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1 Introduction

Using the application program

Product family: Actuators
Product type: Actuators
Manufacturer: IPAS GmbH

Name: Power Block actuator range
Order number: see table

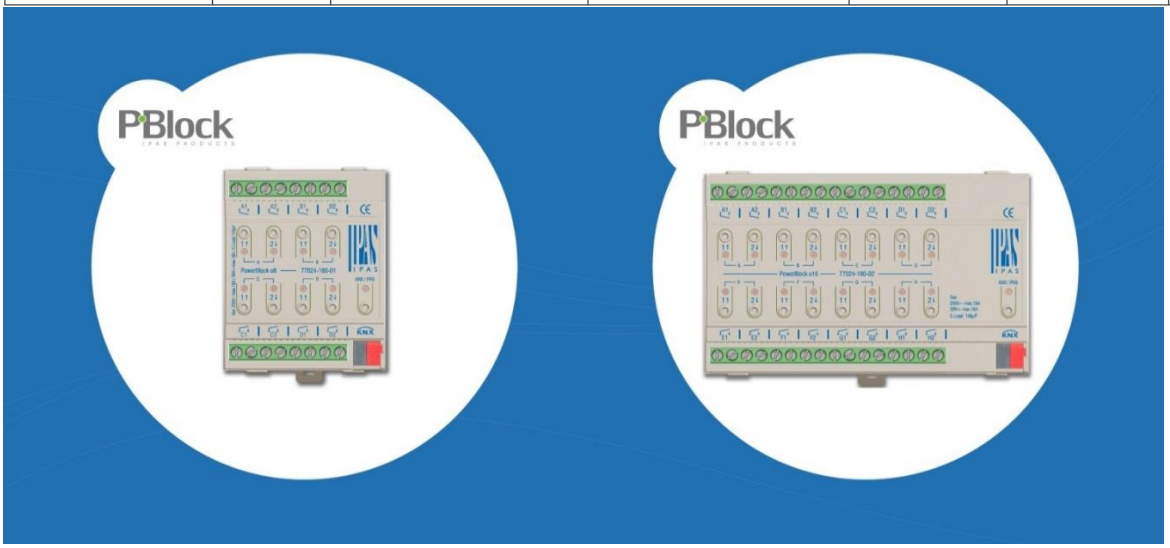
Reference	Description	Order number
Power Block o8	8 capacitive outputs	77024-180-01
Power Block o16	16 capacitive outputs	77024-180-02

1.1 General product information

The Power Block range consists of two different actuator types and distinguishes itself through its small and compact construction. The application programs are built in such a way that basic functions can be projected intuitively. This basic functionality, however, can be greatly expanded by means of structured parameter menus in the ETS.

1.1.1 Power Block range

Mounting type		Name	Output Type	DIN MOD	Inputs	Outputs
DIN Mount		**Power Block o8**	8C 16A	4	0	8
		Power Block o16	16C 16A	8	0	16



1.1.2 General properties of the ETS application program

1.1.2.1 Installing the application program

The application for the Power Block ACTUATOR RANGE is based on a powerful KNX communications stack of the System-B type, with up to 1000 KNX objects. It is designed as a standard ETS application program and no plug-in for ETS-3 and ETS-4 is needed.
After the import the product can be integrated as usual into the ETS.

ETS application names:

77014-PowerBlock o8-11-0110
77014-PowerBlock o16-12-0110

It can be found under product family “Output” and product type “Actuators”.

1.1.3 Preliminary basic concepts

Output: channel type selection
In the Power Block actuator range, each channel is composed of two mechanical outputs (relays):

If the channel type is selected to be a “Binary” output, then you will have two totally independent outputs in the Application program.
On the contrary, if you select the channel type to be “Shutter/Blind”, then these two outputs work as one shutter/blind channel. The first relay will be for movement UP and second one for movement DOWN.

Type of contact
It is possible to select the type of contact to be normally open or normally closed, which is a common feature of modern actuators. It is very important though to keep in mind that these terms only refer to the mechanical contact.

On the other hand, in this application program the terms ON and OFF will be frequently used, whereas ON is always = “1” and OFF is always = “0”. Independent from the type of contact (NO/NC), if you send an ON (“1”) to the switching object, the status object will always send an ON (“1”); and vice versa.

NO-Normally open (ON=close, OFF=open): the output relay closes with ON (“1”) and opens with OFF (“0”).
NC-Normally close (ON=open, OFF=close): the output relay closes with OFF (“0”) and opens with ON (“1”).

Maximum sending speed
Should an output object be changed faster than the maximum sending speed of the KNX stack, these changes will be ignored and only the last change will be sent to the bus.

Cyclical sending
The application program contains multiple occasions where cyclic sending for different functions can be used. When this function is activated, the corresponding object will not send the telegram once, but repeat it infinitely.

Frequency and time calculation
The calculation of the preferred time (cyclical sending, delays, staircase, etc.) is done by multiplying the “time Base” by the “time Factor”.

Selection of data point type
During the configuration of the actuator, you will be asked to choose the data point type. It is very important to correctly define the DPT because this will change the size and type of the object; also, the data will be differently interpreted. E.g.: 1 Byte counter value = 0 to 255, whereas 1 Byte scaling value = 0 to 100%.

Additional/advanced functions (channel related)
In order to keep the application program as easy as possible, only the main and most important functions are displayed at first sight. You will often find the possibility to activate the Additional or Advanced Functions, which disclose new functions that are not essential, but can be very useful.
Also, see General_Settings_Advanced_Functions.

Scenes
In this actuator range we can find two types of Scenes:
- KNX Scenes: fully KNX standard 1 byte scenes.
- Advanced Scenes controller (not available in Outputs): free configurable trigger conditions (start, save, stop and restore) and scene actions with time delays.

Enable/disable object
Most of the actuator's modules can be deactivated with a "… disable" object. The value (1 or 0) used to disable can also be configured.
This option can be very useful for many reasons, including simplifying the configuration: for instance, the logic functions might be a complex task that can take a while to finish; in the meantime, you don't want these modules to be active and cause unwanted actions. Therefore, you can disable them until you finish programming. Another example: you can simply activate/deactivate the timers for the irrigation system when not needed.

End-user parameters
It is very important for the end user to be able to change (via dedicated objects linked, for instance, to a visualization) certain settings of his/her KNX installation. This actuator allows for these changes to be maintained even when downloading the application program again. In "overwrite end-user parameter values at download" you will find an in-depth explanation on when and how to overwrite/maintain the changes made by the end-user.

2 ETS communication objects overview

The Power Block actuators communicates via the KNX bus based on powerful communication stacks. Altogether 998 communication objects for the Power Block o16 (depending of the device model) are available for the communication.

