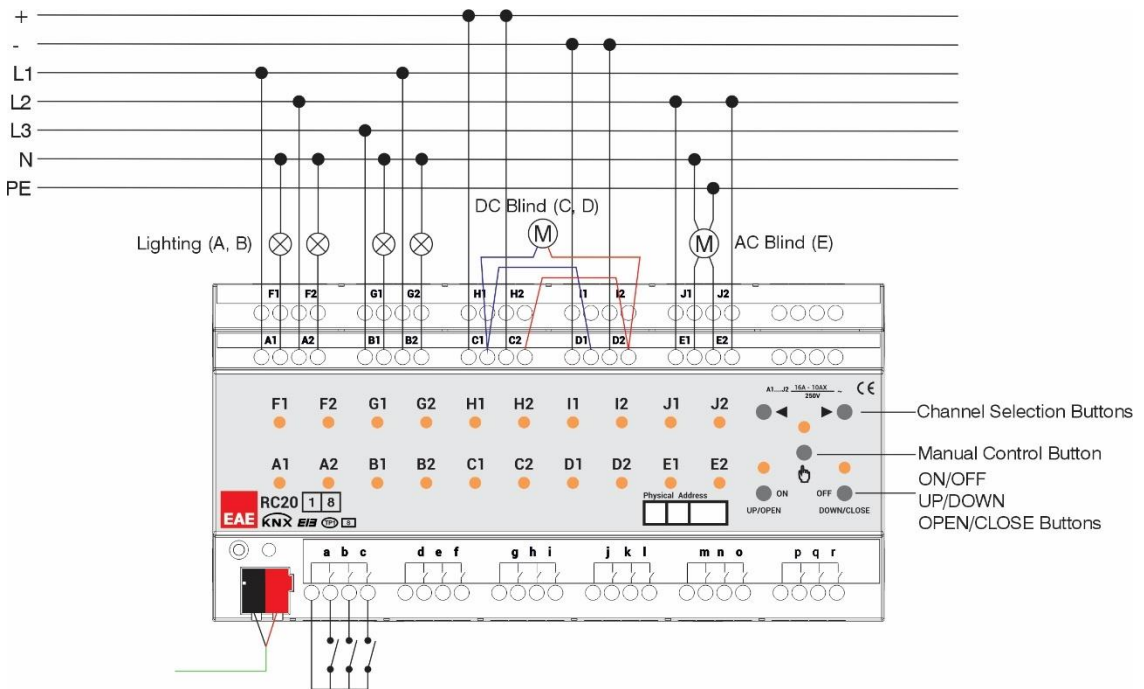## RC1616

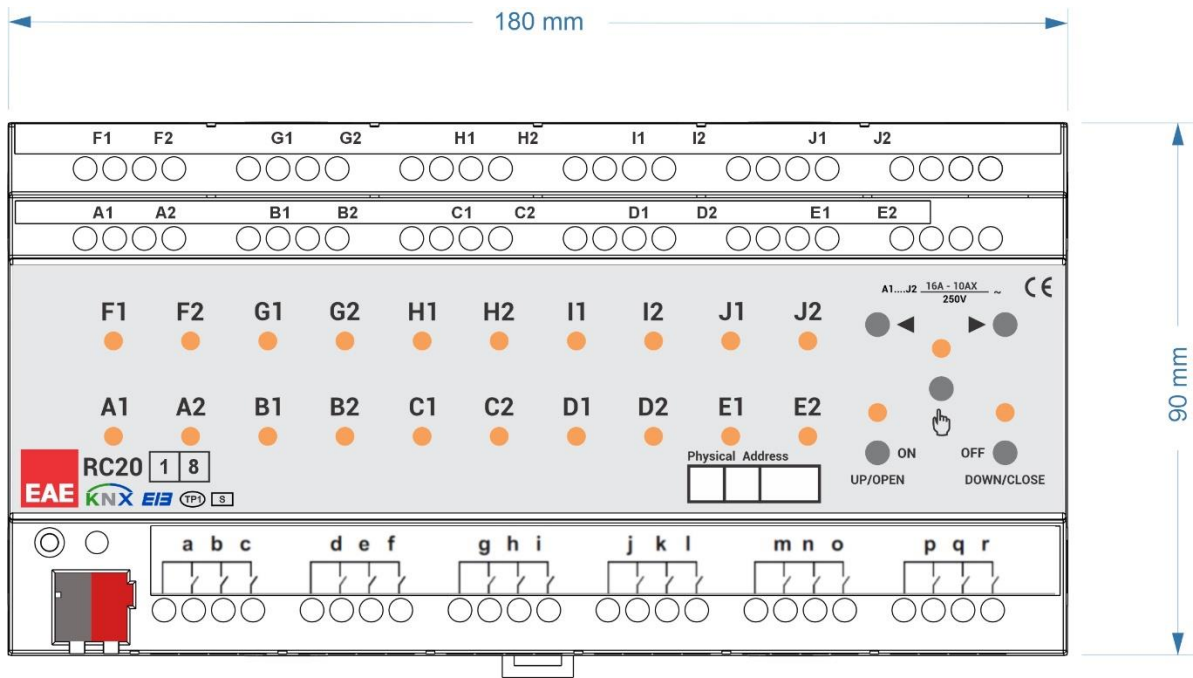*Connection Diagram 5*

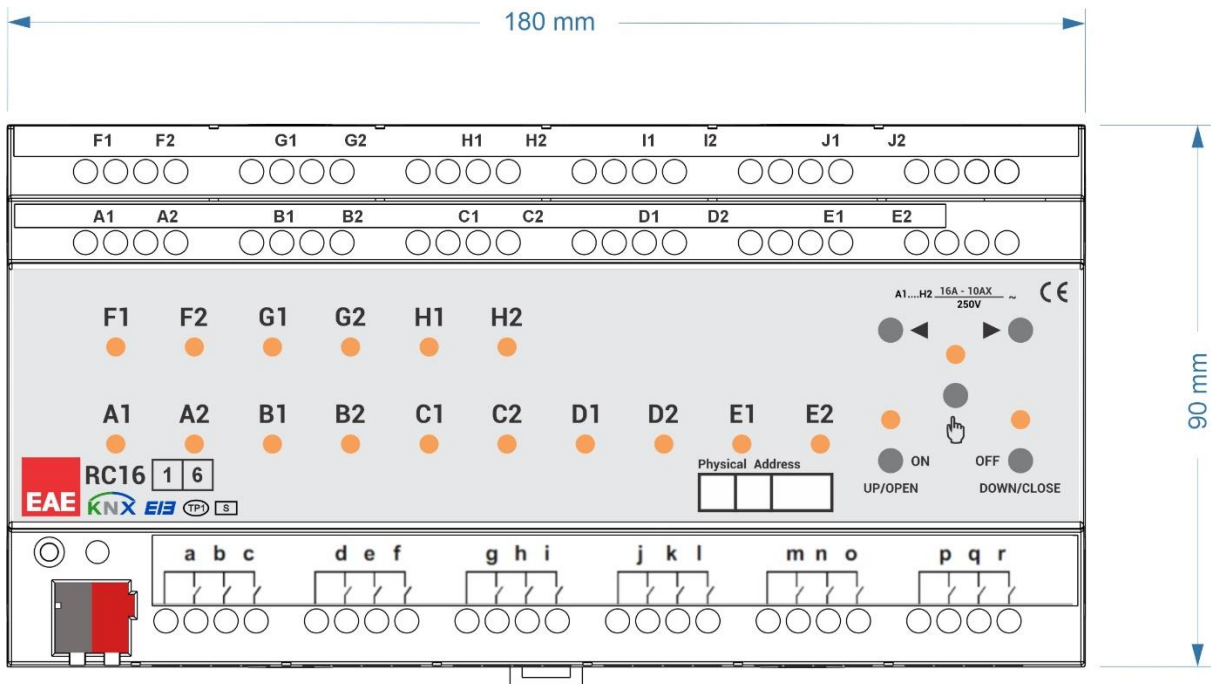*Connection Diagram 6*

RC2018

Connection Diagram 7

Connection Diagram 8

1.4   Scale Drawings RCXXYY
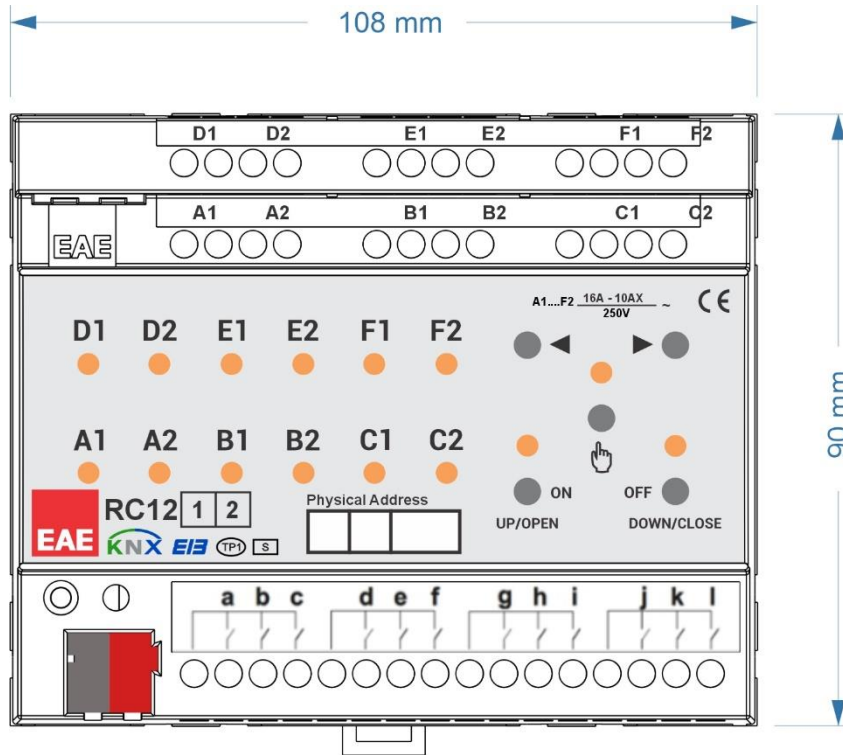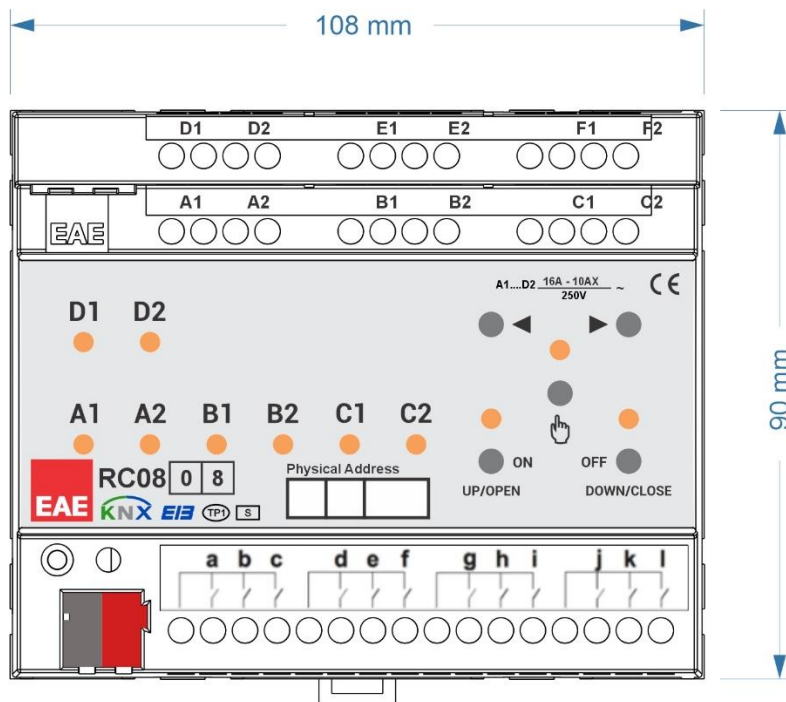
RC2018

RC1616
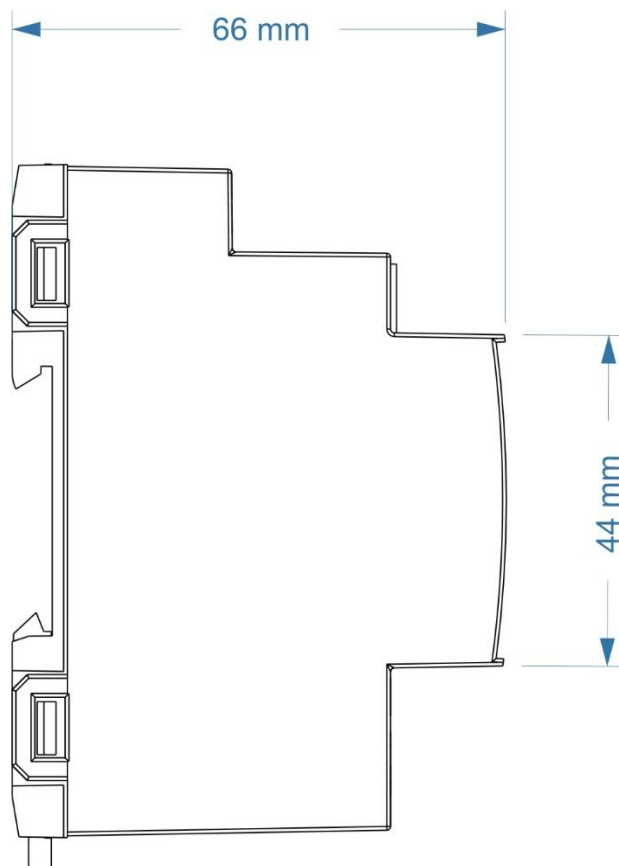
RC1212

RC0808

Scale Dimensions RCXXYY

66 mm

44 mm

2 Communication Object Table

The device has 383 communication objects. Overview of all communication objects of the device can be seen on the following table. Object names will be changed according to channel function as follows.

Fan coil: Fan A/B1, Fan C/D1, Fan E/F1, Fan G/H1, Fan I/J1 etc.

Valve control: Valve A/B, Valve C/D, Valve E/F, Valve G/H, Valve I/J.

Shutter/Blind DC: Output A/B, Output C/D, Output E/F, Output G/H, Output I/J.

Shutter/Blind AC: Output A, Output B, Output C, Output D, Output E etc.

Switch: Output A1, Output A2, Output B1, Output B2, Output C1, Output C2 etc.

Unused Relay: Output A2, Output B1, Output B2, Output C2, Output D1, Output D2, Output E2 etc.