GENERAL OBJECTS & ADVANCED FUNCTIONS

N..	Name	Object Function	Le...	Data Type	...	R	W	T	U	Priority
1	Central switching	< On / Off	1 bit	1-bit	C	-	W	-	-	Low
2	Central move	< Up/Down/Position	1 bit	1-bit	C	-	W	-	-	Low
3	Central cyclic telegram for monitoring	> Cyclic ON telegrams	1 bit	1-bit	C	R	-	T	-	Low
4	Telegram at bus recovery	> Sends parameterized value	1 bit	1-bit	C	-	-	T	-	Low
5	Manual control disable	< Disable = 0 / Enable = 1	1 bit	1-bit	C	R	W	-	-	Low
6	Alarm 1	< 2 bytes float	2 Byte	2-byte float value	C	R	W	-	-	Low
14	Alarm ACK	< Ack. with 1	1 bit	1-bit	C	-	W	-	-	Low
15	Alarm 1 setpoint	< 2 bytes float	2 Byte	2-byte float value	C	R	W	-	-	Low
23	Alarm 1 hysteresis	< 2 bytes float	2 Byte	2-byte float value	C	R	W	-	-	Low
31	Alarm 1 disable	< Disable = 1 / Enable = 0	1 bit	1-bit	C	R	W	-	-	Low
39	Logic 1 disable	< Disable = 0 / Enable = 1	1 bit	1-bit	C	R	W	-	-	Low
40	Logic 1 input 1	< On / Off	1 bit	1-bit	C	R	W	T	U	Low
41	Logic 1 input 2	< On / Off	1 bit	1-bit	C	R	W	T	U	Low
42	Logic 1 input 3	< On / Off	1 bit	1-bit	C	R	W	T	U	Low
43	Logic 1 input 4	< On / Off	1 bit	1-bit	C	R	W	T	U	Low
44	Logic 1 output	> 1 byte unsigned	1 Byte	counter pulses (0..255)	C	R	-	T	-	Low
159	Scene 1 input	< Sc1 (0=Play 128=Rec)... Sc64	1 Byte	counter pulses (0..255)	C	-	W	-	-	Low
160	Scene 1 disable	< Disable = 0 / Enable = 1	1 bit	1-bit	C	R	W	-	-	Low
161	Scene 1 event 1	> On / Off	1 bit	1-bit	C	-	W	T	U	Low
162	Scene 1 event 2	> 0..100%	1 Byte	percentage (0..100%)	C	-	W	T	U	Low
163	Scene 1 event 3	> 1byte unsigned	1 Byte	counter pulses (0..255)	C	-	W	T	U	Low
164	Scene 1 event 4	> 2 bytes unsigned	2 Byte	pulses	C	-	W	T	U	Low
165	Scene 1 event 5	> 2 bytes float	2 Byte	2-byte float value	C	-	W	T	U	Low
166	Scene 1 event 6	> 4 bytes unsigned	4 Byte	counter pulses (unsigned)	C	-	W	T	U	Low
167	Scene 1 event 7	> 4 bytes float	4 Byte	4-byte float value	C	-	W	T	U	Low
168	Scene 1 event 8	> 4 bytes signed	4 Byte	counter pulses (signed)	C	-	W	T	U	Low
259	Advanced Scene 1 input	< 2 bytes float	2 Byte	2-byte float value	C	-	W	-	-	Low
260	Advanced Scene 1 disable	< Disable = 0 / Enable = 1	1 bit	1-bit	C	R	W	-	-	Low
261	Advanced Scene 1 event 1	<> On / Off	1 bit	1-bit	C	-	W	T	U	Low
262	Advanced Scene 1 event 2	<> 0..100%	1 Byte	percentage (0..100%)	C	-	W	T	U	Low
263	Advanced Scene 1 event 3	<> 1byte unsigned	1 Byte	counter pulses (0..255)	C	-	W	T	U	Low
264	Advanced Scene 1 event 4	<> 2 bytes unsigned	2 Byte	pulses	C	-	W	T	U	Low
265	Advanced Scene 1 event 5	<> 2 bytes float	2 Byte	2-byte float value	C	-	W	T	U	Low
266	Advanced Scene 1 event 6	<> 4 bytes unsigned	4 Byte	counter pulses (unsigned)	C	-	W	T	U	Low
267	Advanced Scene 1 event 7	<> 4 bytes float	4 Byte	4-byte float value	C	-	W	T	U	Low
268	Advanced Scene 1 event 8	<> 2 bytes signed	2 Byte	pulses difference	C	-	W	T	U	Low
359	Timer 1 trigger	< 2 bytes float	2 Byte	2-byte float value	C	-	W	-	-	Low
362	Timer 1 disable	< Disable = 0 / Enable = 1	1 bit	1-bit	C	R	W	-	-	Low
363	Timer 1 output	> 2 bytes float	2 Byte	2-byte float value	C	-	-	T	-	Low
409	Setpoint 1 output regulator	> On / Off	1 bit	1-bit	C	R	-	T	-	Low
410	Setpoint 1 setpoint value/status	<> 2 bytes float	2 Byte	2-byte float value	C	R	W	T	-	Low
411	Setpoint 1 Heat / Cool	< Heat = 1 / Cool = 0	1 bit	1-bit	C	R	W	-	-	Low
412	Setpoint 1 input ext. sensor value	< 2 bytes float	2 Byte	2-byte float value	C	R	W	-	-	Low
413	Setpoint 1 disable	< On / Off	1 bit	1-bit	C	R	W	-	-	Low

BINARY OUTPUT CHANNEL

559	[A1] Switching On / Off	< On / Off	1 bit	switch	C	-	W	-	-	Low
560	[A1] Switching toggle/inverted	< Toggle with 0 and 1	1 bit	switch	C	-	W	-	-	Low
561	[A1] Switching status	> On / Off	1 bit	switch	C	R	-	T	-	Low
562	[A1] RunHour counter value	> 4 bytes unsigned	4 Byte	counter pulses (unsigned)	C	R	-	T	-	Low
563	[A1] RunHour counter threshold	< Reading/writing threshold	4 Byte	counter pulses (unsigned)	C	R	W	T	-	Low
564	[A1] RunHour counter alarm	> 1 = Alarm, 0 = No alarm	1 bit	1-bit	C	R	-	T	-	Low
565	[A1] RunHour counter reset	< 1 = Reset, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
566	[A1] RunHour counter value at reset	> 4 bytes unsigned	4 Byte	counter pulses (unsigned)	C	R	-	T	-	Low
567	[A1] Switching counter value	> 4 bytes unsigned	4 Byte	counter pulses (unsigned)	C	R	-	T	-	Low
568	[A1] Switching counter threshold	< Reading/writing threshold	4 Byte	counter pulses (unsigned)	C	R	W	T	-	Low
569	[A1] Switching counter alarm	> 1 = Alarm, 0 = No alarm	1 bit	1-bit	C	R	-	T	-	Low
570	[A1] Switching counter reset	< 1 = Reset, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
571	[A1] Switching counter value at reset	> 4 bytes unsigned	4 Byte	counter pulses (unsigned)	C	R	-	T	-	Low
572	[A1] Scene number	< Sc1 (0=Play 128=Rec)... Sc64	1 Byte	counter pulses (0..255)	C	-	W	-	-	Low
573	[A1] Scene disable	< Disable = 0 / Enable = 1	1 bit	1-bit	C	R	W	-	-	Low
574	[A1] Timer 1 trigger	< On / Off	1 bit	1-bit	C	-	W	-	-	Low
575	[A1] Timer 1 change staircase factor	< 1 byte unsigned	1 Byte	counter pulses (0..255)	C	R	W	-	-	Low
576	[A1] Timer 1 warning pulse	> On / Off	1 bit	switch	C	R	-	T	-	Low
577	[A1] Timer 1 disable	< Disable = 0 / Enable = 1	1 bit	1-bit	C	R	W	T	-	Low
578	[A1] Timer 2 trigger	< On / Off	1 bit	1-bit	C	-	W	-	-	Low
579	[A1] Timer 2 change staircase factor	< 1 byte unsigned	1 Byte	counter pulses (0..255)	C	R	W	-	-	Low
580	[A1] Timer 2 warning pulse	> On / Off	1 bit	switch	C	R	-	T	-	Low
581	[A1] Timer 2 disable	< Disable = 0 / Enable = 1	1 bit	1-bit	C	R	W	T	-	Low
582	[A1] Disable channel	< On / Off	1 bit	1-bit	C	R	W	T	-	Low
583	[A2] Switching On / Off	< On / Off	1 bit	switch	C	-	W	-	-	Low
585	[A2] Switching status	> On / Off	1 bit	switch	C	R	-	T	-	Low

SHUTTER OUTPUT CHANNEL

	N..	Name	Object Function	Le...	Data Type	...	R	W	T	U	Priority
	559	[A] Move	< 0=up/1=down	1 bit	up/down	C	-	W	-	-	Low
	560	[A] Stop (Blind=Stop/step)	< 0=stop/step, 1=stop/step	1 bit	1-bit	C	-	W	-	-	Low
	561	[A] Move to position	< 0..100%	1 Byte	percentage (0..100%)	C	-	W	-	-	Low
	562	[A] Move slat	< 0..100%	1 Byte	percentage (0..100%)	C	-	W	-	-	Low
	563	[A] Change upper limit	<> 0..100%	1 Byte	percentage (0..100%)	C	R	W	T	-	Low
	564	[A] Change lower limit	<> 0..100%	1 Byte	percentage (0..100%)	C	R	W	T	-	Low
	565	[A] Status blind position	> 0..100%	1 Byte	percentage (0..100%)	C	R	-	T	-	Low
	566	[A] Status blind lower end position	> 1 = Totally down / 0 = not	1 bit	1-bit	C	R	-	T	-	Low
	567	[A] Status blind upper end position	> 1 = Totally up / 0 = not	1 bit	1-bit	C	R	-	T	-	Low
	568	[A] Status slat position	> 0..100%	1 Byte	percentage (0..100%)	C	R	-	T	-	Low
	569	[A] Preset 1 execute	< 1 = Execute, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
	570	[A] Preset 2 execute	< 1 = Execute, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
	571	[A] Preset 3 execute	< 1 = Execute, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
	572	[A] Preset 4 execute	< 1 = Execute, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
	573	[A] Preset 1 change move position	< 0..100%	1 Byte	percentage (0..100%)	C	R	W	-	-	Low
	574	[A] Preset 2 change move position	< 0..100%	1 Byte	percentage (0..100%)	C	R	W	-	-	Low
	575	[A] Preset 3 change move position	< 0..100%	1 Byte	percentage (0..100%)	C	R	W	-	-	Low
	576	[A] Preset 4 change move position	< 0..100%	1 Byte	percentage (0..100%)	C	R	W	-	-	Low
	577	[A] Preset 1 change slat position	< 0..100%	1 Byte	percentage (0..100%)	C	R	W	-	-	Low
	578	[A] Preset 2 change slat position	< 0..100%	1 Byte	percentage (0..100%)	C	R	W	-	-	Low
	579	[A] Preset 3 change slat position	< 0..100%	1 Byte	percentage (0..100%)	C	R	W	-	-	Low
	580	[A] Preset 4 change slat position	< 0..100%	1 Byte	percentage (0..100%)	C	R	W	-	-	Low
	581	[A] Preset 1 save	< 1 = Save, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
	582	[A] Preset 2 save	< 1 = Save, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
	583	[A] Preset 3 save	< 1 = Save, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
	584	[A] Preset 4 save	< 1 = Save, 0 = Nothing	1 bit	1-bit	C	-	W	-	-	Low
	585	[A] Scene number	< Sc1 (0=Play 128=Rec)... Sc64	1 Byte	counter pulses (0..255)	C	-	W	-	-	Low
	586	[A] Scene disable	< Disable = 0 / Enable = 1	1 bit	1-bit	C	R	W	-	-	Low
	587	[A] Disable channel	< On / Off	1 bit	1-bit	C	R	W	T	-	Low
	588	[A] Move inverted	< 1=up/0=down	1 bit	1-bit	C	-	W	-	-	Low
	589	[A] Disable limits / calibrate	< Disable =0 / En&calibrate =1	1 bit	1-bit	C	R	W	-	-	Low