No	Name	Function	DTP Type	Length	Flags
1	General	In operation	1.002	1 bit	CWT
2	General	Scene 8-bit	18.001	1 byte	CW
3	Blind	Wind alarm	1.005	1 bit	CWTU
4	Blind	Rain alarm	1.005	1 bit	CWTU
5	Blind	Frost alarm	1.005	1 bit	CWTU
6	Input a	All - Disable	1.003	1 bit	CW
7	Input a	Switch - Switch	1.001	1 bit	CWT
		Switch - Switch Short	1.001	1 bit	CWT
		Dim - Switch	1.001	1 bit	CWT
		Shutter - Up/Down	1.008	1 bit	CT
		Value - 0,1	1.001	1 bit	CWT
		Value - forced	2.001	2 bit	CWT
		Value - 0...255	5.001	8 bit	CWT
		Value - 0...65535	8.001	16 bit	CWT
		Value - -32768...32767	7.001	16 bit	CWT
		Value - 0...4294967295	12.001	32 bit	CWT
		Scene – 8 Bit Scene	17.001	8 bit	CT
		Scene - Switch Actuator Group A	1.001	1 bit	CWTU
		Scene - Value Actuator Group A	5.010	8 bit	CWTU
		Counter - Value 1 Byte Unsigned	5.010	8 bit	CWT
		Counter - Value 2 Byte Unsigned	7.001	16 bit	CWT
		Counter - Value 2 Byte Signed	8.001	16 bit	CWT
		Counter - Value 4 Byte Unsigned	13.001	32 bit	CWT
8	Input a	Switch - Switch long	1.001	1 bit	CWT
		Dim - brighter / darker	3.007	4 bit	CT
		Shutter - stop / lamella	1.007	1 bit	CT
		Value - long (0,1)	1.001	1 bit	CT
		Value - long (forced)	2.001	1 bit	CT
		Value - long [0...255]	5.001	8 bit	CT
		Value - long [0...65535]	8.001	16 bit	CT
		Value - long [-32768...32767]	7.001	16 bit	CT

		Value - long [0...4294967295]	12.001	32 bit	CT
8(Cont.)	Input a(Cont.)	Scene - Switch Actuator Group B	1.001	1 bit	CWTU
		Scene - Value Actuator Group B	5.010	8 bit	CWTU
		Counter - Diff. Value 1 Byte	5.010	8 bit	CWT
9	Input a	Shutter - Upper Limit Position	1.002	1 bit	CW
		Value - Temperature	14.068	32 bit	CT
		Scene - Switch Actuator Group C	1.001	1 bit	CWTU
		Scene - Value Actuator Group C	5.010	8 bit	CWTU
		Counter - Request Count. Value	1.007	1 bit	CW
10	Input a	Shutter - Lower Limit Position	1.002	1 bit	CW
		Value - Long (temperature)	14.068	32 bit	CT
		Scene - Switch Actuator Group D	1.001	1 bit	CWTU
		Scene - Value Actuator Group D	5.010	8 bit	CWTU
		Counter - Diff Overflow 1 Byte Unsigned	5.010	8 bit	CT
		Counter - Diff. Overflow 2 Byte Unsigned	7.001	16 bit	CT
		Counter - Diff. Overflow 2 Byte Signed	8.001	16 bit	CT
		Counter - Diff. Overflow 4 Byte Unsigned	13.001	32 bit	CT
11	Input a	Scene - Switch Actuator Group E	1.001	1 bit	CWTU
		Scene - Value Actuator Group E	5.010	8 bit	CWTU
		Counter - Reset Diff. Counter	1.015	1 bit	CW
12	Input a	Scene - Store Scene	1.003	1 bit	CWT
13...131	Input b ... r	Same as "Input a"			
132	Output A Output A/B	Blind - Move Blind/Shutters Up-Down	1.008	1 bit	CW
	Output A/B	Fan - Fan Speed Switch	5.010	1 byte	CW
	Output A/B	Valve - Control Value HEATING	5.001	1 byte	CW
	Output A1	Switch - Switch	1.001	1 bit	CW
133	Output A Output A/B	Blind - Slat Adjustment/Stop Up-Down	1.007	1 bit	CW
	Output A/B	Fan - Switch Speed 1	1.001	1 bit	CW
	Output A/B	Valve - Control Value COOLING	5.001	1 byte	CW
	Output A1	Switch - Switch Status	1.001	1 bit	CW
134	Output A Output A/B	Blind - Blind/Shutters Up-Down Limited	1.008	1 bit	CW
	Output A/B	Fan - Switch Speed 2	1.001	1 bit	CW
	Output A/B	Valve - Toggle Heating/Cooling	1.100	1 bit	CW
	Output A1	Switch - Enable Staircase Function	1.003	1 bit	CRW
135	Output A Output A/B	Blind - Move to Position Height 0...255	5.001	1 byte	CW
	Output A/B	Fan - Switch Speed 3	1.001	1 bit	CW
	Output A/B	Valve - Fault Control Value	1.005	1 bit	CRT
	Output A1	Switch - Staircase lighting duration	7.007	2 byte	CRW
136	Output A Output A/B	Blind - Move Slats 0...255	5.001	1 byte	CW
	Output A/B	Fan - Fan Speed UP/DOWN	1.007	1 bit	CW
	Output A/B	Valve – Block Heating	1.003	1 bit	CW
	Output A1	Switch - Permanent ON	1.001	1 bit	CW
137	Output A Output A/B	Blind - Move to Position 1, 2	1.022	1 bit	CW

137(Cont.)	Output A/B	Fan - Status Fan ON/OFF	1.001	1 bit	CT
	Output A/B	Valve - Forced Operation Heating	1.003	1 bit	CW
	Output A1	Switch - External Logic Input	1.001	1 bit	CW
138	Output A Output A/B	Blind - Move to Position 3, 4	1.022	1 bit	CW
	Output A/B	Fan - Status Fan Speed	5.010	1 byte	CRT
	Output A/B	Valve - Trigger Valve Purge Heat.	1.017	1 bit	CW
	Output A1	Switch - Forced Positioning	2.001	2 bit	CW
139	Output A Output A/B	Blind - Set Position 1, 2	1.022	1 bit	CW
	Output A/B	Fan - Status Fan Speed 1	1.001	1 bit	CRT
	Output A/B	Valve - Status Valve Purge Heat	1.003	1 bit	CRT
140	Output A Output A/B	Blind - Set Position 3, 4	1.022	1 bit	CW
	Output A/B	Fan - Status Fan Speed 2	1.001	1 bit	CRT
	Output A/B	Valve - Status Valve Position Heat	1.001	1 bit	CRT
			5.001	1 byte	CRT
	Output A2	Switch – Switch	1.001	1 bit	CW
141	Output A Output A/B	Blind - Trigger Reference Movement	1.008	1 bit	CW
	Output A/B	Fan - Status Fan Speed 3	1.001	1 bit	CRT
	Output A/B	Valve – Block Cooling	1.003	1 bit	CW
	Output A2	Switch - Switch Status	1.001	1 bit	CW
142	Output A Output A/B	Blind - Block	1.003	1 bit	CWTU
	Output A/B	Fan - Forced Operation	1.003	1 bit	CW
	Output A/B	Valve - Forced Operation	1.003	1 bit	CW
	Output A2	Switch - Enable Staircase Function	1.003	1 bit	CRW
143	Output A Output A/B	Blind - Forced Operation	1.003	1 bit	CWTU
			2.002	2 bit	CW
	Output A/B	Fan - Automatic ON/OFF	1.003	1 bit	CW
	Output A/B	Valve - Trigger Valve Purge Cooling	1.017	1 bit	CW
	Output A2	Switch - Staircase lighting duration	7.007	2 byte	CRW
144	Output A Output A/B	Blind - Status Height 0…255	5.001	1 byte	CRT
	Output A/B	Fan - Status Automatic	1.003	1 bit	CW
	Output A/B	Valve - Status Valve Purge Cooling	1.003	1 bit	CRT
	Output A2	Switch - Permanent ON	1.001	1 bit	CW
145	Output A Output A/B	Blind - Status Slat 0…255	5.001	1 byte	CRT
	Output A/B	Fan - Auto Mode Control value	5.001	1 byte	CW
	Output A/B	Valve - Status Valve Position Cool	1.001	1 bit	CRT
			5.001	1 byte	CRT
	Output A2	Switch - External Logic Input	1.001	1 bit	CW
146	Output A Output A/B	Blind - Status Upper End Position	1.011	1 bit	CRT
	Output A/B	Fan - Auto Mode Fan Off Lock	1.003	1 bit	CW
	Output A2	Switch - Forced Positioning	2.001	2 bit	CW
147	Output A Output A/B	Blind - Status Lower End Position	1.011	1 bit	CRT
	Output A2	Fan - Auto Mode Fan Off Lock Status	1.003	1 bit	CRT

148…291	Output B1…J2	Same as "Output A1" for Switch			
	Output C/D… Output I/J	Same as "Output A/B" for DC Blind			
	Output B… Output J	Same as "Output A" for AC Blind			
	Output C/D… Output I/J	Same as "Output A/B" for Fan			
	Output C/D… Output I/J	Same as "Output A/B" for Valve			
292	Unused A2	Unused - Switch	1.001	1 bit	CRWT
293	Unused A2	Unused - Switch Status	1.001	1 bit	CRT
294	Unused A2	Unused - Lock	1.001	1 bit	CW
295	Unused A2	Unused - Lock Status	1.001	1 bit	CRT
296…351	Unused B1…J2	Same as "Unused A2" for Unused			
252…367	Logic Block 1	Input	1.002	1 bit	CRW
			2.002	2 bit	CRW
			5.010	1 byte	CRW
		Output	1.002	1 bit	CRT
			2.002	2 bit	CRT
			5.010	1 byte	CRT
368…383	Logic Block 1	Input	1.002	1 bit	CRW
			2.002	2 bit	CRW
			5.010	1 byte	CRW
		Output	1.002	1 bit	CRT
			2.002	2 bit	CRT
			5.010	1 byte	CRT

3 Parameters

3.1 General

Enable manual operation	disable
	*enable

This parameter can be used to enable/disable manual control. If manual operation is enabled, connected load can be controlled via the corresponding channel button on the device.

- Set the parameter to "enable"
  This selection is used to enable manual operation.
- Set the parameter to "disable"
  This selection is used to disable manual operation.

Reset manual operation to KNX operation	via push button
	*automatically and via push button

This parameter determines how long manual operation remains activated.

Time for automatic reset in s[10…6000]	10…*300…6000

Manual operation remains activated until the adjusted time is up or deactivated by button manually.

Device alive operation active	*no
	yes

This object is used to report that device is still alive and connected to KNX line. (Heartbeat) If alive

telegram is not received, device may be defective or KNX cable can be disconnected. If parameter is selected "yes", following parameters come up.

In operation bit	*0
	1

Telegram value can be selected as "1" or "0".

In operation send interval(min)	1...*5...255

Telegram value is sent cyclically according to time interval.

Transmission delay [2...255s] after bus voltage return	*2...255

The parameter defines the behaviour of the actuator at a bus power return. The transmission delay time determines the period between bus voltage recovery and the point after which telegrams can be sent.

Telegram limit active	*no
	yes

Telegrams which are sent by the gateway can be limited with this parameter. If "yes" is selected, following parameters come up.

Max. number of transmitted telegram	1...*20...255

Maximum number of telegrams can be sent freely within a period.

NOTE: If the value of the object cannot be sent in the time of a period. The object is buffered for the next period time. The buffered object will be updated if the object value is updated.

Telegram limit period	50ms...*50ms...1dk

The limit period can be selected via telegram limit period parameter.

Activate scene	*no
	yes

If parameter is selected "yes", "Scenes" section will be visible in parameter titles.

Weather alarm function	enable
	*disable

If the parameter is selected "yes", "Weather Alarm" section will be visible in parameter titles. You can find weather alarm information under the "Weather Alarm" section.

Logic Block	*none
	1
	2

If the parameter is selected "1" or "2", "Logic Block" section will be visible in parameter titles. You can set logic block parameter under the "Logic Block 1" and "Logic Block 2" section.

Firmware Version	*---

If you click "Read Firmware Version" button, Firmware version of device will be showed

3.2 Weather alarms

Order of priority for weather alarms	*1.Wind 2.Rain 3.Frost
	1.Wind 2.Frost 3.Rain
	1.Rain 2.Wind 3.Frost
	1.Rain 2.Frost 3.Wind
	1.Frost 2.Wind 3.Rain
	1.Frost 2.Rain 3.Wind

If an alarm is triggered, the drives move into a safe position and stay in safe position until the event is over. You can select the priority of the weather alarm. This parameter is applied for all blind/shutter channels which are enabled for weather protection function. If more than one weather alarms occur simultaneously, then only the alarm with highest priority will be activated. The other lower priority alarms are carried out after highest priority alarm is completed.

Wind alarm	*disable
	enable

This parameter activates the wind alarm. If the parameter selected *"enable"*, *"Monitoring period for wind alarm in s [0…1000]"* parameter will be visible.

Monitoring period for wind alarm in s [0…1000]	*0…1000*

The telegram of the active weather station is monitored cyclically. The actuator waits for a telegram from the weather station within the cycle time. If the telegram is not received within this monitoring period time, actuator assumes that the weather station is broken or bus line is damaged and the blind moves into the parameterized position.

- **0:** If "0" is selected cyclically monitoring is deactivated. If the alarm telegram value is "1", weather alarm is activated.

Rain alarm	*disable*
	enable

This parameter activates the rain alarm. If the parameter selected *"enable"*, *"Monitoring period for rain alarm in s [0…1000]"* parameter is visible.

Monitoring period for rain alarm in s [0…1000]	*0…1000*

The telegram of the active weather station is monitored cyclically. The actuator waits for a telegram from the weather station within the cycle time. If the telegram is not received within this monitoring period time, actuator assumes that the weather station is broken or bus line is damaged and the blind moves into the parameterized position.

- **0:** If "0" is selected cyclically monitoring is deactivated. If the alarm telegram value is "1", weather alarm is activated.

Frost alarm	*disable*
	enable

This parameter activates the frost alarm. If the parameter selected *"enable"*, *"Monitoring period for frost alarm in s [0…1000]"* parameter is visible.

Monitoring period for frost alarm in s [0…1000]	*0…1000*

The telegram of the active weather station is monitored cyclically. The actuator waits for a telegram from the weather station within the cycle time. If the telegram is not received within this monitoring period time, actuator assumes that the weather station is broken or bus line is damaged and the blind moves into the parameterized position.

0: If "0" is selected cyclically monitoring is deactivated. If the alarm telegram value is "1", weather alarm is activated.

3.3 Scene

The scene function of the switch actuator has an 8 bit scene object. You can define for each 64 scene with parameter window. 8 independent values can be stored for each relay or each blind. The scene can be specified that the relay OFF (open contact), or ON (close contact) its state for switch function. If you use the blind, you can configure the blind height and slat position. You can save height position for blind also slat-opening angle as scene values.

When the actuator receives a telegram that retrieves a scene address;

i. The output group is configured as a blind, the drive is moved into the saved position and slats are turned.
ii. The output group is configured as a switch, the actuator evaluate the transmitted scene address and switches the output to the stored scene value.

A scene is activated when it receives its scene number at the scene object. The storing of the current channel values is carried out using the scene object.

For example;

Scene	recall		save	
	Hex.	Des.	Hex.	Des.
1	0x00	0	0x80	128
2	0x01	1	0x81	129
3	0x02	2	0x82	130
4	0x03	3	0x83	131
5	0x04	4	0x84	132
6	0x05	5	0x85	133
7	0x06	6	0x86	134
8	0x07	7	0x87	135
9	0x08	8	0x88	136
10	0x09	9	0x89	137
11	0x0A	10	0x8A	138
…	…	…	…	…
63	0x3E	62	0xE2	190
64	0x3F	63	0xE3	191

Overwrite scene on download	*no*
	yes

This parameter is selected the reaction of the scene set.

▪ Set the parameter to "no";
During storage of a scene, the scene values are stored in the device. If you want to protect your scene in the device, you are selected "no".
▪ Set the parameter to "yes";
The original ETS parameter values can be reload into the device during ETS download operation.

1…64 scene number (0 = no assignment)	*0…64*

This parameter is used to following parameter belongs to which scene. 0 meaning following parameters are not belong to any scene.

Blind position value in %[100]	*0…100
Slat position value in %[100]	*0…100
…	…
Value	*OFF ON

These parameters are the common of the blind and switch.

- If the "*Output group A*" is selected "*2 x switch*", scene parameters mean the switch state ON/OFF.
- If the *"Output group A"* is selected *"1 x blind"*, scene parameters mean blind height and slat position.

If the blind type is selected roller shutter, slat position parameter is invalid. 0%: open blind, 100%: bottom blind also you can select between %0 – %100 values. This parameter is used for parameterizing the blind position, which is executed when the scene is recalled.

3.4 Enable Input a…s

Input a…s	*no function Switch Sensor Switch/Dimming Sensor Shutter Sensor Value/Forced operation Control Scene Counter

This parameter is used to select input function.

- This parameter is selected "switch sensor"

Distinction between short/long operation and cyclical sending.

- This parameter is selected "switch dim sensor"

Start-stop dimming and stepwise dimming are possible.

- This parameter is selected "shutter sensor"

For movement/louvre adjustment of a blind or a shutter.

- This parameter is selected "value operation"

It is possible to send different values or data point types.

- This parameter is selected "control scene"

It is possible to trigger scene.

- This parameter is selected "counter"

It is possible to count input pulse.

3.4.1 Switch Sensor

| General	Distinction between long and short operation	○ yes ◉ no
Enable Input a…s	Connected contact type	○ normally closed ◉ normally open
a - Switch Sensor	Cyclic transmission of object	no ▼
Enable Output A…J	Reaction on closing the contact (rising edge)	ON ▼
	Reaction on opening the contact (falling edge)	OFF ▼
	Transmit object value after bus voltage recovery	○ yes ◉ no
	Debounce Time	50ms debounce time ▼

Group Objects   Parameter

This function is used, for binary inputs to which a switch or a push button is attached, to send a switching telegram (ON, OFF or TOGGLE) as a reaction to a rising and / or falling signal edge at this input. It has only 1 bit communication objects.
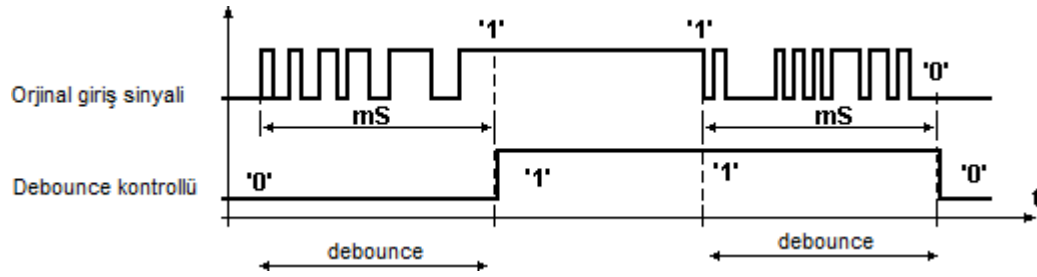
Debounce: Bouncing is the tendency of any two metal contacts in an electronic device to generate multiple signals as the contacts close or open; debouncing is any kind of hardware device or software that ensures that only a single signal will be acted upon for a single opening or closing of a contact.