	Text	Function text	Object Size	Flags	Datapoint type
1	Central switching	< On / Off	1 Bit	-WC---	[1] 1.xxx
Each and every channel can individually be configured to have no reaction, switch ON / OFF or start the timer 1 reaction at on when this object receives a parametrized value. See parameter description to see all possibilities.					
1	Central switching/move blind	< On / Off, Up/Down/Position	1 Bit	-WC---	[1] 1.xxx
Each and every channel can individually be configured to have no reaction, switch ON / OFF or start the timer 1 reaction at on, move UP/DOWN or move to a specific position when this object receives a parametrized value. See parameter description to see all possibilities.					
2	Central move	< Up/Down/Position	1 Bit	-WC---	[1] 1.xxx
Each and every channel can individually be configured to have no reaction, move UP/DOWN or move to a specific position when this object receives a parametrized value. See parameter description to see all possibilities.					
3	Central cyclic telegram for monitoring	> Cyclic ON telegrams	1 Bit	R-CT--	[1] 1.xxx
This object sends an ON telegram cyclic with bus voltage. This can be used to supervise a bus line. A channel in the mainline with a staircase timer can be triggered with a higher frequency than the staircase time by this object. Should the line fail the staircase will expire and therefore the "Line status light" will switch OFF.					
4	Telegram at bus recovery	> Sends parameterized value	1 Bit	R-CT--	[1] 1.xxx
This object will send a parametrized value to the bus after bus voltage return. This can be used to trigger an event, like a scene to set up the whole installation at bus return.					
4	Telegram at bus recovery	> Sends parameterized value	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
This object will send a parametrized value to the bus after bus voltage return. This can be used to trigger an event, like a scene to set up the whole installation at bus return.					
4	Telegram at bus recovery	> Sends parameterized value	1 Byte	R-CT--	[5.1] DPT_Scaling
This object will send a parametrized value to the bus after bus voltage return. This can be used to trigger an event, like a scene to set up the whole installation at bus return.					
4	Telegram at bus recovery	> Sends parameterized value	2 Bytes	R-CT--	[9] 9.xxx
This object will send a parametrized value to the bus after bus voltage return. This can be used to trigger an event, like a scene to set up the whole installation at bus return.					
5	Manual control disable	< Disable = 1 / Enable = 0	1 Bit	RWC---	[1] 1.xxx
The manual buttons on the device can be deactivated by this object like this: Disable = 1 / Enable = 0					
5	Manual control disable	< Disable = 0 / Enable = 1	1 Bit	RWC---	[1] 1.xxx
The manual buttons on the device can be deactivated by this object like this: Disable = 0 / Enable = 1					
6	Alarm 1	< On / Off	1 Bit	RWC---	[1] 1.xxx
This object is the alarm 1 trigger object. In the parameters one can define with which value it should be in the alarm state.					
6	Alarm 1	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This object is the alarm 1 trigger object. In the parameters one can define with which value it should be in the alarm state.					
6	Alarm 1	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount
This object is the alarm 1 trigger object. In the parameters one can define with which value it should be in the alarm state.					
6	Alarm 1	< 2 bytes float	2 Bytes	RWC---	[9] 9.xxx

This object is the alarm 1 trigger object. In the parameters one can define with which value it should be in the alarm state.					
6	Alarm 1	< 4 bytes unsigned	4 Bytes	RWC---	[12.1] DPT_Value_4_Ucount
This object is the alarm 1 trigger object. In the parameters one can define with which value it should be in the alarm state.					
6	Alarm 1	< 4 bytes float	4 Bytes	RWC---	[14] 14.xxx
This object is the alarm 1 trigger object. In the parameters one can define with which value it should be in the alarm state.					
14	Alarm ACK	< Ack. with 0	1 Bit	-WC---	[1] 1.xxx
When activating the acknowledge function this object appears. This is to acknowledge the alarm by sending a 0 to this object. Alarms can only be acknowledged if the alarm has disappeared					
14	Alarm ACK	< Ack. with 1	1 Bit	-WC---	[1] 1.xxx
When activating the acknowledge function this object appears. This is to acknowledge the alarm by sending a 1 to this object. Alarms can only be acknowledged if the alarm has disappeared					
15	Alarm 1 setpoint	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount
If the alarm is configured to be an analog alarm then the threshold of this alarm can be set by this object					
15	Alarm 1 setpoint	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
If the alarm is configured to be an analog alarm then the threshold of this alarm can be set by this object					
15	Alarm 1 setpoint	< 2 bytes float	2 Bytes	RWC---	[9] 9.xxx
If the alarm is configured to be an analog alarm then the threshold of this alarm can be set by this object					
15	Alarm 1 setpoint	< 4 bytes unsigned	4 Bytes	RWC---	[12.1] DPT_Value_4_Ucount
If the alarm is configured to be an analog alarm then the threshold of this alarm can be set by this object					
15	Alarm 1 setpoint	< 4 bytes float	4 Bytes	RWC---	[14] 14.xxx
If the alarm is configured to be an analog alarm then the threshold of this alarm can be set by this object					
23	Alarm 1 hysteresis	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount
If the alarm is configured to be an analog alarm then the hysteresis of this alarm setpoint can be changed by this object					
23	Alarm 1 hysteresis	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
If the alarm is configured to be an analog alarm then the hysteresis of this alarm setpoint can be changed by this object					
23	Alarm 1 hysteresis	< 2 bytes float	2 Bytes	RWC---	[9] 9.xxx
If the alarm is configured to be an analog alarm then the hysteresis of this alarm setpoint can be changed by this object					
23	Alarm 1 hysteresis	< 4 bytes float	4 Bytes	RWC---	[14] 14.xxx
If the alarm is configured to be an analog alarm then the hysteresis of this alarm setpoint can be changed by this object					
23	Alarm 1 hysteresis	< 4 bytes unsigned	4 Bytes	RWC---	[12.1] DPT_Value_4_Ucount
If the alarm is configured to be an analog alarm then the hysteresis of this alarm setpoint can be changed by this object					
31	Alarm 1 disable	< Disable = 1 / Ena-	1 Bit	RWC---	[1] 1.xxx

		ble = 0			
The alarm can be disabled by sending a 1 to this object.					
39	Logic 1 disable	< Disable = 0 / Enable = 1	1 Bit	RWC---	[1] 1.xxx
The logic function can be disabled by sending a 0					
39	Logic 1 disable	< Disable = 1 / Enable = 0	1 Bit	RWC---	[1] 1.xxx
The logic function can be disabled by sending a 1					
40	Logic 1 input 1	< On / Off	1 Bit	RWCTU-	[1] 1.xxx
This is the first of 4 logic inputs of this logic block					
40	Logic 1 input 1	< 0..100%	1 Byte	RWCTU-	[5.1] DPT_Scaling
This is the first of 4 logic inputs of this logic block					
40	Logic 1 input 1	< 1 byte signed	1 Byte	RWCTU-	[6.10] DPT_Value_1_Count
This is the first of 4 logic inputs of this logic block					
40	Logic 1 input 1	< 1 byte unsigned	1 Byte	RWCTU-	[5.10] DPT_Value_1_Ucount
This is the first of 4 logic inputs of this logic block					
40	Logic 1 input 1	< 2 bytes unsigned	2 Bytes	RWCTU-	[7.1] DPT_Value_2_Ucount
This is the first of 4 logic inputs of this logic block					
40	Logic 1 input 1	< 2 bytes float	2 Bytes	RWCTU-	[9] 9.xxx
This is the first of 4 logic inputs of this logic block					
40	Logic 1 input 1	< 2 bytes signed	2 Bytes	RWCTU-	[8.1] DPT_Value_2_Count
This is the first of 4 logic inputs of this logic block					
40	Logic 1 input 1	< 4 bytes unsigned	4 Bytes	RWCTU-	[12.1] DPT_Value_4_Ucount
This is the first of 4 logic inputs of this logic block					
40	Logic 1 input 1	< 4 bytes float	4 Bytes	RWCTU-	[14] 14.xxx
This is the first of 4 logic inputs of this logic block					
40	Logic 1 input 1	< 4 bytes signed	4 Bytes	RWCTU-	[13.1] DPT_Value_4_Count
This is the first of 4 logic inputs of this logic block					
41	Logic 1 input 2	< On / Off	1 Bit	RWCTU-	[1] 1.xxx
This is the second of 4 logic inputs of this logic block					
41	Logic 1 Enable / Disable Gate	< Disable = 1 / Enable = 0	1 Bit	RWCT--	[1] 1.xxx