A similar effect takes place when a switch made using a metal contact is opened. The usual solution is a debouncing device or software that ensures that only one digital signal can be registered within the space of a given time (usually milliseconds).
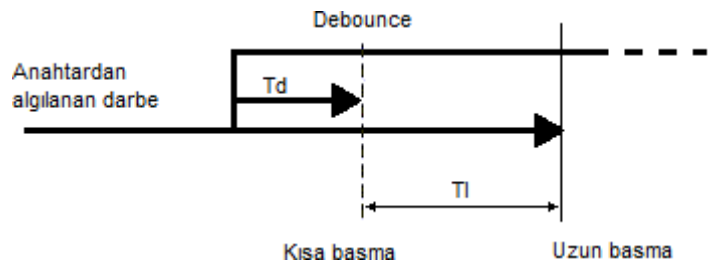
Short/Long Press: Distinguishing short from long presses is about measuring the pulse length. The event is no longer emitted upon pressing the button, but upon releasing it. This can affect the feeling of responsiveness.

The picture of this step shows a long press and short press timing, with a long press threshold of Tl periods. The button press longer than Td period but shorter than Tl period this mean is short pressed occurs.

Distinction between long and short operation	*yes* ***no**

If the parameter is set no, the input will be evaluated normally on every edge of the input signal. Yes is selected. There is a delay after opening/closing the contact to determine whether there is a short or long operation.

Connected contact type	*normally closed* ***normally open**

This parameter is visible if there is distinction between short and long operation. The contact type of the push button attached to the channel is adjusted here.

Cyclic transmission of object	***no** *"switch" = OFF* *"switch" = ON* *always*

This parameter is visible if there is no distinction between short and long actuation. This parameter

determines if and when a switching value is sent cyclically via the corresponding communication object.

Reaction on closing the contact (rising edge)	*ON*
	OFF TOGGLE
	no reaction

This parameter is visible if there is no distinction between short and long actuation. This parameter determines the switching value to be sent when the contact is closed.

Reaction on opening the contact (falling edge)	ON
	OFF
	TOGGLE
	no reaction

This parameter is visible if there is no distinction between short and long operation. This parameter determines the switching value to be sent when the contact is open.

Telegram is repeated every(transmission cycle time): base	100ms
	1s
	10s
	1min
	10min

This parameter determines the desired cycle time.

Period time: Base x Factor

Factor	1…*5*…255

Select time factor, between [1…255]

Reaction on short operation	*ON*
	OFF TOGGLE
	no reaction

This parameter is visible if there is distinction between short and long operation. This parameter determines the switching value to be sent when the contact is short press.

Reaction on long operation	ON
	OFF
	TOGGLE
	no reaction

This parameter is visible if there is distinction between short and long operation. This parameter determines the switching value to be sent when the contact is long press.

Number of object for short/long operation	*1 object*
	2 object

This parameter is visible if there is distinction between short and long operation. Further communication object can be released by the option 2 communication objects.

Debounce time	*10ms*…50ms…150ms

Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.

3.4.2   Switch Dim Sensor

You can use the corresponding input to switch the light on or off or dim it. When dimming, dimming up or dimming down is carried out via the 4 bit dimming object; the parameters for the dimming steps can be set. In addition, you can also transmit the corresponding dimming step cyclically for a period of time that can be set as required.

Connected contact type	normally closed *normally open

The contact type of the push button attached to the channel is adjusted here.

Dimming functionality	Dimming and switching *Only dimming

- This parameter is select "Dimming and switching";

If the dimming actuator was switched on by a short push button action, then it is dimmed brighter/darker by the first long push button action.

- This parameter is select "Only dimming";

The advantage of the "Only dimming" function is that no distinction is between short and long actuation. It is not necessary to wait for a long actuation.

Reaction on short operation	ON OFF *TOGGLE no reaction

This parameter is visible if there is selected "Dimming and switching" operation.

When the push button is pressed briefly the value currently stored in the switching object. An ON or OFF telegram is only generated when the push button is released. (Falling edge)

Reaction on long operation	*Dim BRIGHTER
	Dim DARKER
	Dim BRIGTER/DARKER

With the long push button action, the light becomes brighter or darker depending on the object value and the last controlled dimming direction.

A long operation changes the value of the object "Dimming".

Long operation after	0.3… *0,5s…10s

This parameter is visible if the parameter value is set "Dimming and switching". Long press period is select here.

Dimming mode	*start-Stop dim
	dimming steps

- ▪ "Start- Stop dim": It starts the dimming process with a telegram BRIGHTER or DARKER. In addition, button releases than STOP-dimming telegram sends. Cyclic sending telegram is not necessary in this case.
- ▪ "Dimming steps": The dimming telegram is sent cyclically during a long operation. STOP telegram sends at the end of operation.

Brightness change on every sent telegram	%100…*%6,25…%1,56

This parameter is only visible with the "Dimming steps" options. This parameter is cyclically sent with every dim telegram.

Transmission cycle time: Telegram is repeated every	0,3s…*0,5s…10s

This parameter is only visible with the "Dimming steps" options. The cycle time for sending corresponds with the time interval between two telegrams during cyclical sending.

Debounce time	10ms…*50ms…150ms

Debounce uses the input, which means checking twice in a short period to make sure it is definitely pressed.

3.4.3   Blind Sensor

The dual surface shutter function triggers shutter actuators, which can adjustment shutter and blind. You can rise the shutter/adjust the lamella using a single key and lower the shutter/adjust the lamella using a second key surface blind operation. Every shutter actuator controls with a 0-signal the up movement and a 1-signal down movement.

Operating functionality of the blind	**1 push-button, short=stepping, long=moving*
	1 push-button, short=moving, long=stepping 1 push-button-operation, moving
	1 switch-operation, moving
	2 push-button, standard
	2 switch-operation, moving
	2 push-button, moving
	2 push-button, stepping

Description is below the table.

- **1 button, short=stepping, long=moving**

Short operation	Stop / lamella adjustment The stop/lamella adjustment object is for the adjustment opposite direction to the last movement of the lamella. In additional it stops a running movement of the shutter.
Long operation	Shutter up / Shutter down Long press is opposite direction to the last movement for moving the shutter up or down.

- **1 button, short= moving, long= stepping**

Short operation	Shutter up / Shutter down Long press is for moving the shutter up or down.
Long operation	Stop / lamella adjustment The stop/lamella adjustment object is for the adjustment opposite direction to the last movement of the lamella. In additional it stops a running movement of the shutter. Long press detects than stop/lamella adj. communication object sends periodically.

- **1 button operation, moving**

On operation	This property is for moving only shutters up or down. Each press this commands send sequence; ->Move UP ➜ Stop/lamella adj. UP➜ Move DOWN ➜ Stop/ lamella DOWN

- **1 switch operation, moving**

Start of operation	This property is for moving only shutters up or down. While button is pressing, operation is continuing. This action is opposite direction to the last movement for moving the shutter up or down.
End of operation	When button releases, operation stop. Stop/ Lamella adj. command is send than movement stopped.

With below functions, you must set the parameters for a second key (second input) with the corresponding settings for the shutter movement in the opposite direction.

- **2 button, standard**

Short operation	Stop / lamella adjustment The stop/lamella adjustment object is adjustment of the lamella UP or DOWN. In additional it stops a running movement of the shutter.
Long operation	This action is for moving the chosen direction shutter. Movement direction is choosing on parameter move up or moves down.

- **2 switch operation, moving(shutter)**

Start of operation	This property is for moving only shutters up or down. While button is pressing, operation is continuing. This action is moving the shutter "move up" or "move down".
End of operation	When button releases, operation stop. "Stop/ Lamella adj. UP" or "Stop/ Lamella adj. DOWN" command is send than movement stopped. You should use the property with two switches.

- **2 switch operation, moving(shutter)**

On operation	The property object "Shutter" is choose and performs the up- and down-movement of the shutter. The direction of movement depends to the parameters. When the button pressed firstly, than shutter move in direction that it was programmed. Second time button is pressed shutter stop command is sent such as STOP/Lamella adj. UP or STOP/Lamella adj. DOWN. 1) Shutter MOVE UP -> STOP/Lamella UP 2) Shutter MOVE DOWN -> STOP/Lamella DOWN

- **2 button, stepping**

On operation	Stop / lamella adjustment The stop/lamella adjustment object is adjustment of the lamella UP or DOWN. Lamella move direction chooses on the parameters.

Connected contact type	normally closed ***normally open***

The contact type of the push button attached to the channel is adjusted here.

Reaction on short operation	***STOP/lamella UP*** STOP/lamella DOWN

This parameter is visible if there is distinction between short and long operation.

Stop/step lamella adjustment parameter. This parameter object stops shutter movement.

Reaction on long operation	MOVE UP ***MOVE DOWN***

Distinction between short and long;

This parameter use for choose shutter movement direction.

Long operation after	0,3s…*0,4s…10s

Distinction between short and long;

Long press time period is select here.

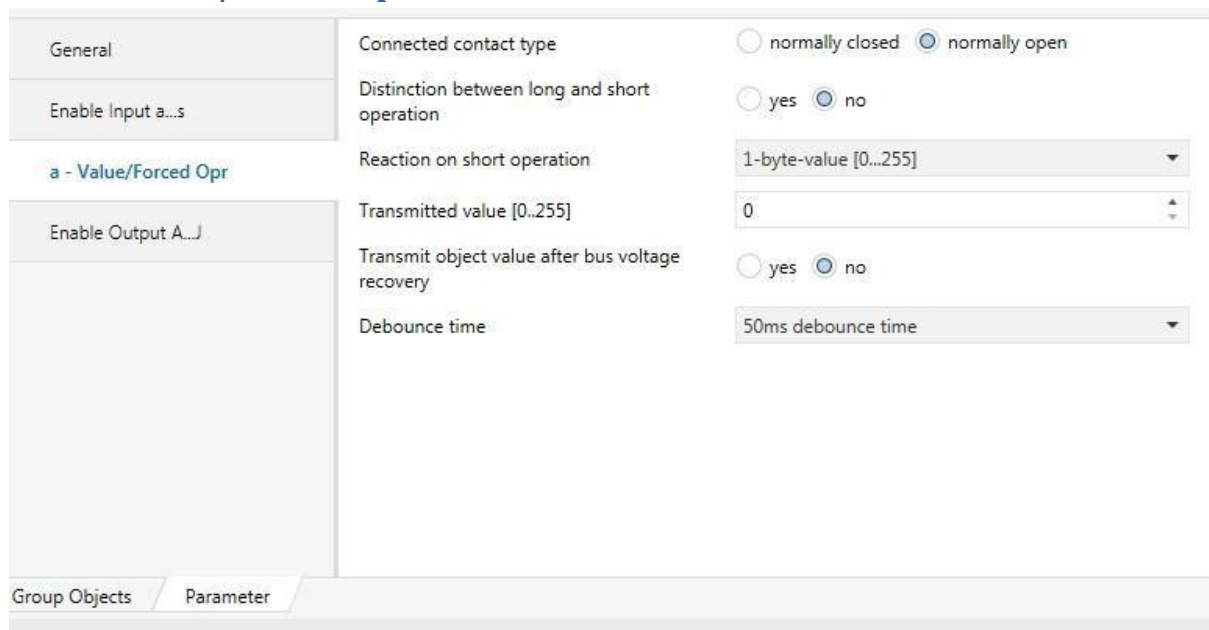| Telegr. STOP/lamella adj. is repeated every	0,3sn…*0,4s…10sn

Only visible *1 push-button, short=moving,*

This parameter we choose each sending stop/lamella telegram-sending period. Lamella adjustment cyclically.

Debounce time	10ms…*50ms…150ms

Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.

3.4.4 Value/Forced Operation

You can use these value/forced functions to parameterize different object actions. You can transmit one or two objects short or long press status sequence, and select the size of the objects required (1 bit, 2-bit priority control, 1 byte, 2 byte or 4 byte) as needed. This enables you to parameterize a large number of application options. You can enter two values and set whether and how they are to be transmitted short or long.

Connected contact type	normally closed *normally open

The contact type of the push button attached to the channel is adjusted here.

Distinction between long and short operation	yes *no

If the parameter is set no, the input will be evaluated normally on every edge of the input signal.

Yes is selected. There is a delay after opening/closing the contact to determine whether there is a short or long operation.

Reaction on operation	*no reaction*
	1 bit value
	1 bit value (forced operation)
	1 byte value [0…255]
	2 byte [-32768…32767]
	2 byte [0…65535]
	4 byte (floating point)
	4 byte value [0…4294967295]

This parameter is visible no distinction short/long operation;

This parameter determines the data type.

When button is pressed, this type of data sent KNX line with the communication object.

Reaction on short operation	*no reaction*
	1 bit value
	1 bit value (forced operation)
	1 byte value [0…255]
	2 byte [-32768…32767]
	2 byte [0…65535]
	4 byte (floating point)
	4 byte value [0…4294967295]

This parameter is visible distinction short/long operation; when button is pressed, this value sends KNX line on the communication object.

Transmitted value	***Dependent on the selection made at reaction on operation.***

Short press value or on operation value is enter here.

Reaction on long operation	*no reaction*
	1 bit value
	1 bit value (forced operation)
	1 byte value [0…255]
	2 byte [-32768…32767]
	2 byte [0…65535]
	4 byte (floating point)
	4 byte value [0…4294967295]

This parameter is visible distinction short/long operation;

This parameter determines the data type.

When button is pressed, this type of data sent KNX line with the communication object.

Transmitted value (long press)	** Dependent on the selection made at reaction on operation.**

This parameter is visible distinction short/long operation;

Short press value or on operation value is enter here.

Long operation after: *Time base*	**100ms* 1s 10s 1min 10min

This parameter is visible distinction short/long operation;

This parameter determines the desired long press time.

Period time: Base x Factor

Factor	1…*4*…255

Select time factor, between [1…255]

Transmit object value after bus voltage recovery.	*yes* **no*
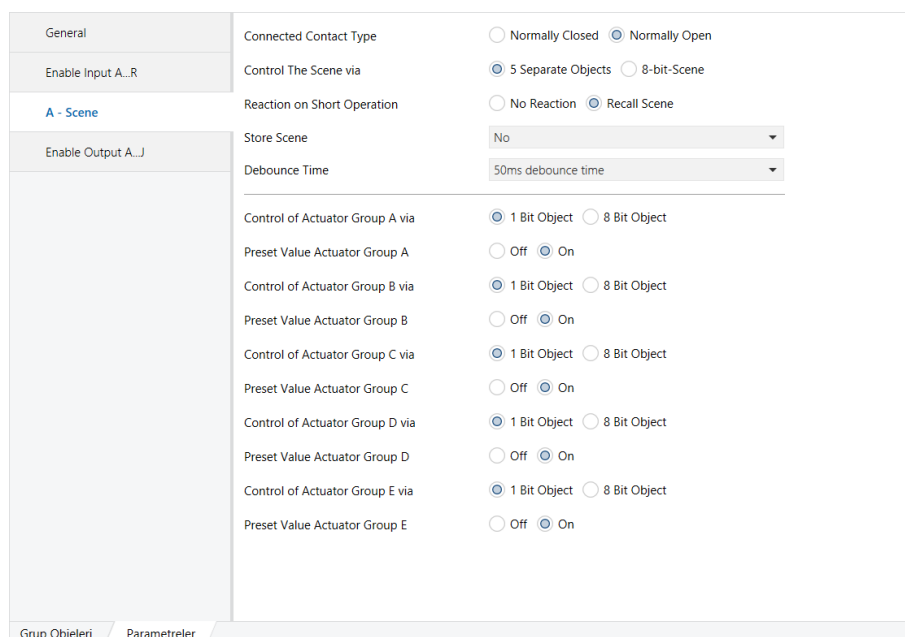
This parameter is visible no distinction short/long operation;

In the event of power supply failure to the electronics, the value (if this can be changed via a communication object) is permanently stored in a memory protected against data loss in the event of voltage failure. They are transferred from this memory into the working memory on bus voltage recovery.

Debounce time	10ms…**50ms*…150ms

Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.

3.4.5 Control Scene

Connected contact type	Normally closed ***Normally open**

The contact type of the push button attached to the channel is adjusted here.

Connected contact type	***5 separate object** 8 bit scene

There are two types of scene function;

- **5 separate objects:** If this function is selected, 5 separate objects are created. An object can be present for each actuator group whether a 1 bit or 8 bit. The scene is stored in the push button. If a scene has been stored after programming or read request, the current object values are overwritten with the new values.
- **8 bit scene:** The scene is not stored in the push button but rather in the actuator. 8-bit scenes are stored in the actuators. Single group address is managed 64 different scenes.

No of scene	***1** 2 … 64

This parameter is visible if there is selected "8- bit scene" operation. This parameter determines which scene (1…64) is to be stored or recalled.

Store scene	***No** On Long Operation With Object Value = 1 On Long Operation (if object value = 1)

Storing of the current scene can be triggered that type of action.
- **On long operation:** On long button press operation, store scene command will send on the bus.
- **With object value = 1**: If the "store scene" object receives value 1, store scene command will send on the bus.
- **On long operation (if object value = 1)**: If on long operation and "store scene" object receives value 1, than store scene command will send on the bus.

Long operation after	0,3s… ***3s**…10s

This parameter is visible distinction short/long operation;
This parameter determines the desired long press time.

Debounce time	10ms…***50ms**…150ms

Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.

Control of Actuator Group **x** via	***1 Bit Object** 8 Bit Object

This parameter determines object types of Actuator Group.

Preset Value Actuator Group **x**	***On**/Off (1 Bit Object) **0…255 (1 Byte Object)*

This parameter determines preset value of actuator group object but it can be change with store scene function.

3.4.6   Counter

Pulse detection on	*closing contact (rising edge) opening contact (falling edge)

There is a setting which edge is counted at the counter function.

Transmit counter values cyclically	Yes *No

Is the counter values are sending cyclically?

Counter Value is being transmitted Every: Base	*1s 10s 1min 10min 1hour

Both counter values can either be sent cyclically on the bus.

Cyclic time: base x factor.

Factor	1...*30...255

Cyclic time: base x factor

Data width of counter	8 bit 16 bit signed 16 bit unsigned *32 bit

The type of the counter is selected by this parameter. Standard counter
and differential counter widths are equal.

Counter starts at	Min...*0...Max

The standard counter starts counting at this value. Min and Max depend
on data width

**NOTE: This parameter is only used for normal counter. It isn't used
differential counter. Differential counter starts from 0 value.**

Divider: number of input pulses for one counter step	*1…255 (selected 8bit) *1…65535(selected 16bit)

Here an adjustment is made as to whether how many pulses increase

the counter.

Factor: One counter step changes counter value	*1…255 (selected 8bit) *1…65535(selected 16bit

Here an adjustment is made as to whether how many the counter should

be increased by in the evet of a counting pulse.

Enable differential counter	Yes ***No**

If this parameter is selected "Yes", differential counter enable. In

Additionally differential object and helper objects are opened.

Over-/under of differential counter	Min….*100….Max

This parameter determines preset value of actuator group object but it

can be changed with store scene function. Min and Max depend on

data width

Debounce Time/ Min. Operation Time	10ms…*50ms…150ms

Debounce uses the input, which means checking twice in a short period

of time to make sure it's definitely pressed.

Transmit counter values after bus voltage recovery	Yes ***No**

In the event of power supply failure to the electronics the value is

permanently stored in a memory protected. They are transferred from

this memory into the working memory on bus voltage recovery.

3.5 Enable Output A...J

Output group A and B	***no function** *shutter/blind DC* *fan coil* *valve control individually*

Both output group can be combined into one DC blind. In DC blind operation the four relay contacts of the device can be used to control electrically AC blind, shutter, awning, and venetian blind. Depending on this setting, all the group parameters and objects are created in the ETS.

- Set the parameter to "*no function*"
  The parameter is selected output group A and B are invisible. You can not configured this channels.
- Set the parameter to "*shutter/blind DC*";
  The appropriate output quad is configured to DC blind. Four outputs are combined into one blind channel. In the blind mode four relay are locked against each other. The DC blind can be used to control electrically driven blinds, shutters, awnings and venetian blinds. DC blind operation page name starts with A/B, C/D prefix. The names of the output objects and the parameter page change accordingly.
- Set the parameter to "*fan coil*";
  The appropriate output three is configured to fan. Three outputs are combined into one fan channel. In the fan mode relay is used for fan as much as fan level. The other outputs can use for empty relay function.
- Set the parameter to "*valve control*";
  Valve control channel has a two valve. They can be configured separately 3-point or 2-point. 3-point valve drives are normally connected via three connection cables to the device: Neutral conductor, switched phase to OPEN, switched phase for CLOSE. Using 3-point control value drives, the valve can be opened by any desired percentage and the position can be

retained over an extended period. If the valve does not move, no voltage is applied to the motor.

2-point valve drives are controlled via the telegrams OPEN and CLOSE. The valve can only be completely open or completely closed. In 2-point valve other unused relay used for empty relay function.

▪ Set the parameter to "*individually*";
The parameter is selected "*AC motor or switch*" and the *"Output group A"* and *"Output group B"* parameters become visible. You can configured each output group separately.

Output group A	****shutter/blind AC*** *2 x switch*
Output group B	**** shutter/blind AC*** *2 x switch*

The appropriate output pair is configured by this parameter.

▪ Set the parameter to "shutter/blind *AC blind*";
The appropriate output pair is configured to AC blind. Two outputs are combined into one blind channel. In the blind mode two relay are locked against each other. The AC blind can be used to control electrically driven blinds, shutters, awnings and venetian blinds. AC blind operation page name starts with A, B, C and D prefix. The names of the output objects and the parameter page change accordingly.

▪ Set the parameter to "*2 x switch*";

▪ The appropriate output is configured to switch operation. Switch operation page name starts with A1, A2, B1… D1 and D2 prefix. The names of the output objects and the parameter page change accordingly.

3.5.1   Switch

3.5.1.1 A1 - General

Contact type	*normally open
	normally closed

The relays of a switching output can be parameterized as normally closed or normally open. This feature offers the possibility of inversion the switching state. Important: This state is only valid for switch communication object. Other relay function always works normally.

Normally closed contact

Switch state = off (0) ➔ relay contact closed
Switch state = on (1) ➔ relay contact open

Normally open contact

Switch state = off (0) ➔ relay contact open
Switch state = on (1) ➔ relay contact closed

Send switch status feedback telegram	no
	after change after request
	*after change or request

The switch status feedback can be used as an active or passive communication object. Active message object, the switch status telegram is transmitted to the bus automatically when a relay state changes. Passive status object, there is no telegram transmission after relay state changes. If you want to learn switch status, you must read communication object. Communication object flags are automatically set by ETS.

NOTE: Switching state changes by manual operation can be detected by current measurement.

Create status object "Status Switch"	no
	yes

If this parameter select 'yes', ETS create another communication object for use only status switch.

The status object can be used to display the current output switching status on a display.

Send status after bus voltage return	*no*
	yes

You can use this parameter to send the switching state in the event of bus voltage recovery.

Behavior after ETS programming	*keep position*
or after ETS reset	open contact
	close contact

After ETS programming, relay position set the wanted switching position.

- Set the parameter to "keep position"

In this setting, the relay remains in the current state. Any manual operation occurs in the meantime the switch actuator return its old position. The device doesn't know the status of the relay.

- Set the parameter to "open contact" or "close contact"

The relay contact open or close after bus voltage return.

Behavior bus voltage failure	*keep position*
	open contact
	close contact

When the bus voltage fails, the device set the wanted switching state of the output. The relay can be open, close or keep position it occupied prior to the failure. At the same time, the current switching position of the relay is stored in the devices.

Behavior bus voltage return	keep position
	open contact
	close contact
	status as before bus voltage failure

When the bus voltage returns, the device set the wanted switching state of the output.

- Set the parameter to "keep position"

In this setting, the relay remains in the current state. Any manual operation occurs in the meantime the switch actuator return its old position. The device doesn't know the status of the relay.

- Set the parameter to "open contact" or "close contact"

The relay contact open or close after bus voltage return.

- Set the parameter to "state as before bus voltage failure"

If the parameter set to "state as before bus voltage failure", then the relay is set to the value. The value stored at the time of the bus voltage failure.

3.5.1.2 A1 - Function

General
Enable Input A...R
Enable Output A...J
A1 - General
A1 - Function
A1 - Scene
A2 - General
A2 - Function
A2 - Scene
B1 - General
B1 - Function
B1 - Scene
B2 - General
B2 - Function
B2 - Scene

Enable Staircase   ◯ Yes ⦿ No

Enable Extenal Logic   ◯ Yes ⦿ No

Enable priority   ◯ Yes ⦿ No

Grup Objeleri   Parametreler

Above function can be set for each channel. This function;

I.   Staircase function
II.   External logic
III.   Forced position

Below you can find this functions description.

3.5.1.3 A1 - Staircase Function

If you want to use staircase function, you must have been enabled 'Staircase' on the function windows. Than required parameters and communication, objects are visible. The staircase function can be parameterized for each channel.

Staircase function has a three communication object. These are "Enable staircase function", "Staircase lighting duration" and "Permanent ON".

Duration of staircase lighting [min]/ [sec]	0…*5…240[min] *0…59 [sec]

Staircase function on time is calculated by "duration of staircase lighting". Staircase lighting time is defined by this parameter. At the end of the on time, the relay off or active the staircase warning functions.

Staircase retrigger	*not retriggerable yes retriggerable up to staircase lighting time 2x up to staircase lighting time 3x up to staircase lighting time 4x up to staircase lighting time 5x

This parameter defines whether the staircase on time can be retrigger able or not so the on time can be extended by 'Enable staircase function'. You can repeat retrigger function until the repeater count reached the maximum value (2x, 3x, 4x, 5x). If the parameter selects 'not retriggerable', staircase on time doesn't extend.

Reaction to OFF telegram	*switch off*
	ignore

After this parameter selected 'switching off', ignored 'Enable staircase function' communication object 'disable' command.

Staircase time can be changed by object	*yes*
	no

'Staircase lighting duration' communication object is visible if a 'Staircase time can be changed by object' parameter selects 'yes'. This communication object is 2 byte. The value defines the staircase on time in second.

NOTE: After a bus voltage fails, staircase on time returns default value (Duration of staircase lighting).

Restart staircase after "Permanent ON"	*yes*
	no

If this parameter is selected 'yes', receive 'Permanent ON' communication object after restart staircase function.

Activate pre-warning time?	*yes*
	no

The warning function can be activated by this parameter select 'yes'. Then, you can adjust pre-warning time, number of pre-warning and time for pre-warning interval. The warning function is for warning that the staircase lighting time run out and the lights are switched off soon. In the warning, lights short turn off. Switch status is ON until finish warning time.

Pre-warning time Minutes (0…59)	***0***…*59*
Second (0…59)	*0…***30***…59*

How long the lights shall be switched on in the period.

Number of pre-warning (1…10)	*1…***2***…10*

Enter the number of how many blink doing in the warning.

Time for pre-warning intervals	*0…***3***…59*
Seconds (0…59)	

How long the lights shall be switched off in the period.

Activate on delay	*yes*
	no

This parameter is used delay to switch off position before staircase start.

3.5.1.4 A1 - External logic

Logic function can be used independently for each output. With this function, the 'Switch' object can be logically linked with the 'External logic input'. Channel relay switch a result of the logic operation. For example, 'Switch' object value 1 and 'External logic input' object value 0 relay switch as a result of 1 & 0 operation.

External logic function type	*AND OR XOR

This parameter selects the type of logic function between 'Switch' and 'External logic input' objects.

Invert result	yes *no

If you want to inverted logic function result, you should select 'yes'.

Logic object value after bus voltage return	"1" *"0"

This parameter defines the value of the 'External logic input' object after bus voltage return.

NOTE: The values of the 'External logic' communication objects doesn't store at the bus voltage failure.

3.5.1.5 A1 - Scene

For more information please look scene, page 19.

3.5.2   Blind

3.5.2.1 A/B – General

In this parameter page, general settings for blinds (AC blind or DC blind) are explained. Parameters for both types is the same.

Mode of operation	*venetian blind roller shutter / awning

This parameter defines the operating of the output group. Each output of the group can be configured independently for the drive type. The communication object and parameters for the respective outputs differ on the mode of operation. The ETS adapts the parameters and communication object for all group.

- Set the parameter to "*venetian blind*";
  In this mode, there are also parameters and objects for slat operation.
- Set the parameter to "*roller shutter / awning*";
  In this mode, there is no slat control so slat parameters and object automatically hiding by the ETS5.

Behavior after ETS programming or after ETS reset Behavior bus voltage failure	no reaction up down *stop position 1,2,3,4 approach position

This parameter can be used to configure the blind behavior after ETS programming.

- Set the parameter to "*no reaction*";
  The output group switch remain in their current state.
- Set the parameter to "*up*";
  After the ETS programming, the actuator raises the blind.
- Set the parameter to "*down*";
  After the ETS programming, the actuator lowers the blind.
- Set the parameter to "*stop*";
  After the ETS programming, the actuator stops the blind movement.
- Set the parameter to "*position 1,2,3,4*";
  The blind move to a present position. The positions are set in the "*X - Position/Present*" tabs .
- Set the parameter to "*approach position*";
  The blind can travel to an approach position specified by other parameters. Other parameters are;

Position height in [0…100]
(0% = top; 100% = button)

Position slat in [0…100]
(0% = top; 100% = button).
This parameters are configured the blind height and slat position. If the *"Mode of operation"* is selected *"venetian blind"*, *"Position slat in [0…100]"* parameters are visible.

Behavior bus voltage return	*no reaction*
	up down
	*stop

This parameter can be used to configure the blind behavior after bus voltage return.

- Set the parameter to "*no reaction*";
  The output group switch remain in their current state.
- Set the parameter to "*up*";
  After the bus voltage return, the actuator raises the blind.
- Set the parameter to "*down*";
  After the bus voltage return, the actuator lowers the blind.
- Set the parameter to "*stop*";
  After the ETS programming, the actuator stops the blind movement.

3.5.2.2 A/B – Drive Blind

The blind actuator calculates the current position of a blind from the running time. This calculation has to be performed because the drive cannot provide any feedback on its position.

Blind Travel Time Unit	***1s**
	100ms

This parameter determine time unit type of travel times

Travel Time UP	*10…***60**…6000 in s*
	*100…***600**…60000 in ds*

This parameter is up direction travel time of blind.

Travel Time DOWN	*10…***60**…6000 in s*
	*100…***600**…60000 in ds*

This parameter is down direction travel time of blind.

Disconnect output from power after	***end position, no overflow**
	end position + %2 overflow
	end position + %5 overflow
	end position + %10 overflow
	end position + %20 overflow
	total travel time + %20 overflow

When the blind has been reached the end position (this means top or bottom position), the blind is switched off its relay. An overflow time can be set to ensure the output safely reaches the end position. The voltage is supplied as an extra time after the blind has been switched off.

Enable communication object *"Trigger reference movement" 1 bit*	*enable* **disable*

If the parameter is selected "*enable*", "*Trigger reference movement*" communication object is visible. The reference movement is triggered via this communication object. In long time, slight inaccuracies can occur so the upper and lower end positions are used for unique determination of current position. A position calibration is possible by executing the reference movement. A reference travel movement is not re-triggerable.

Position after travel detection	**no reaction, remain in upper end position* *move to position before travel detection*

If the "*Detect travel times (Up/Down)*" is selected "*set travel times*", *this* parameters are visible. This parameter is configured the blind position after the reference movement. The step or stop telegram are ignored while the blind is moving in the reference movement.

Mechanical limit switch	**up* *Down* *both*

If blind command is %0 or %100 and there is mechanical limit switch on this direction. Blind is driven for all travel time duration regardless of where blind is.

Limit travelling range	**no* *via object "Blind/shutter up down limited"* *via object "Enable limitation"*

The blind up and down limit position can be changed by this parameter.

The limit position only apply for "*Move blind/shutter up-down*", "*Slat adjustment/stop up-down*" and automatic communication objects.

Upper limit in % [0…100] *(0% = top; 100% = bottom)*	**0…100*
Lower limit in % [0…100] *(0% = top; 100% = bottom)*	*0…*100*

If the "*Limit travelling range*" parameter is selected "*via object "Blind/shutter up down limited""*", this parameter is visible. This parameter set the blind upper/lower limit position in percent.