If the logic function is configured to be a Gate function then this input is used to enable or disable the gate. When the gate is disabled the input will not be sent to the output. This object can also be used to trigger the input to the output with different conditions (please see the parameter description to see al possibilities)					
41	Logic 1 Enable / Disable Gate	< Disable = 0 / Enable = 1	1 Bit	RWCT--	[1] 1.xxx
If the logic function is configured to be a Gate function then this input is used to enable or disable the gate. When the gate is disabled the input will not be sent to the output. This object can also be used to trigger the input to the output with different conditions (please see the parameter description to see al possibilities)					
41	Logic 1 input 2	< 1 byte signed	1 Byte	RWCTU-	[6.10] DPT_Value_1_Count
This is the second of 4 logic inputs of this logic block					
41	Logic 1 input 2	< 0..100%	1 Byte	RWCTU-	[5.1] DPT_Scaling
This is the second of 4 logic inputs of this logic block					
41	Logic 1 input 2	< 1 byte unsigned	1 Byte	RWCTU-	[5.10] DPT_Value_1_Ucount
This is the second of 4 logic inputs of this logic block					
41	Logic 1 input 2	< 2 bytes signed	2 Bytes	RWCTU-	[8.1] DPT_Value_2_Count
This is the second of 4 logic inputs of this logic block					
41	Logic 1 input 2	< 2 bytes unsigned	2 Bytes	RWCTU-	[7.1] DPT_Value_2_Ucount
This is the second of 4 logic inputs of this logic block					
41	Logic 1 input 2	< 2 bytes float	2 Bytes	RWCTU-	[9] 9.xxx
This is the second of 4 logic inputs of this logic block					
41	Logic 1 input 2	< 4 bytes unsigned	4 Bytes	RWCTU-	[12.1] DPT_Value_4_Ucount
This is the second of 4 logic inputs of this logic block					
41	Logic 1 input 2	< 4 bytes float	4 Bytes	RWCTU-	[14] 14.xxx
This is the second of 4 logic inputs of this logic block					
41	Logic 1 input 2	< 4 bytes signed	4 Bytes	RWCTU-	[13.1] DPT_Value_4_Count
This is the second of 4 logic inputs of this logic block					
42	Logic 1 input 3	< On / Off	1 Bit	RWCTU-	[1] 1.xxx
This is the third of 4 logic inputs of this logic block					
42	Logic 1 input 3	< 0..100%	1 Byte	RWCTU-	[5.1] DPT_Scaling
This is the third of 4 logic inputs of this logic block					
42	Logic 1 input 3	< 1 byte unsigned	1 Byte	RWCTU-	[5.10] DPT_Value_1_Ucount
This is the third of 4 logic inputs of this logic block					
42	Logic 1 input 3	< 1 byte signed	1 Byte	RWCTU-	[6.10] DPT_Value_1_Count

This is the third of 4 logic inputs of this logic block					
42	Logic 1 input 3	< 2 bytes unsigned	2 Bytes	RWCTU-	[7.1] DPT_Value_2_Ucount
This is the third of 4 logic inputs of this logic block					
42	Logic 1 input 3	< 2 bytes signed	2 Bytes	RWCTU-	[8.1] DPT_Value_2_Count
This is the third of 4 logic inputs of this logic block					
42	Logic 1 input 3	< 2 bytes float	2 Bytes	RWCTU-	[9] 9.xxx
This is the third of 4 logic inputs of this logic block					
42	Logic 1 input 3	< 4 bytes unsigned	4 Bytes	RWCTU-	[12.1] DPT_Value_4_Ucount
This is the third of 4 logic inputs of this logic block					
42	Logic 1 input 3	< 4 bytes signed	4 Bytes	RWCTU-	[13.1] DPT_Value_4_Count
This is the third of 4 logic inputs of this logic block					
42	Logic 1 input 3	< 4 bytes float	4 Bytes	RWCTU-	[14] 14.xxx
This is the third of 4 logic inputs of this logic block					
43	Logic 1 input 4	< On / Off	1 Bit	RWCTU-	[1] 1.xxx
This is the fourth of 4 logic inputs of this logic block					
43	Logic 1 input 4	< 0..100%	1 Byte	RWCTU-	[5.1] DPT_Scaling
This is the fourth of 4 logic inputs of this logic block					
43	Logic 1 input 4	< 1 byte unsigned	1 Byte	RWCTU-	[5.10] DPT_Value_1_Ucount
This is the fourth of 4 logic inputs of this logic block					
43	Logic 1 input 4	< 1 byte signed	1 Byte	RWCTU-	[6.10] DPT_Value_1_Count
This is the fourth of 4 logic inputs of this logic block					
43	Logic 1 input 4	< 2 bytes unsigned	2 Bytes	RWCTU-	[7.1] DPT_Value_2_Ucount
This is the fourth of 4 logic inputs of this logic block					
43	Logic 1 input 4	< 2 bytes signed	2 Bytes	RWCTU-	[8.1] DPT_Value_2_Count
This is the fourth of 4 logic inputs of this logic block					
43	Logic 1 input 4	< 2 bytes float	2 Bytes	RWCTU-	[9] 9.xxx
This is the fourth of 4 logic inputs of this logic block					
43	Logic 1 input 4	< 4 bytes signed	4 Bytes	RWCTU-	[13.1] DPT_Value_4_Count

This is the fourth of 4 logic inputs of this logic block					
43	Logic 1 input 4	< 4 bytes float	4 Bytes	RWCTU-	[14] 14.xxx
This is the fourth of 4 logic inputs of this logic block					
43	Logic 1 input 4	< 4 bytes unsigned	4 Bytes	RWCTU-	[12.1] DPT_Value_4_Ucount
This is the fourth of 4 logic inputs of this logic block					
44	Logic 1 output	> On / Off	1 Bit	R-CT--	[1] 1.xxx
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
44	Logic 1 output	> 1 byte signed	1 Byte	R-CT--	[6.10] DPT_Value_1_Count
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
44	Logic 1 output	> 1 byte unsigned	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
44	Logic 1 output	> 0..100%	1 Byte	R-CT--	[5.1] DPT_Scaling
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
44	Logic 1 output	> 2 bytes unsigned	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
44	Logic 1 output	> 2 bytes signed	2 Bytes	R-CT--	[8.1] DPT_Value_2_Count
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
44	Logic 1 output	> 2 bytes float	2 Bytes	R-CT--	[9] 9.xxx
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
44	Logic 1 output	> 4 bytes signed	4 Bytes	R-CT--	[13.1] DPT_Value_4_Count
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
44	Logic 1 output	> 4 bytes unsigned	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
44	Logic 1 output	> 4 bytes float	4 Bytes	R-CT--	[14] 14.xxx
This is the output of this logic block and the DPT can differ from the input. The value when true or false or the result of the logic block will be sent with this object.					
159	Scene 1 input	< Sc1 (0=Play 128=Rec)... Sc64	1 Byte	-WC---	[5.10] DPT_Value_1_Ucount
This is the object to trigger the first scene. The scene number to trigger and record this first scene can be configured in the parameters.					
160	Scene 1 disable	< Disable = 1 / Enable = 0	1 Bit	RWC---	[1] 1.xxx