Pause on change in direction *(1-255 factor * 100ms)*	*1…*5…255*

When the blind actuator of a drive that is currently moving, receives a command to move opposite direction. The blind firstly stops than its waits for the pause on change in direction than the blind is moved its new direction.

Delay times for drive	**standard* *user defined*

If the parameter is selected "user defined", these parameters are visible. You can show this below.

Different between coasting delay *And start-up delay in ms[-128…127]*	*-128…*0…127*

If the blind is closed lower end position, the used blind experiences dead time between the times when the blind is started the movement. You can compensate this time with this parameter.

Minimum run time for drive in ms[0-255]	0…*50…255

The blinds have a minimum run time. Please look drive manufacturer datasheet.

3.5.2.3 A/B – Drive Slat

Determine times for slat	*via duration of slat adjustment (step) via total duration for slat turning

This parameter defines the slat moving time configuration.

Duration to turn slat from 0% - 100% in ms [50…60000]	50…*1500…60000
Duration of slat adjustment (step) in ms [50…1000]	50…*200…1000

These parameters define the travelling time of the slat. The time needed for a complete movement or step movement. Sets the millisecond of the slat moving time.

Is the ratio same with travel times	*no yes

This parameter determine that the ratio of travel time between directions to be used for slat.

Number of slat adjustments (from 0% = open to 100% = closed)	1…*7…60

This parameter defines the number of slat steps. The slat steps are required to turn the slats from fully closed to fully opened.
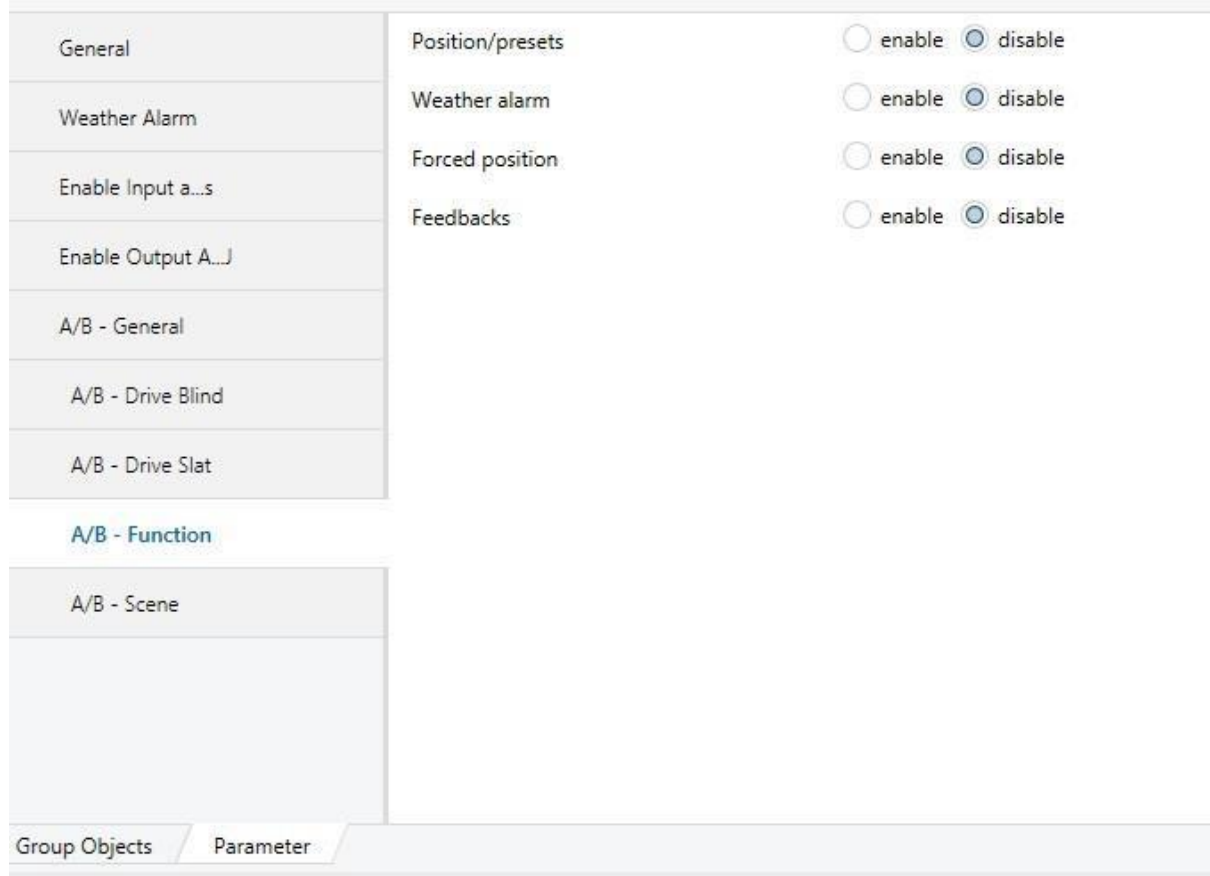
Limit step commands to number of slat adjustment	*no yes

This parameter defines the limit step adjustment command. If it selected "no", the slat adjustment step count is unlimited.

Position of slat after arriving on lower end position (100% = disable)	0...*100

The blind will set the slat according to the parameterized value, after the end position is reached. This parameter is valid for move up down communication object.

3.5.2.4 A/B – Functions

All outputs can be parameterized independent of one other. These parameters are only visible in blind operation.

    I.   Enable position/presets
   II.   Weather alarm
  III.   Forced position
  IV.   Feedbacks

The functions are described independently in detail below.

3.5.2.5 A/B – Position/Presets

This function allows you set a height position or slat position, directly using with communication object.

Enable communication objects "Move to pos. Height/Move slat 0…255"	*no yes

The communication "Move to position height 0…255" and "Move slats 0…255" allow you to set the absolute position values. The height position object is responsible for the height position of blind. The slat position object is responsible for the slat-opening angle. The limit position %0 means the blind fully up or slat closed up, %100 means the blind fully down or slat closed down.

Enable communication objects "Move to/set position1-4" 1 bit	*no yes

If the parameter selected "yes", "Move to position 1, 2", "Move to position 3, 4", "Set position 1, 2", and "Set position 3, 4" 1-bit telegrams are enabled. The saved or downloaded position can be easily changed or called with this communication object. The new position is accepted into the devices memory via "Set position" communication objects.

Overwrite position values during download	*no yes

This parameter is selected the reaction of the position set.

- Set the parameter to "no";
  During storage of a scene, the position values are stored in the device. You can protect your custom blind position.
- Set the parameter to "yes";

The original ETS parameter values can be reload into the device during ETS download operation.

Position 1: Height in % [0…100] (0% = top; 100% = bottom)	0…*20*…100
Position 1: Slat in % [0…100] (0% = top; 100% = bottom)	0…*20*…100
Position 2: Height in % [0…100] (0% = top; 100% = bottom)	0…*40*…100
Position 2: Slat in % [0…100] (0% = top; 100% = bottom)	0…*40*…100
Position 3: Height in % [0…100] (0% = top; 100% = bottom)	0…*60*…100
Position 3: Slat in % [0…100] (0% = top; 100% = bottom)	0…*60*…100
Position 4: Height in % [0…100] (0% = top; 100% = bottom)	0…*80*…100
Position 4: Slat in % [0…100] (0% = top; 100% = bottom)	0…*80*…100

These parameters define the blind preset height/slat position. Slat positions are only visible when the blind type is selected "*Venetian blind*".

Move to position	*directly* *indirectly via upper end position* *indirectly via lower end position* *indirectly via shortest way*

This parameter is set to the blind how to go to the target position.

- ▪ Set the parameter to "directly";
  The blind moves to target position directly.
- ▪ Set the parameter to "indirectly via upper/lower end position";
  After the blind moves the upper/lower end position, the blind moves to target position.
- ▪ Set the parameter to "*indirectly via shortest way*";
  Firstly, the blind moves the shortest end position and then the blind moves to target position directly.

3.5.2.6 A/B – Weather alarm

The weather functions must first be globally enabled before they can be parameterized and used. After general weather function is enabled, the weather alarm can be enabled or disabled independently of one other. The reaction at beginning of an alarm telegram is received "1". Alarm function is terminated as soon as a new alarm telegram is received "0".

Assignment to wind alarms *Assignment to rain alarms* *Assignment to frost alarms*	*Yes* ***no***

There are three different wind alarms available. These alarms can be used for instance, to protect Venetian blind or awning. The blind is also assigned to multiple wind alarm. The three wind alarms have the same priority. These are respect to one other with logic OR.

Behavior in case of wind alarm *Behavior in case of rain alarm Behavior in case of frost alarm*	***no reaction*** *up down stop* *position 1* *position 2* *position 3* *position 4* *individual position*

When the alarm is activated, the blind moves this position.

- Set the parameter to "*no reaction*";
  At the beginning of the wind alarm, the relay of blind shows no reaction. Any movements in progress at instant will still be completely finished.
- Set the parameter to "*up*";

The devices raises the blind at the beginning of the wind alarm or wind alarms then the outputs are locked.

- Set the parameter to "*down*";
  The devices lowers the blind at the beginning of the wind alarm or wind alarms then the outputs are locked.
- Set the parameter to "*stop*";
  At the beginning of the alarm the device switches the relay of output to stop then the outputs are locked.
- Set the parameter to "*position 1, 2, 3, 4*";
  The blind move to the preset position when the alarm is activated. The position parameters set in the "*A – Position/Preset*" tag.
- Set the parameter to "*individual position*";
  The blind moves to individual position. Individual position can be set this parameters.
  Position height in [0…100]
  (0% = top; 100% = button)

  Position slat in [0…100]
  (0% = top; 100% = button).
  This parameters are configured the blind height and slat position. If the *"Mode of operation"* is selected *"venetian blind"*, *"Position slat in [0…100]"* parameters are visible.

Order of priority for safe	*1.Weather alarm – 2.Block – 3.Forced*
	1.Weather alarm – 2.Forced – 3.Block
	1. Block – 2. Weather alarm – 3. Forced
	1. Block – 2. Forced – 3. Weather alarm
	1. Forced – 2. Weather alarm – 3.Block
	1. Forced – 2. Block – 3. Weather alarm

This parameter defines the order of the safe function priority. In this way, the blind correctly controlled if more than one safety function is activated simultaneously. Priority level decreases from the first to the last. Weather alarm is contain the wind1, 2, 3, rain, frost. Their priority can be configured in the "*Weather Alarm*" main tag; the parameter name is "*Order of priority for weather*".

3.5.2.7 A/B – Forced position

The forced position function can be used for each output. The forced position function has a 1 bit or 2 bit optional communication object. The blind can be moved up or down via forced operation telegram (1bit or 2 bit). Forced position function can be used for blind cleaning time. It can protect the person for unexpected accident.

Bit 1	Bit 0	Function
0	x	Forced position not active normal control
0	x	Forced position not active normal control
1	0	Forced position active, raising / opening the louver
1	1	Forced position active, lowering / closing the louver

Forced operation (1bit/2bit)	*activated (1bit)*
	activated (2bit)

The blind can be moved with forced operation to desired position via 1 bit telegram. Also using 2 bit telegram, the blind can be moved up or down. The movement is stopped when the blind reached at the end position.

Position height in [0…100]
(0% = top; 100% = button)

Position slat in [0…100]

(0% = top; 100% = button).

This parameters are configured the blind height and slat position. If the *"Forced operation (1bit/2bit)"* is selected *"activated (1bit)"*, *"Position height/slat in [0…100]"* parameters are visible.

Behavior after bus voltage return	*no forced position active* *forced position ON, raising* *forced position ON, lowering* *state of forced pos. before bus volt. fail.*

The forced position function can be initialized after bus voltage return so the forced operation communication object is updated. After the bus voltage return, forced position function set to the parametrized position.

- Set the parameter to "*no forced position active*";
    The forced operation is deactivated after bus voltage return.
- Set the parameter to "*forced position ON raising/lowering*";
    The forced operation active and the blind rising/lowering after bus voltage return.
- Set the parameter to "*state of forced pos. before bus volt. fail*";
    After bus voltage return, the forced position state last selected and internally stored in the device. ETS download operation deletes the stored state.

3.5.2.8 A/B – Feedbacks

General	Height and slat position status	○ yes ◉ no
Weather Alarm	Upper and lower end possition status	○ yes ◉ no
Enable Input a…s		
Enable Output A…J		
A/B - General		
A/B - Drive Blind		
A/B - Drive Slat		
A/B - Function		
A/B - Scene		
A/B - Feedbacks		

Group Objects / Parameter

Height and slat position status	*no*
	yes

The blind position of the output can be reported to the KNX bus. The communication object value is 0 to upper (%0) position of blind. The communication object value is 255 to lower (%100) position of blind. "Status height 0…255" and "Status slat 0…255" communication objects are created and then the blinds height and slat status send with this objects.

transmit mode	*after change*
	after request
	***after change or request**

This parameter is selected the communication object transmit mode which means object flag is adjusted.
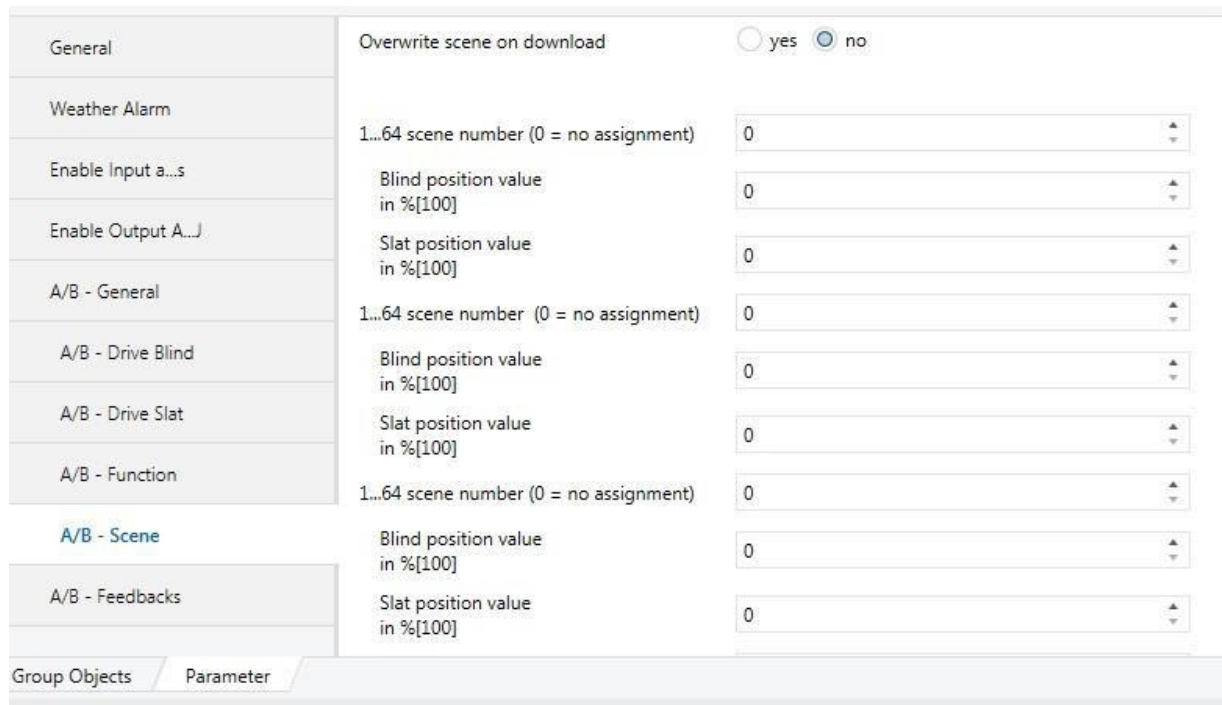
Upper and lower end position status	*no*
	yes

If the blind is in the upper or lower end position, communication object telegram is sent. "Status upper end position" and "Status lower end position" communication objects are created and then the blinds reached the limit position send with these objects.

transmit mode	*after change*
	after request
	***after change or request**

This parameter is selected the communication object transmit mode which means object flag is adjusted.

3.5.2.9 A/B – Scene

For more information please look scene, page 19.

3.5.3   Valve Control

3.5.3.1 A/B – Control Input

HVAC system	*one control four pipe with switch
	two control two pipe
	two control two pipe with switch
	two control four pipe

This parameter is used to select the fan coil pipe system for valve operations.

- Set the parameter to "one control four pipe with switch";
  In this system contains HEATING and COOLING exchangers. 2 pipes for warm water and other 2 pipes for cold water. One communication object is used to HEATING or COOLING. It can be set via "Toggle HEATING/COOLING" communication object.
- Set the parameter to "two control two pipe";
  In this system contains only HEATING exchangers. 2 pipes is used for HEATING or COOLING. Both objects are used to for HEATING valve. The last value is considered valid if it comes from which object.
- Set the parameter to "two control two with switch";
  In this system contains only HEATING exchangers. 2 pipes is used for HEATING or COOLING. Both objects are used to for HEATING valve. Active communication object can be select via "Toggle HEATING/COOLING" communication object.
- Set the parameter to "two control four pipe";
  In this system contains HEATING and COOLING exchangers. 2 pipes for warm water and other 2 pipes for cold water. Each communication objects are managed the related valve. The same time only one valve can be opened. The other one is set to %0 percentage.

Operation HEATING/COOLING after bus voltage recovery	*unchanged bus return heating cooling

This parameter is used to select reaction after bus voltage recovery.

Object value for HEATING the object "Toggle HEATING/COOLING"	0 *1

This parameter is used to which communication object value used for HEATING.

- Set the parameter to "0";
  When the telegram is received "0", HEATING operation is activated. (COOLING is deactivated)
- Set the parameter to "1";
  When the telegram is received "1", HEATING operation is activated. (COOLING is deactivated)

Monitoring control valves	yes *no

This parameter activate the thermostat monitoring. If the parameter selected *enable*, *Monitoring period time in s [30…65535]* parameter is visible.

Monitoring period time in s[30…65535]	30…*120*…65535

The telegram of the active thermostat can be monitored cyclically. The device then expect a telegram from the thermostat within the cycle time.

Send object value ("Control value fault" 1 bit)	no *after change after request after change or request

If the telegram is not received within the monitoring period time, it can be assumes that the sensor is break or bus line interrupted. This object is sent the KNX bus.

The "Control value fault" can be used as an active or passive communication object. Active message object, the switch status telegram is transmitted to the bus automatically when a state changes. Passive status object, there is no telegram transmission after state changes. If you want to learn switch status, you must read communication object. Communication object flags are automatically set by ETS.

Enable control value after fault	Yes *no

This parameter activate the fault condition after fault operation. If the parameter selected *yes*, Control value after fault in % [0…100] parameter is visible.

Control value after fault in %[0…100]	0…*30*…100

After the fault operation occurred in emergency state, the valve can be set the valve fault percentage.

3.5.3.2 A – Valve General

General	Valve Control	○ Two Point On/Off ◉ Three Point Open/Close
Enable Input A...R	Observe Reversing Time	No ▾
Enable Output A...J	Valve Position After Bus Voltage Return	○ Unchanged ◉ Selected
A/B - Control Input	Valve position %[0...100]	0 ⇅
A - Valve General	Value Control Duration from 0...100% in s [10...6000]	100 ⇅
A - Function	Valve Limitation	○ Yes ◉ No
B - Valve General		
B - Function		
B2 - Unused Relay		

Grup Objeleri   Parametreler

Valve control	***two point on/off*** *three point open/close*

This parameter can be used to select the properties of valve type.

Valve contact type	***normally open*** *normally closed*

The valves of a switching output can be parameterized as normally closed or normally open. This feature offers the possibility of inversion the switching state. If the *valve control* parameter is selected *two point on/off*, this parameter is visible.

Observe reversing time	***no*** *100 ms* *300 ms* *500 ms* *700 ms* *1000 ms*

This parameter defines the reversing delay time of the valve drive. If the *valve control* parameter is selected *three point open/close*, this parameter is visible.

Valve position after bus voltage recovery	***unchanged*** *select*

This parameter can be used to configure the blind behavior after ETS programming. If the *parameter* is selected *"select"*, *"Valve position in [0...100]"* parameter is visible.

Valve position [0…100]%	*0…100*

This parameters are configured the blind height and slat position.

Value control duration from 0…100% in s[10…6000]	0…*100…6000

With this parameter, a time is set in seconds that the connected valve requires to move from position 0 % (valve closed) to position 100 % (valve fully open). If the *valve control* parameter is selected *three point open/close*, this parameter is visible.

For example, the time is 180s, the current valve position is at 20%, the target position is 60%, and then the travel time of the valve will need 72s from 20% to 60%.

Valve limitation	Yes *no*

The limitation of the control value limits the height of the control value. The limitation is activated, when a value is chosen which is smaller/higher than the possible value for the control value, so minimum larger than 0 or maximum smaller than 1.If an input signal is out of the adjusted limitation, it will be decreased or increased.

Example: At the heating mode, the maximum limit is chosen as 70% and the minimum limit is chosen as 10%. The valve opening is adjusted as 10min. If a control value is sent as 100% for the input, the channel takes the maximum limit of 70% and calculates from this value the on-pulse as 7min. A control value in the limitations works normal, so a control value of 50% creates an on-pulse of 5min

3.5.3.3 A – Function

Enable communication object "Block" 1 bit	yes *no

A channel can be blocked for further operations by its blocking object. While valve is moving, block object is activated the valve finished its move.

Block on object value	*1 0

1: The blocking is triggered by sending a logical "1" at the belonging block object. Only through sending a logical "0", the channel is unblocked again.

0: The blocking is triggered by sending a logical "0" at the belonging block object. Only through sending a logical "1", the channel is unblocked again.

Enable communication object "Forced operation" 1 bit	Yes *no

The forced position drives the control value to a fixed position.

Forced operation on obj value	*1 0

1: A logical "1" activates the forced position. By sending a logical "0", the forced position is deactivated

0: A logical "1" activates the forced position. By sending a logical "0", the forced position is deactivated and the channel goes back to its last value or the last received telegram for the control value.

Value position on forced operation In % [0…100]	0…*30…100

This parameter determines the valve position after forced operation activates.

Enable communication object "Valve position status"	*no 1 bit 1 byte

This parameter is select sends/responds the actual value of the valve percentage. The valve status object is sent as soon as possible after the control value is received.

Send object value	*no after a change after request after change or request

The parameter is selected "Valve position status" object send type.

Object value with valve position > 0	0 *1

If the Enable communication object "Valve position status" *parameter is selected 1 bit, this parameter is visible.*

Enable valve purge	yes *no

Valve protection can be enabled separately for each fan coil channel. The fan coil actuator can protect the valves for heating and cooling connected for each channel against sticking. The anti-sticking protection is generally necessary to prevent a valve defect if the valve drives are not moved for a prolonged time.

Enable communication object "Status valve purge" 1 bit	yes *no

If the parameter is selected "yes", "Status valve purge" communication object is visible.

Send object value	*no after a change after request after change or request

The parameter is selected object send type.

Duration of valve purge In min [1…255]	1…*10…255

If the valve purge is activated, the actuator opens the corresponding valve for a period.

Automatic valve purge	yes *no

Automatic control can be enabled with this parameter.

Purge cycle in weeks [1…12]	1…*6…12

If the "Automatic valve purge" parameter is selected "yes", this parameter is visible. The purge cycle is started automatically after initialization of the actuator. If the valve isn't actuated for a period of the adjusted time, then the actuator open the corresponding valve for a period of 5 minute.

3.5.3.4 A – Limit

General	Min. Limit of Valve Position	0
Enable Input A...R	Max. Limit of Valve Position	100

Enable Output A...J	
A/B - Control Input	
A - Valve General	
A - Function	
A - Limit	
B - Valve General	
B - Function	
B2 - Unused Relay	

ℹ Control Value = 0 => Valve Position = 0
Control Value < Minimum Limit => Valve Position = Minimum Limit

ℹ Minimum Limit < Control Value < Maximum Limit => Valve Position = Control Value
Control Value > Maximum Limit => Valve Position = Maximum Limit

Grup Objeleri / Parametreler

Min. limit of valve position % [0...100]	*0...100

The parameter adjust the minimum limit of the valve position.

Max. limit of valve position % [0...100]	*0...100

The parameter adjust the minimum limit of the valve position.

3.5.4   Fan Coil

3.5.4.1 A/B1 - Fan

Select valve with working	*No valve
	valve A/B
	valve C/D
	valve E/F
	valve G/H
	valve I/J

This parameter is used to select valve channel working with automatic mode. Selected valve channel control value input object also used for fan level in the automatic mode.

Number of fan levels	1…*3

The fan level can be selected to the specific fan coil application required by means of parameter configurations. Thus, initially the number of fan levels required for the connected devices can be defined. The number of fan levels can be specified separately for each fan coil channel.

Controlling the fan levels	*only one fan output switches
	fan outputs switch hierarchically

The change-over principle: When a fan is switched on, there is always only one fan level output active "ON". If the active fan level is changed, the fan coil actuator first switches the previously switched-on fan level off ("OFF" state), and only after that switches the other output on.

The level principle   :   When a fan is switched on, several outputs are switched on, depending on the active fan level. When the fan level is increased, the adjacent output with the next higher output number is also switched on; the lower outputs remain switched on.

Fan operation mode	*changeover switch
	Step switch

This parameter can be used to select the properties of fan. Please look the fan technical data.

- Set the parameter to "changeover switch";
  In this mode delay between two fan speeds. This delay time can be configured via *delay between fan speed switching in ms [50…5000]* parameter.
- Set the parameter to "step switch";
  In this mode current fan speed must be switched on for a least time before the new fan speed is switched on.

Delay between fan speed switching in ms[50…5000]	50…*500…5000

If the *Fan operation mode* parameter is selected "*changeover switch*", this parameter is visible. This parameter is used to configure the fan delay time. This time is using between the fan speed switching.

Fan speed on bus voltage failure	unchanged
	*off
	1
	2
	3

Using this parameter, the fan reaction can be set after bus voltage failure is set.

Fan speed on bus voltage recovery	unchanged
	*off
	1
	2
	3

Using this parameter, the fan behavior is defined after bus voltage recovery is set.

Enable forced operation	Yes
	*no

This parameter is used to enable fan-forced operation.

Forced operation on object value	0
	*1

This parameter is selected which value is activated the forced operation.

Limitation on forced operation	3, 2, 1, OFF
	*unchanged
	…

This parameter is selected the forced operation behavior.

Enable automatic operation	*yes
	no

This parameter can be enabled the automatic control. Automatic control meaning is limited reaction

according to "Control input".

Enable direct operation	*yes no

This parameter can be enabled the direct control. Direct control meaning is control via direct communication object.

Starting characteristic of fan	yes *no

This parameter enables the fan to start from the OFF state with a defined fan speed. The fan can be switched on temporarily to a defined switch-on level. This switch-on level can be any of the available fan levels.

Switch on to switch-on level	*1 2 3

This switch-on level can be any of the available fan levels.

Minimum dwell period in switch on in s [1...65535]	1...*5...65535

The fan thus remains in the switch-on level until the set dwell time has elapsed.

3.5.4.2 A/B1 - Status Message

General	Enable Communication Object "Status Fan Speed " 1 bit	◯ Yes ◉ No
Enable Input A...R	Enable Communication Object "Status Fan Speed" 1 Byte	◉ Yes ◯ No
Enable Output A...J	Meaning	◉ Current Fan Speed ◯ Required Fan Speed
A/B1 - Fan	Send Object Type	After Change or Request ▾
A/B1 - Status Message	Enable Communication Object "Status Fan ON/OFF" 1 Bit	◯ Yes ◉ No
A/B1 - Automatic Operation	Enable Communication Object "Status Automatic" 1 Bit	◯ Yes ◉ No
A/B1 - Direct Mode		
B2 - Unused Relay		

Grup Objeleri   Parametreler

Enable communication object "Status fan speed x" 1 bit	Yes *no

The data format for the fan level feedback is defined as 1 bit. Separate objects are defined separately for each fan level. When the fan level is changed, the actuator updates and transmits only the object values that change.

Meaning	*current fan speed required fan speed

Current fan speed   : The fan is actual operating state.
Required fan speed   : The fan desired fan state. E.g. when the translation and dwell times are completed.

Send object type	no after a change after request *after change or request

This parameter defines the object send type.

Enable communication object "Status fan speed" 1 byte	*yes no

The data format for the fan level feedback is defined as 1 byte.

Meaning	*current fan speed required fan speed

Current fan speed   : The fan is actual operating state.
Required fan speed   : The fan desired fan state. E.g. when the translation and dwell times are completed.

Send object type	no after a change after request *after change or request

This parameter defines the object send type.

Enable communication object "Status fan ON/OFF" 1 bit	Yes *no

This ON telegram acts on a main switch that has to be switched on.

Send object type	no after a change after request *after change or request

This parameter defines the object send type.

Enable communication object "Status automatic" 1 bit	*yes no

This parameter is enabled the communication object "Status automatic".

Send object type	no
	after a change after request
	after change or request

This parameter defines the object send type.

3.5.4.3 A/B1 - Automatic Operation

Enable Fan Control Value Object 1 Byte	yes
	no

This parameter active "*auto mode control value*" object to control fan level in auto mode.

Enable Lock Fan off With Fan/Valve Control Value Object 1 Byte	yes
	no

When 0% is sent via the valve control value object or the fan control value object, it is ensured that the fan is not turned off (Fan Auto=Disable). Fan can be turned off via direct control objects.

Lock State on Bus Voltage Recovery	*Keep Position
	Lock
	Unlock

This parameter is used to select reaction after bus voltage recovery.

Object value "automatic ON/OFF" switch on to automatic	*1
	0

1: automatic operation is activated by a telegram with value 1

0: automatic operation is inactivated by a telegram with value 0

Threshold value OFF <--> speed 1 *In % [0…100]*	*0…*10…100*
Threshold value speed 1 <--> speed 2 *In % [0…100]*	*0…*30…100*
Threshold value speed 2 <--> speed 3 *In % [0…100]*	*0…*70…100*

A fan level switches on when its command value lower limit is reached or exceeded.

Hysteresis threshold *Value in % +/- [0…20]*	*0…*5…20*

The fan level switches off again as soon as its command value lower limit minus the hysteresis is undershot again.

3.5.4.4 A/B1 - Direct Mode

Enable communication object **"Switch speed x" 1 bit**	*yes* **no*

The data format for the fan level feedback is defined as 1 bit. Separate three objects are defined separately for each fan level. If several ON/OFF telegrams are received consecutively in a short period of time at various communication objects *Fan speed 1…3*, the value last received by the fan control is the decisive value.

Enable communication object **"Fan speed UP/DOWN" 1 bit**	*yes* **no*

With multiple manual UP or DOWN switching, the target speed will be increased or reduced by a speed step. This is possible until the maximum or minimum possible speed is achieved.

Enable communication object *"Fan speed switch" 1 byte*	**yes* *no*

This parameter is enabled "Fan speed switch" communication object with percentage 0…100%.

3.6 Unused Relay

Relay Enable	*Enable* **Disable*

Unused relay is activated and the other parameters are seen when enable is selected.

Contact Type	*Normally Closed* **Normally Open*

The relays of a switching output can be parameterized as normally closed or normally open. This feature offers the possibility of inversion the switching state. Important: This state is only valid for switch communication object. Other relay function always works normally.

Normally closed contact

Switch state = off (0) ➜ relay contact closed
Switch state = on (1) ➜ relay contact open

Normally open contact

Switch state = off (0) ➜ relay contact open
Switch state = on (1) ➜ relay contact closed

Create status object "Status Switch"	*Yes* **No*

If this parameter select 'yes', ETS create another communication object for use only status switch.
The status object can be used to display the current output switching status on a display.

Behavior ETS Reset	*Keep Position*
	Open Contact
	Close Contact

After ETS programming, relay position set the wanted switching position.

- Set the parameter to "keep position"

In this setting, the relay remains in the current state. Any manual operation occurs in the meantime the switch actuator return its old position. The device doesn't know the status of the relay.

- Set the parameter to "open contact" or "close contact"

The relay contact open or close after ETS reset.

Behavior Bus Failure	*Keep Position*
	Open Contact
	Close Contact

When the bus voltage fails, the device set the wanted switching state of the unused relay. The relay can be open, close or keep position it occupied prior to the failure. At the same time, the current switching position of the relay is stored in the devices.

Behavior Bus Voltage Return	*Keep Position*
	Open Contact
	Close Contact
	State as Before Bus Voltage Failure

When the bus voltage returns, the device set the wanted switching state of the unused relay.

- Set the parameter to "keep position"

In this setting, the relay remains in the current state. Any manual operation occurs in the meantime the switch actuator return its old position. The device doesn't know the status of the relay.

- Set the parameter to "open contact" or "close contact"

The relay contact open or close after bus voltage return.

- Set the parameter to "state as before bus voltage failure"

If the parameter set to "state as before bus voltage failure", then the relay is set to the value. The value stored at the time of the bus voltage failure.