The scene can be disabled by sending a 1 to this object.					
160	Scene 1 disable	< Disable = 0 / Enable = 1	1 Bit	RWC---	[1] 1.xxx
The scene can be disabled by sending a 0 to this object.					
161	Scene 1 event 1	> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the first event for the first scene.					
161	Scene 1 event 1	> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the first event for the first scene.					
161	Scene 1 event 1	> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the first event for the first scene.					
161	Scene 1 event 1	> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the first event for the first scene.					
161	Scene 1 event 1	> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the first event for the first scene.					
161	Scene 1 event 1	> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the first event for the first scene.					
161	Scene 1 event 1	> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the first event for the first scene.					
161	Scene 1 event 1	> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the first event for the first scene.					
161	Scene 1 event 1	> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the first event for the first scene.					
161	Scene 1 event 1	> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the first event for the first scene.					
162	Scene 1 event 2	> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the second event for the first scene.					
162	Scene 1 event 2	> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the second event for the first scene.					
162	Scene 1 event 2	> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the second event for the first scene.					

162	Scene 1 event 2	> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the second event for the first scene.					
162	Scene 1 event 2	> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the second event for the first scene.					
162	Scene 1 event 2	> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the second event for the first scene.					
162	Scene 1 event 2	> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the second event for the first scene.					
162	Scene 1 event 2	> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the second event for the first scene.					
162	Scene 1 event 2	> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the second event for the first scene.					
162	Scene 1 event 2	> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the second event for the first scene.					
163	Scene 1 event 3	> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the third event for the first scene.					
163	Scene 1 event 3	> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the third event for the first scene.					
163	Scene 1 event 3	> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the third event for the first scene.					
163	Scene 1 event 3	> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the third event for the first scene.					
163	Scene 1 event 3	> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the third event for the first scene.					
163	Scene 1 event 3	> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the third event for the first scene.					
163	Scene 1 event 3	> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the third event for the first scene.					
163	Scene 1 event 3	> 4 bytes float	4	-WCTU-	[14] 14.xxx

			Bytes		
This is the third event for the first scene.					
163	Scene 1 event 3	> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the third event for the first scene.					
163	Scene 1 event 3	> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the third event for the first scene.					
164	Scene 1 event 4	> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the fourth event for the first scene.					
164	Scene 1 event 4	> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the fourth event for the first scene.					
164	Scene 1 event 4	> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the fourth event for the first scene.					
164	Scene 1 event 4	> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the fourth event for the first scene.					
164	Scene 1 event 4	> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the fourth event for the first scene.					
164	Scene 1 event 4	> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the fourth event for the first scene.					
164	Scene 1 event 4	> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the fourth event for the first scene.					
164	Scene 1 event 4	> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the fourth event for the first scene.					
164	Scene 1 event 4	> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the fourth event for the first scene.					
164	Scene 1 event 4	> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the fourth event for the first scene.					
165	Scene 1 event 5	> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the fifth event for the first scene.					
165	Scene 1 event 5	> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the fifth event for the first scene.					

165	Scene 1 event 5	> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the fifth event for the first scene.					
165	Scene 1 event 5	> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the fifth event for the first scene.					
165	Scene 1 event 5	> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the fifth event for the first scene.					
165	Scene 1 event 5	> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the fifth event for the first scene.					
165	Scene 1 event 5	> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the fifth event for the first scene.					
165	Scene 1 event 5	> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the fifth event for the first scene.					
165	Scene 1 event 5	> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the fifth event for the first scene.					
165	Scene 1 event 5	> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the fifth event for the first scene.					
166	Scene 1 event 6	> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the sixth event for the first scene.					
166	Scene 1 event 6	> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the sixth event for the first scene.					
166	Scene 1 event 6	> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the sixth event for the first scene.					
166	Scene 1 event 6	> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the sixth event for the first scene.					
166	Scene 1 event 6	> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the sixth event for the first scene.					
166	Scene 1 event 6	> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the sixth event for the first scene.					
166	Scene 1 event 6	> 2 bytes signed	2	-WCTU-	[8.1] DPT_Value_2_Count

			Bytes		
This is the sixth event for the first scene.					
166	Scene 1 event 6	> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the sixth event for the first scene.					
166	Scene 1 event 6	> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the sixth event for the first scene.					
166	Scene 1 event 6	> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the sixth event for the first scene.					
167	Scene 1 event 7	> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the seventh event for the first scene.					
167	Scene 1 event 7	> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the seventh event for the first scene.					
167	Scene 1 event 7	< 1 byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the seventh event for the first scene.					
167	Scene 1 event 7	> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the seventh event for the first scene.					
167	Scene 1 event 7	> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the seventh event for the first scene.					
167	Scene 1 event 7	> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the seventh event for the first scene.					
167	Scene 1 event 7	> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the seventh event for the first scene.					
167	Scene 1 event 7	> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the seventh event for the first scene.					
167	Scene 1 event 7	> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the seventh event for the first scene.					
167	Scene 1 event 7	> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the seventh event for the first scene.					
168	Scene 1 event 8	> On / Off	1 Bit	-WCTU-	[1] 1.xxx

This is the eighth event for the first scene.					
168	Scene 1 event 8	> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the eighth event for the first scene.					
168	Scene 1 event 8	> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the eighth event for the first scene.					
168	Scene 1 event 8	> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the eighth event for the first scene.					
168	Scene 1 event 8	> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the eighth event for the first scene.					
168	Scene 1 event 8	> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the eighth event for the first scene.					
168	Scene 1 event 8	> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the eighth event for the first scene.					
168	Scene 1 event 8	> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the eighth event for the first scene.					
168	Scene 1 event 8	> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the eighth event for the first scene.					
168	Scene 1 event 8	> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the eighth event for the first scene.					
259	Advanced Scene 1 input	< On / Off	1 Bit	-WC---	[1] 1.xxx
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					
259	Advanced Scene 1 input	< 0..100%	1 Byte	-WC---	[5.1] DPT_Scaling
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					
259	Advanced Scene 1 input	< 1 byte signed	1 Byte	-WC---	[6.10] DPT_Value_1_Count
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					
259	Advanced Scene 1 input	< 1 byte unsigned	1 Byte	-WC---	[5.10] DPT_Value_1_Ucount
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					
259	Advanced Scene 1 input	< 2 bytes unsigned	2 Bytes	-WC---	[7.1] DPT_Value_2_Ucount
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					