DPT Lock Object	*0 = Unlock; 1 = Lock*
	0 = Lock; 1 = Unlock

This parameter is used to select which value will lock to unused relay

Lock Enable Relay State	*Off*
	On
	No Change

This parameter is used to select behavior of relay when lock is enabled

Lock Disable Relay State	*Off* *On* ***No Change***

This parameter is used to select behavior of relay when lock is disabled

Create status object "Status Switch Lock"	*Yes* ***No***

If this parameter select 'yes', ETS create another communication object for use only status of lock state.

Lock behavior bus voltage return	***Keep Position*** *Lock* *Unlock*

When the bus voltage returns, the device set the wanted lock state of the unused relay.
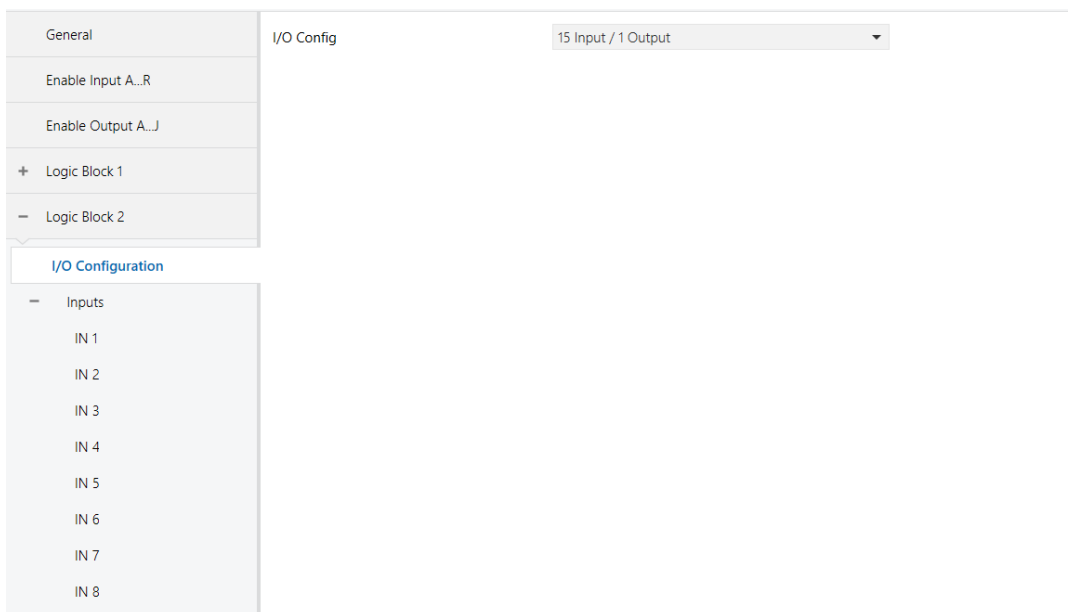
- Set the parameter to "keep position"

In this setting, the lock function of relay remains in the current state. Any manual operation occurs in the meantime the lock state return its old position. The device doesn't know the lock status of the relay.

- Set the parameter to "Lock "close Unlock"

The lock function is active or passive after bus voltage return.

3.7 Logic Block

General	I/O Config	15 Input / 1 Output ▼
Enable Input A...R		
Enable Output A...J		
+ Logic Block 1		
− Logic Block 2		
I/O Configuration		
− Inputs		
IN 1		
IN 2		
IN 3		
IN 4		
IN 5		
IN 6		
IN 7		
IN 8		

I/O Config	*1 Input / 15 Output*
	2 Input / 14 Output
	3 Input / 13 Output
	4 Input / 12 Output
	5 Input / 11 Output
	6 Input / 10 Output
	7 Input / 9 Output
	8 Input / 8 Output
	9 Input / 7 Output
	10 Input / 6 Output
	11 Input / 5 Output
	12 Input / 4 Output
	13 Input / 3 Output
	14 Input / 2 Output
	15 Input / 1 Output

Logic Input and Output configuration can be selected.

3.7.1   IN 1…15

Name	*25 characters are allowed. (Optional)*

Any name can be defined for each Input. Name will be shown in ETS Parameters.

Data Type	***1 Bit***
	2 Bit
	1 Byte

Logic Input Data Type can be selected.

Preprocess	*Passthrough*
	NOT
	always True
	always False
	equal
	NOT equal
	in range
	NOT in range
	matches any of two
	NOT matches any of two
	bits SET
	NOT bits SET
	bits CLEAR
	NOT bits CLEAR
	Thresholds
	NOT thresholds

Passthrough: Input will be proccessed as it is. 0 is OFF, 1…255 is ON

NOT: Input will be reverted. 0 is ON, 1…255 is OFF

Always True: Process will always be True regardless to input value.

Always False: Process will always be False regardless to input value.

Equal: If the Input value is equal to ETS written value, the result will be "True".

NOT equal: If the Input value is NOT equal to ETS written value, the result will be "True".

In range: If the Input value is in range between written values on ETS, the result will be "True".

NOT in range: If the Input value is NOT in range between written values on ETS, the result will be "True".

Matches any of two: If the Input value matches with the any of values on ETS, the result will be "True".

NOT matches any of two: If the Input value does NOT match with the any of values on ETS, the result will be "True".

Bits SET: If all masked bits of the Input Value is set, the result will be "True".

NOT bits SET: If all masked bits of the input value is set, the result will be "False"

Bits CLEAR: If all masked bits of the Input Value is clear, the result will be "True".

NOT bits CLEAR: If all masked bits of the Input Value is clear, the result will be "False"

Thresholds: Input value must be; equal or greater than "True if > =" value for result "True". equal or lower than "False < =" value fo result "False.

NOT thresholds: Input value must be; equal or greater than "True if > =" value for result "False". equal or lower than "False < =" value fo result "True".

Initial State	*False*
	True

This parameter is used to select initial value of related input when device energized(or reset).

State after KNX bus recovery	*Initial*
	Last

This parameter is used to select the related input state after bus voltage recovery.

3.7.2   OUT 1...15

General
Enable Input A...R
Enable Output A...J
+ Logic Block 1
− Logic Block 2
I/O Configuration
+ Inputs
− Outputs
OUT 1

Name   (Optional)
Register   ☐

OPERANDS

IN1   ☐
IN2   ☐
IN3   ☐
IN4   ☐
IN5   ☐
IN6   ☐
IN7   ☐
IN8   ☐
IN9   ☐
IN10   ☐
IN11   ☐
IN12   ☐
IN13   ☐
IN14   ☐
IN15   ☐
STATE   ☐

FUNCTION

General
Enable Input A...R
Enable Output A...J
+ Logic Block 1
− Logic Block 2
I/O Configuration
+ Inputs
− Outputs
OUT 1

IN8   ☐
IN9   ☐
IN10   ☐
IN11   ☐
IN12   ☐
IN13   ☐
IN14   ☐
IN15   ☐
STATE   ☐

FUNCTION

Description	
Data Type	1 Bit ▼
Operation	Passthrough (Unary) ▼
Trigger	Operand Update ▼
Send Value When Expression is	True or False ▼
False Value	◉ 0 ○ 1
True Value	○ 0 ◉ 1
Send Only on Change	☐
Send Initial State After Bus Voltage Return	☐
Timer	None ▼

Name	*25 characters are allowed. (Optional)*

Any name can be defined for each Output. Name will be shown in ETS Parameters.

Register	*Checked* ***Unchecked***

This function is used to set the chosen output as Input Operand. Result of relevant output can be used as input for another Output.

| IN1…IN15 | Checked |
| | ***Unchecked*** |

This parameter is used to select Logic Input(s) which is needed for related output operation.

| STATE | Checked |
| | ***Unchecked*** |

This parameter defines the value of the result. It can be used as operand in Output operation.

| Description | 80 characters are allowed. (Optional) |

Any name can be defined for description of function. Description will not shown anywhere.

| Data Type | ***1 Bit** |
| | 1 Byte |

Output operation data type can be selected individually.

Operation	***Passthrough**
	NOT
	AND
	NAND
	OR
	NOR
	XOR
	XNOR
	Sum is 1
	NOT sum is 1
	Sum is 0 or 1
	NOT sum is 0 or 1
	All 0's or all 1's
	NOT all 0's or all 1's

Passthrough: It should be used with single operand only. Result will be the same as related operand value.

NOT: It should be used with single operand only. Result will be reverted according to related operand value.

AND: Selected Inputs will be multiplied consecutively and result value will be sent after.

NAND: Selected Inputs will be multiplied consecutively and result value will be sent as inverted after.

OR: Selected Inputs will be summed consecutively and result value will be sent after.

NOR: Selected Inputs will be summed consecutively and result value will be sent as inverted after.

XOR: Selected inputs will be summed according to EX-OR gate and result value will be sent after.

XNOR: Selected inputs will be summed according to EX-OR gate and result value will be sent as inverted after.

Sum is 1: If the one of the Input is "True" and rest of all is "False" the result will be "True". If multiple inputs are "True" or all "False", then result will be "False".

NOT Sum is 1: If the one of the Input is "True" and rest of all is "False" the result will be "False". If multiple inputs are "True" or all "False", then result will be "True".

Sum is 1 or 0: If the one of the input is "True" and rest of all are "False" or all inputs are "False", the result will be "True". If 2 or more inputs are "True", the result will be "False".

NOT Sum is 1 or 0: If the one of the input is "True" and rest of all are "False" or all inputs are "False", the result will be "False". If 2 or more inputs are "True", the result will be "True".

All 0's or All 1's: If all inputs are "False" or "True", the result will be "True".

NOT All 0's or All 1's: If all inputs are "False" or "True", the result will be "False"

Trigger	*Operand update
	Operand update with blocking condition
	Operand update with set/reset STATE
	Input select

operand update: Output will be processed If any operand value changed.

operand update with blocking condition: Output won't be processed regardless to operand change, if blocking operand is active.

operand update with set/reset STATE: This function should be used with STATE operand. This function allows to change the output state according to selected Input or Registered Output(if exist) value.

input select: Output will be processed if the selected Input or Registered Output(if exist) has trigger value

Sending block when	*IN1…15 or REG OUT 1…15

This function is used to block the output sending If selected Input or Registered Output has its selected value.

Send pending telegram after unblocking	Checked
	*Unchecked

This function is used to send output state after unblocking.

Send value when expression is	False
	True
	*True or False

This function is used to select in which case data will be sent.

False Value (1 Bit)	*0 / 1
True Value (1 Bit)	0 / *1

This function is used to set which value to send in which situation for 1 bit output

False Value (1 Byte)	*0…255
True Value (1 Byte)	0…*1…255

This function is used to set which value to send in which situation for 1 byte output

Send only on change	Checked
	*Unchecked

This function is used select the type of output sending.

Send initial state after KNX bus recovery	Checked
	*Unchecked

This function is used to send initial state of related output after KNX bus recovery.

Initial state	*False
	True

This parameter is used to select initial value of related output when device energized(or reset).

State after KNX bus recovery	*Initial
	Last

This parameter is used to select the related output state after KNX bus recovery.

Timer	*None* *Delayed Sending* *Periodical Sending* *State Hold Timeout*

Delayed sending: This parameter is used to determine delay for output sending.

Periodical sending: This parameter is used to send the output state cyclically.

State hold timeout: This parameter allows to keep the state in case of state changes.

4 Object Description

4.1 General Object Description

No	Object name	Name	DTP Type	Length	Flags
0	In operation	General	DPT 1.002	1 bit	CWT

You use this object to report device still alive and contacted the KNX line. Telegram value is select ON/OFF. If a telegram is not received, device may be defective or KNX cable will be interrupted. This communication object sends to the line cyclically.

No	Object name	Name	DTP Type	Length	Flags
1	Scene 8 bit	General	DPT 18.001	1 byte	CW

This object is used to recall or store scenes. Up to 64 scenes are available on the Switch/Blind Actuator.
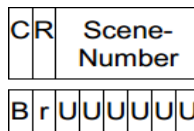
C: 0 – recall scene
       1 – store scene
R: Reserved

The object to recall and store the scene (1…64) is sent via the group address. 8-bit scenes are stored in the Switch/Blind Actuator.
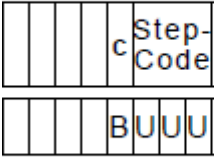
Scene	recall		save	
	Hex.	**Des.**	**Hex.**	**Des.**
2	0x01	1	0x81	129
4	0x03	3	0x83	131
6	0x05	5	0x85	133
8	0x07	7	0x87	135
10	0x09	9	0x89	137
…	…	…	…	…
64	0x3F	63	0xE3	191

3	Wind alarm				
4	Rain alarm	General	DPT 1.005	1 bit	CWTU
5	Frost alarm				

Active weather sensors can be monitored cyclically. The device expects a telegram from sensor within the cycle time. If the telegram doesn't receive within the cycle time or the value 1 is received, the blinds are moved to parameterized position. The blind control telegrams are ignored until the device is received telegram value 0.

The monitoring period is restarted each telegram is received from weather sensor. The wind alarms are connected each other via OR gate.

The object is;

0 = no alarm

1 = alarm active

4.2   Input Object Description

No	Object name	Name	DTP Type	Length	Flags
6	Disable	Input a	DPT 1.003	1 bit	CW

0: enable input
1: disable input

This object is only visible if it is used as an input. Via the group address linked to this object blocking of the respective input channel is turned on or off.

When a disabled input is enabled, no telegrams are sent on the bus, even if the state of the input has changed during blocking. If the input is just being operated as it is being enabled, the input behaves as if the operation has just commenced.

7	Switch - Switch Switch - Switch short	Input a	DPT 1.001	1 bit	CWT

0: OFF
1: ON
Switching telegrams are sent via the group address linked with this object. Object can be switched by actuation of the ON, OFF or TOGGLE input.

7	Dim - Switch	Input a	DPT 1.001	1 bit	CWT

When the push button is pressed briefly the value currently stored in the switching object. An ON or OFF telegram is only generated when the push button is released. (falling edge)

7	Shutter - Up/down	Input a	DPT 1.008	1 bit	CT

The driving object is for moving the shutters "move UP" and "move DOWN".
0: Move upwards (UP)
1: Move downwards (DOWN)

7	Value -		Input a	...	...	CWT

An adjustment can be made as to whether a value telegram is to be sent as a reaction to a short and / or long button press action when a push button is pressed or released. Additionally, it is possible to configure whether the value associated with the long button press action is sent via a second object.

1 bit [0 / 1]	DPT 1.001	switch command
2 bit [0…3]	DPT 2.001	forced operation
1 byte [0…255]	DPT 5.001	brightness value
2 byte [-32768…32767]	DPT 7.001	signed value
2 byte [0…65535]	DPT 8.001	unsigned value
4 byte [float value]	DPT14.068	temperature
4 byte [0…4294967295]	DPT12.001	value unsigned

7	Scene -		Input a	...	...	...

Scene number or Value of Group A which enter with parameter is sent when button is pressed.

Scene No 1…64	DPT 18.001	CWTU
On/Off	DPT 1.001	CWT
0…255	DPT 5.010	CWT

7	Counter - Value		Input a	...	...	CWT

The telegrams with the counter value status sent via the group address. The counter will count selected edges. The following table provides an overview of the data types:

1 byte [0…255]	DPT 5.010
2 byte [-32 768…32 767]	DPT 7.001
2 byte [0…65 535]	DPT 8.001
4 byte [2 147 483 648…2 147 483 647]	DPT13.001

8	Switch - Switch Long		Input a	DPT 1.001	1 bit	CWT

0: OFF
1: ON
Switching telegrams are sent via the group address linked with this object. Object can be switched by actuation of the ON, OFF or TOGGLE input.

8	Dim - Dimming Brighter / Darker				

$$4 \text{ bit: } B_1 U_3$$

$$1$$

				c	Step-Code

				B	U U U

c = {0,1}
StepCode = [000b…111b]

	Increase or decrease the brightness	0 = Decrease
		1 = Increase
StepCode	The amount of intervals into which the range of 0 % … 100 % is subdivided or the break indication.	- 001b … 111b: Step Number of interval = $(2)^{(stepcode-1)}$
		- 000b : Break

The dimming telegrams are sent to the dimming actuator via the group address linked with this object. In the process, a long push button action produces a "100 % dimming" telegram. A stop command is sent when the push button is released.

8	Shutter - Stop / lamella	Input a	DPT 1.007	1 bit	CT

The stop-/lamella adjustment object is for the adjustment of the lamellas and additional it stops a running movement of the shutter.

0: Stop / lamella UP

1: Stop / lamella DOWN

8	Value - Long	Input a	…	…	CWT

An adjustment can be made as to whether a value telegram is to be sent as a reaction to a short and / or long button press action when a push button is pressed or released. Additionally, it is possible to configure whether the value associated with the long button press action is sent via a second object.