259	Advanced Scene 1 input	< 2 bytes float	2 Bytes	-WC---	[9] 9.xxx
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					
259	Advanced Scene 1 input	< 2 bytes signed	2 Bytes	-WC---	[8.1] DPT_Value_2_Count
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					
259	Advanced Scene 1 input	< 4 bytes float	4 Bytes	-WC---	[14] 14.xxx
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					
259	Advanced Scene 1 input	< 4 bytes signed	4 Bytes	-WC---	[13.1] DPT_Value_4_Count
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					
259	Advanced Scene 1 input	< 4 bytes unsigned	4 Bytes	-WC---	[12.1] DPT_Value_4_Ucount
This is the input object to trigger a function of the advanced scene. Different values for this function can be set in the parameters like the play, record, stop and restore values.					
260	Advanced Scene 1 disable	< Disable = 1 / Enable = 0	1 Bit	RWC---	[1] 1.xxx
The scene can be disable with a 1					
260	Advanced Scene 1 disable	< Disable = 0 / Enable = 1	1 Bit	RWC---	[1] 1.xxx
The scene can be disable with a 0					
261	Advanced Scene 1 event 1	<> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the first event for the first advanced scene.					
261	Advanced Scene 1 event 1	<> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the first event for the first advanced scene.					
261	Advanced Scene 1 event 1	<> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the first event for the first advanced scene.					
261	Advanced Scene 1 event 1	<> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the first event for the first advanced scene.					
261	Advanced Scene 1 event 1	<> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the first event for the first advanced scene.					
261	Advanced Scene 1 event 1	<> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the first event for the first advanced scene.					
261	Advanced Scene 1 event 1	<> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the first event for the first advanced scene.					

261	Advanced Scene 1 event 1	<> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the first event for the first advanced scene.					
261	Advanced Scene 1 event 1	<> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the first event for the first advanced scene.					
261	Advanced Scene 1 event 1	<> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the first event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the second event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the second event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the second event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the second event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the second event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the second event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the second event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the second event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the second event for the first advanced scene.					
262	Advanced Scene 1 event 2	<> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the second event for the first advanced scene.					
263	Advanced Scene 1 event 3	<> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the third event for the first advanced scene.					

263	Advanced Scene 1 event 3	<> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the third event for the first advanced scene.					
263	Advanced Scene 1 event 3	<> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the third event for the first advanced scene.					
263	Advanced Scene 1 event 3	<> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the third event for the first advanced scene.					
263	Advanced Scene 1 event 3	<> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the third event for the first advanced scene.					
263	Advanced Scene 1 event 3	<> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the third event for the first advanced scene.					
263	Advanced Scene 1 event 3	<> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the third event for the first advanced scene.					
263	Advanced Scene 1 event 3	<> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the third event for the first advanced scene.					
263	Advanced Scene 1 event 3	<> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the third event for the first advanced scene.					
263	Advanced Scene 1 event 3	<> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the third event for the first advanced scene.					
264	Advanced Scene 1 event 4	<> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the fourth event for the first advanced scene.					
264	Advanced Scene 1 event 4	<> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the fourth event for the first advanced scene.					
264	Advanced Scene 1 event 4	<> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the fourth event for the first advanced scene.					
264	Advanced Scene 1 event 4	<> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the fourth event for the first advanced scene.					
264	Advanced Scene 1 event 4	<> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the fourth event for the first advanced scene.					

264	Advanced Scene 1 event 4	<> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the fourth event for the first advanced scene.					
264	Advanced Scene 1 event 4	<> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the fourth event for the first advanced scene.					
264	Advanced Scene 1 event 4	<> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the fourth event for the first advanced scene.					
264	Advanced Scene 1 event 4	<> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the fourth event for the first advanced scene.					
264	Advanced Scene 1 event 4	<> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the fourth event for the first advanced scene.					
265	Advanced Scene 1 event 5	<> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the fifth event for the first advanced scene.					
265	Advanced Scene 1 event 5	<> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the fifth event for the first advanced scene.					
265	Advanced Scene 1 event 5	<> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the fifth event for the first advanced scene.					
265	Advanced Scene 1 event 5	<> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the fifth event for the first advanced scene.					
265	Advanced Scene 1 event 5	<> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the fifth event for the first advanced scene.					
265	Advanced Scene 1 event 5	<> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the fifth event for the first advanced scene.					
265	Advanced Scene 1 event 5	<> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the fifth event for the first advanced scene.					
265	Advanced Scene 1 event 5	<> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the fifth event for the first advanced scene.					
265	Advanced Scene 1 event 5	<> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the fifth event for the first advanced scene.					

265	Advanced Scene 1 event 5	<> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the fifth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the sixth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> 1 byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the sixth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the sixth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the sixth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the sixth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the sixth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the sixth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the sixth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the sixth event for the first advanced scene.					
266	Advanced Scene 1 event 6	<> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the sixth event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the seventh event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the seventh event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount

This is the seventh event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the seventh event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count
This is the seventh event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the seventh event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the seventh event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the seventh event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the seventh event for the first advanced scene.					
267	Advanced Scene 1 event 7	<> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the seventh event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> On / Off	1 Bit	-WCTU-	[1] 1.xxx
This is the eighth event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> 1 byte signed	1 Byte	-WCTU-	[6.10] DPT_Value_1_Count
This is the eighth event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> 0..100%	1 Byte	-WCTU-	[5.1] DPT_Scaling
This is the eighth event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> 1byte unsigned	1 Byte	-WCTU-	[5.10] DPT_Value_1_Ucount
This is the eighth event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> 2 bytes unsigned	2 Bytes	-WCTU-	[7.1] DPT_Value_2_Ucount
This is the eighth event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> 2 bytes float	2 Bytes	-WCTU-	[9] 9.xxx
This is the eighth event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> 2 bytes signed	2 Bytes	-WCTU-	[8.1] DPT_Value_2_Count