1 bit [0 / 1]	DPT 1.001	switch command
2 bit [0…3]	DPT 2.001	forced operation
1 byte [0…255]	DPT 5.001	brightness value
2 byte [-32768…32767]	DPT 7.001	signed value
2 byte [0…65535]	DPT 8.001	unsigned value
4 byte [float value]	DPT14.068	temperature
4 byte [0…4294967295]	DPT12.001	value unsigned

8	Scene -	Input a	…	…	…

Value of Group B which enter with parameter is sent when button is pressed.

On/Off		DPT 1.001	CWT
0…255		DPT 5.010	CWT

8	Counter - Diff Value	Input a	DPT 5.010	8 bit	CWT

Firstly "enable additional options" is selected "Yes". Than this parameter is only visible if the parameter "Enable differential counter" is set to "Yes" in the Counter screen. The telegrams with the counter value status sent via the group address. The counter will count selected edges. As soon as the differential counter reaches or falls below the overflow value is defined in the "Over-/underrun of differential counter at". The following table provides an overview of the data types:

1 byte [0…255]   DPT 5.010
2 byte [-32 768…32 767]   DPT 7.001
2 byte [0…65 535]   DPT 8.001
4 byte [2 147 483 648…2 147 483 647]   DPT13.001

Important things the counters data widths are always same

9	Shutter - Upper limit position	Input a	DPT 1.002	1 bit	CW

This object the shutter actuator indicates is it is in the upper limit position. This object is used for 1 button options.
0: No Upper end limit 1: Upper end limit

9	Value - Temperature	Input a	DPT 14.068	32 bit	CT

The value type is selected "floating point" this object is created. For more information look Value communication object.

9	Scene -	Input a	…	…	…

Value of Group C which enter with parameter is sent when button is pressed.

On/Off   DPT 1.001   CWT
0…255   DPT 5.010   CWT

9	Counter – Request Counter Value	Input a	DPT 1.007	1 bit	CW

Standart counter and the differential counter are requested via this object

Telegram value: "0" no reaction
                                        "1" send counter values

10	Shutter - Lower limit position	Input a	DPT 1.002	1 bit	CW

This object the shutter actuator indicates is it is in the lower limit position. This object is used for 1 button options.

0: No Lower end limit
1: Lower end limit

10	Value - Temperature long	Input a	DPT 14.068	32 bit	CT

The value type is selected "floating point" this object is created. For more information look Value communication object.

10	Scene -	Input a	…	…	…

Value of Group D which enter with parameter is sent when button is pressed.

On/Off   DPT 1.001   CWT
0…255   DPT 5.010   CWT

10	Counter - Diff Value Overflow	Input a	...	...	...

This parameter is only visible if the parameter "Enable differential counter" is set to "Yes" in the Counter screen.

If the counter value is bigger than threshold, a modifield counter value is sent (telegram value = 1)

11	Scene -	Input a	...	...	...

Value of Group E which enter with parameter is sent when button is pressed.

On/Off   DPT 1.001   CWT
0…255   DPT 5.010   CWT

11	Counter – Reset Differential Counter	Input a	DPT 1.015	1 bit	CW

The differential counter can be reset to the value 0 via this object.

Telegram value: "0" no reaction

                     "1" reset differential counter

12	Scene – Store Scene	Input a	DPT 1.003	1 bit	CWT

This object is used to trigger the storing of a scene via the bus.

This telegram receives on the bus. Function;
0: End of the storage of the current scene.
1: The storage of the current scene starts.

Object sends the following function;
0: Storage of the current scene is ended.
1: Storage of the current scene is started

4.3   Switch Object Description

No	Object name	Name	DTP Type	Length	Flags
132	Switch	Output A1	DTP 1.001	1 bit	CW

This object is used to switching of relay. If a logic operation is enabled, the output is calculated via logic combination.

The object is;
0 = switched OFF
1 = switched ON

133	Status switch	Output A1	DPT 1.001	1 bit	CRT

The current switching state of the channel is saved in the status object. It can be transmitted automatically its state changed.

This object is ;
0 = relay OFF position
1 = relay ON position

134	Enable staircase function	Output A1	DPT 1.003	1 bit	CRW

This object is used to activation of the staircase function. This object is enabled, the staircase function is activated.

The object is;
0 = disable
1 = enable

135	Staircase lighting duration	Output A1	DPT 7.007	2 byte	CRW

The staircase lighting duration is set via this object. The object resolution is second. In addition, the bus return state can be parameterized by the parameter at the *staircase function* tag.
The object is;
0 = must be greater than zero
….
65535

136	Permanent ON	Output A1	DTP 1.001	1 bit	CW

This object is used to mask the other function. This meanings function is working back ground of the Permanent ON. If the Permanent ON object is set to off, the other function switch result can be visible on the output. After bus voltage return, the object is deactivated.
This object feature is useful for cleaning person.

The object is;
0 = permanent ON active
1 = deactivate

137	External logic input	Output A1	DPT 1.001	1 bit	CW

This object is used to receive the switching data for the second input. The switch operation and external logic are respect with logic OR, AND.

The object is;
0 = logic state
1 = logic state

138	Forced positioning	Output A1	DPT 2.001	2 bit	CW

This object is used to the switching state of the output is directly determined by this object. The first bit is switching state and the second bit is activated or deactivated the forced control.

Bit Field	Description
Bit 0	: Switching state "0": switching off "1": switching on
Bit 1	: Forced control "0": inactive "1": active

4.4 Blind Object Description

132	Move blind/shutter up-down	Output A	DPT 1.008	1 bit	CW

When the telegram is received from bus, blind is moved to the direction (the value 0 or 1) of movement of the set time.

The object is;
0 = up
1 = down

133	Slat adjustment/stop up-down	Output A	DPT 1.007	1 bit	CW

While blind is moving, the telegram is received then the blind movement is stopped. Other time the blind slat can be adjusted.

The object is;
0 = stop/slat move one step open
1 = stop/slat move one step close

134	Blind/shutters up-down limited	Output A	DPT 1.008	1 bit	CW

This communication objects are controlled by "Limit travelling range" parameter. Blind up or down end position can be limited by this communication object. The blind stops automatically when the configured upper or lower end position have been reached. After the bus voltage, return object value is set to 0 so this meaning upper end position is limited.

For the first communication object "*Blind/shutters up-down limit*";
0 = limited upper end position active
1 = limited lower end position active

135	Move to position height 0…255	Output A	DPT 5.001	1 byte	CW

If device is received this telegram, the blind is moved to height determined by the percentage of value. After the blind moving operation is finished, the slats are returned its previous position.

While the blind is moving, the "Move slat 0…255" command is received from the bus. If the blind is reached its target position, the slats are set to the received position.

The object is;
0   = upper end position %0

…
255   = lower end position %100

136	Move slats 0…255	Output A	DPT 5.001	1 byte	CW

If the device is received this communication object, the slats are moved to the desired position.

The object is;
0   = slats open %0
…
255   = slat closed %100

| 137 | Move to position 1, 2 | Output A | DPT 1.022 | 1 bit | CW |
| 138 | Move to position 3, 4 | | | | |

This object is used to move to the blind saved preset position. After the position has been reached, the slat position is move to the own preset position.

The object is;
0 = move to position 1 or 3
1 = move to position 2 or 4

| 139 | Set position 1, 2 | Output A | DPT 1.022 | 1 bit | CW |
| 140 | Set position 3, 4 | | | | |

This object is used to save the current position of blind. If the telegram value is received 0, the current position is stored as the new position 1 or 3. If the telegram value is received 1, the current position is stored as the new position 2 or 4.

The object is ;
0 = set to position 1 or 3
1 = set to position 2 or 4

141	Trigger reference movement	Output A	DTP 1.008	1 bit	CW

This object is triggered the reference movement. If the telegram is received, the blind is moved up or down end position. Then the blind can return its last position or desired position. End of reference movement, the device is updated travel times.
The travel time operation can be interrupted by
- Weather alarm, forced operation, block function
- Manual operation
- Move to position UP or DOWN commands

The object is;
0 = no reaction
1 = trigger the reference movement (UP – DOWN – UP)

142	Block	Output A	DPT 1.003	1 bit	CWTU

The state of the blind cannot changed by other control commands as long as block telegram with the value 1 is received. You can define the reaction of output relay via parameters.

The object is;

0 = operation enable
1 = operation disable

143	Forced operation 1 bit	Output A	DPT 1.003	1 bit	CWTU

If the telegram is received (value 1), the blind is moved to parameterized position and the blind is locked for the movement command. After the forced operation is disabled by the object (value 0), the blind is moved to parameterized position.

The object is;
0 = operation enable
1 = forced active / operation disable

143	Forced operation 2 bit	Output A	DPT 2.002	2 bit	CWTU

If the telegram is received value 2 or value 3, the blind is moved to UP (2) or DOWN (3) and the blind is locked for the movement command. After the forced operation is disabled by the object (value 0) or (value 1), the blind is moved to parameterized position.

The object is;
0 = operation enable
1 = operation enable
2 = forced active, move UP / operation disable
3 = forced active, move DOWN / operation disable

144	Status height 0…255	Output A	DPT 5.001	1 byte	CRT

The blind position of drive is available as a value 0…255 percentage %0…%100. The height status is to be transmitted or read out via this object.
The height status object is only updated when the blind has reached a target position after movement.

The object is;
0   = upper end position %0
…
255   = lower end position %100

145	Status slat 0…255	Output A	DPT 5.001	1 byte	CRT

The blind slat position of drive is available as a value 0…255 percentage %0…%100. The slat status is to be transmitted or read out via this object.
The slat status object is only updated when the blind has reached a target position after movement.

NOTE: This object is only available in the venetian blind type.

The object is;
0   = slat open %0
…
255   = slat close %100

146	Status upper end position	Output A	DPT 1.011	1 bit	CRT

The blind is reached the upper end position, the device sends information.

The object is;
0 = the blind is not in upper end position
1 = the blind is in upper end position

No	Object name	Name	DTP Type	Length	Flags
147	Status lower end position	Output A	DPT 1.011	1 bit	CRT

The blind is reached the lower end position, the device sends information.

The object is;
0 = the blind is not in lower end position
1 = the blind is in lower end position

4.5   Valve Object Description

No	Object name	Name	DTP Type	Length	Flags
132	Control valve HEATING	Control Input	DPT 5.001	1 byte	CW

Via this object, command value for heating operation is sent.

133	Control valve COOLING	Control Input	DPT 5.001	1 byte	CW

Via this object, command value for cooling operation is sent.

134	Toggle Heating/Cooling	Control Input	DPT 1.100	1 bit	CW

If the HVAC System parameter has been selected one control four pipe with switch or *two control two pipe with switch,* this object is enabled*.*

If the parameter *Object value for HEATING the object* is selected 1*:*
1 : HEATING
0 : COOLING
If the parameter *Object value for HEATING the object* is selected 0*:*
1 : COOLING
0 : HEATING

135	Fault control value	Control Output	DPT 1.005	1 bit	CRT

If the control input telegram does not arrive in the monitoring period, this object set TRUE and send to bus.
0 : no fault
1 : fault

136 141	Block	Valve HEATING Valve COOLING	DPT 1.003	1 bit	CW

This object is used to block the valve operation. The valve does not respond any control input values.

137 142	Forced operation	Valve HEATING Valve COOLING	DPT 1.003	1 bit	CW

This object is used to force the valve-desired state. This state can be configure via *Value position on forced operation in % [0…100]* parameter*.*
0 : end of forced operation
1: start of forced operation

| 138 | Trigger valve purge | Valve HEATING | DPT 1.017 | 1 bit | CW |
| 143 | | Valve COOLING | | | |

This object is use to triggered the valve purge.

0 : end of valve purge
1: start of valve purge

| 139 | Status valve purge | Valve HEATING | DPT 1.003 | 1 bit | CRT |
| 144 | | Valve COOLING | | | |

The status of the valve purge is visible via this communication object.

| 140 | Status valve position | Valve HEATING | DPT 1.001 | 1 bit | CRT |
| 145 | | Valve COOLING | DPT 1.005 | 1 byte | |

The status of valve position is visible vis this communication object.

If the object is configured 1-bit;

0 : valve position is zero

1 : valve position is not zero

If the object is configured 1 byte;

0…255 : valve position is show via percentage

4.6 Fan Object Description

No	Object name	Name	DTP Type	Length	Flags
132	Fan speed switch	Fan	DPT 5.010	1 byte	CW

This object is used to switch on fan speed via 1-byte object. If the object received, automatic mode is set OFF.

Hex	Fan Speed
00	0 (Fan OFF)
01	Fan speed 1
02	Fan speed 2
03	Fan speed 3
>03	ignored

133	Switch speed 1	Fan	DPT 1.001	1 bit	CW
134	Switch speed 2	Fan	DPT 1.001	1 bit	CW
135	Switch speed 3	Fan	DPT 1.001	1 bit	CW

This object is used to receive a control value for fan speed. An OFF telegram to one of the three communication objects, fan speed 1-3, switch off the fan completely. If the object received, automatic mode is set OFF.

0 : fan OFF
1 : fan ON

136	Fan speed UP/DOWN	Fan	DPT 1.007	1 bit	CW

This object is used to switched one fan speed further up or down via 1-bit telegram.

0 : fan speed DOWN
1 : fan speed UP

137	Status fan ON/OFF	Fan	DPT 1.001	1 bit	CT

The status of fan coil channel is visible via this communication object.
0 : complete fan coil channel inactive (all outputs OFF)
1 : any output of fan coil channel is switched ON

138	Status fan speed	Fan	DPT 5.010	1 byte	CRT

This object is used to display the fan speed via 1-byte object.

Hex	Fan Speed
00	0 (Fan OFF)
01	Fan speed 1
02	Fan speed 2
03	Fan speed 3

139	Status fan speed 1	Fan	DPT 1.001	1 bit	CRT
140	Status fan speed 2	Fan	DPT 1.001	1 bit	CRT
141	Status fan speed 3	Fan	DPT 1.001	1 bit	CRT

Only visible if the Enable communication object "Status fan speed x" 1 bit is configured to yes.

0 : fan level x deactivated
1 : fan level x activated

142	Forced operation	Fan	DPT 1.003	1 bit	CW

This object used to set fan desired forced position independently from the control value.

0 : no forced operation
1 : forced operation

143	Automatic ON/OFF	Fan	DPT 1.003	1 bit	CW

This object is used to switch the automatic mode. Automatic mode is switched off, if a telegram is received on a direct communication object.

If the *object value "automatic ON/OFF" switched on to automatic* parameter is selected "1";
0 : automatic operation OFF
1: automatic operation ON

If the *object value "automatic ON/OFF" switched on to automatic* parameter is selected "0";
0 : automatic operation ON
1: automatic operation OFF

144	Status automatic	Fan	DPT 1.003	1 bit	CW
The object indicates the status of the automatic mode. 0 : inactive 1 : active					
145	Auto Mode Control Value	Fan	DPT 5.001	1 Byte	CW
The object is external control value for fan auto mode. Fan output set according to the threshold which enter with parameter					
146	Auto Mode Fan Off Lock	Fan	DPT 1.003	1 bit	CW
If this object receives enabled, when 0% is sent via the valve control value object or the fan control value object, it is ensured that the fan is not turned off (Fan Auto=Disable). Fan can be turned off via direct control objects.					
147	Auto Mode Fan Off Lock Status	Fan	DPT 1.003	1 bit	CRT
The object indicates the status of auto mode fan off lock object.					

4.7 Unused Relay Object Description

292	Switch	Unused Relay	DPT 1.001	1 bit	CRWT
This object is used to switching of relay.					
293	Switch Status	Unused Relay	DPT 1.001	1 bit	CRT
The current switching state of the unused relay channel is saved in the status object. It can be transmitted automatically when its state change. This object is ; 0 = relay OFF position 1 = relay ON position					
293	Lock	Unused Relay	DPT 1.001	1 bit	CW
This object is used to lock unused relay state.					
294	Lock Status	Unused Relay	DPT 1.001	1 bit	CRT
The object indicates the lock status of unused relay.					

4.8 Logic Block Object Description

No	Object name	Name	DTP Type	Length	Flags
252…366	Input	Logic Block	---	---	CRW
This object is used for input for logic function. It can be 1 Bit, 2 Bit, 1 Byte. 1 bit DPT 1.002 2 bit DPT 2.002 1 byte DPT 5.010					

253…367	Output	Logic Block	---	---	CRT
This object is used for sending result of logic functions. It can be 1 Bit, 2 Bit, 1 Byte. 1 bit DPT 1.002 2 bit DPT 2.002 1 byte DPT 5.010					