This is the eighth event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> 4 bytes unsigned	4 Bytes	-WCTU-	[12.1] DPT_Value_4_Ucount
This is the eighth event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> 4 bytes signed	4 Bytes	-WCTU-	[13.1] DPT_Value_4_Count
This is the eighth event for the first advanced scene.					
268	Advanced Scene 1 event 8	<> 4 bytes float	4 Bytes	-WCTU-	[14] 14.xxx
This is the eighth event for the first advanced scene.					
359	Timer 1 trigger	< On / Off	1 Bit	-WC---	[1] 1.xxx
This is to trigger the first timer					
359	Timer 1 trigger	< 1 byte signed	1 Byte	-WC---	[6.10] DPT_Value_1_Count
This is to trigger the first timer (only for delay)					
359	Timer 1 trigger	< 1 byte scaling	1 Byte	-WC---	[5.1] DPT_Scaling
This is to trigger the first timer (only for delay)					
359	Timer 1 trigger	< 1 byte unsigned	1 Byte	-WC---	[5.10] DPT_Value_1_Ucount
This is to trigger the first timer (only for delay)					
359	Timer 1 trigger	< 2 bytes unsigned	2 Bytes	-WC---	[7.1] DPT_Value_2_Ucount
This is to trigger the first timer (only for delay)					
359	Timer 1 trigger	< 2 bytes float	2 Bytes	-WC---	[9] 9.xxx
This is to trigger the first timer (only for delay)					
359	Timer 1 trigger	< 2 bytes signed	2 Bytes	-WC---	[8.1] DPT_Value_2_Count
This is to trigger the first timer (only for delay)					
359	Timer 1 trigger	< 4 bytes unsigned	4 Bytes	-WC---	[12.1] DPT_Value_4_Ucount
This is to trigger the first timer (only for delay)					
359	Timer 1 trigger	< 4 bytes signed	4 Bytes	-WC---	[13.1] DPT_Value_4_Count
This is to trigger the first timer (only for delay)					
359	Timer 1 trigger	< 4 bytes float	4 Bytes	-WC---	[14] 14.xxx
This is to trigger the first timer (only for delay)					
360	Timer 1 change stair-case factor	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount

With this object the ON time of the timer can be changed. If the base is equal to 1 second, this object will change the time in seconds. If the base is 1 minute the value sent to the object is equal to the minutes the staircase will be ON, etc.					
361	Timer 1 warning pulse	> On / Off	1 Bit	R-CT--	[1.1] DPT_Switch
An additional object can be activated to send a warning pulse to inform that the staircase is about to expire and therefore have time to react in order to trigger it again.					
362	Timer 1 disable	< Disable = 0 / Enable = 1	1 Bit	RWC---	[1] 1.xxx
The timer can be disabled by this object by sending a 0					
363	Timer 1 output	> On / Off	1 Bit	--CT--	[1.1] DPT_Switch
This is the output object of the timer.					
363	Timer 1 output	> 1 byte signed	1 Byte	--CT--	[6.10] DPT_Value_1_Count
This is the output object of the timer. (only for the delay function)					
363	Timer 1 output	> 1 byte unsigned	1 Byte	--CT--	[5.10] DPT_Value_1_Ucount
This is the output object of the timer. (only for the delay function)					
363	Timer 1 output	> 1 byte scaling	1 Byte	--CT--	[5.1] DPT_Scaling
This is the output object of the timer. (only for the delay function)					
363	Timer 1 output	> 2 bytes float	2 Bytes	--CT--	[9] 9.xxx
This is the output object of the timer. (only for the delay function)					
363	Timer 1 output	> 2 bytes unsigned	2 Bytes	--CT--	[7.1] DPT_Value_2_Ucount
This is the output object of the timer. (only for the delay function)					
363	Timer 1 output	> 2 bytes signed	2 Bytes	--CT--	[8.1] DPT_Value_2_Count
This is the output object of the timer. (only for the delay function)					
363	Timer 1 output	> 4 bytes signed	4 Bytes	--CT--	[13.1] DPT_Value_4_Count
This is the output object of the timer. (only for the delay function)					
363	Timer 1 output	> 4 bytes unsigned	4 Bytes	--CT--	[12.1] DPT_Value_4_Ucount
This is the output object of the timer. (only for the delay function)					
363	Timer 1 output	> 4 bytes float	4 Bytes	--CT--	[14] 14.xxx
This is the output object of the timer. (only for the delay function)					
409	Setpoint 1 output regulator	> On / Off	1 Bit	R-CT--	[1] 1.xxx
This is the output of the two point regulator for the first setpoint. This output will switch ON or OFF depending on the parametrized values when crossing the threshold values					
410	Setpoint 1 setpoint value/status	<> 0..100%	1 Byte	RWCT--	[5.1] DPT_Scaling

The desired setpoint value can be adjusted with this object. The same object will be used to send the current setpoint status value. This status value will be sent when changing from heat to cool and depending on the parameters when blocking and unblocking the setpoint					
410	Setpoint 1 setpoint value/status	<> 1 byte unsigned	1 Byte	RWCT--	[5.10] DPT_Value_1_Ucount
The desired setpoint value can be adjusted with this object. The same object will be used to send the current setpoint status value. This status value will be sent when changing from heat to cool and depending on the parameters when blocking and unblocking the setpoint					
410	Setpoint 1 setpoint value/status	<> 2 bytes float	2 Bytes	RWCT--	[9] 9.xxx
The desired setpoint value can be adjusted with this object. The same object will be used to send the current setpoint status value. This status value will be sent when changing from heat to cool and depending on the parameters when blocking and unblocking the setpoint					
410	Setpoint 1 setpoint value/status	<> 2 bytes unsigned	2 Bytes	RWCT--	[7.1] DPT_Value_2_Ucount
The desired setpoint value can be adjusted with this object. The same object will be used to send the current setpoint status value. This status value will be sent when changing from heat to cool and depending on the parameters when blocking and unblocking the setpoint					
410	Setpoint 1 setpoint value/status	<> 4 bytes float	4 Bytes	RWCT--	[14] 14.xxx
The desired setpoint value can be adjusted with this object. The same object will be used to send the current setpoint status value. This status value will be sent when changing from heat to cool and depending on the parameters when blocking and unblocking the setpoint					
410	Setpoint 1 setpoint value/status	<> 4 bytes unsigned	4 Bytes	RWCT--	[12.1] DPT_Value_4_Ucount
The desired setpoint value can be adjusted with this object. The same object will be used to send the current setpoint status value. This status value will be sent when changing from heat to cool and depending on the parameters when blocking and unblocking the setpoint					
411	Setpoint 1 Heat / Cool	< Heat = 1 / Cool = 0	1 Bit	RWC---	[1] 1.xxx
With this object the two point regulator will change from heat to cool mode. This will cause the threshold to change from: (Lower threshold = Setpoint at Cool = 0) and (Upper threshold = Setpoint at Heat = 1)					
412	Setpoint 1 input ext. sensor value	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This is the analog value which will be used as the input for the setpoint					
412	Setpoint 1 input ext. sensor value	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount
This is the analog value which will be used as the input for the setpoint					
412	Setpoint 1 input ext. sensor value	< 2 bytes float	2 Bytes	RWC---	[9] 9.xxx
This is the analog value which will be used as the input for the setpoint					
412	Setpoint 1 input ext. sensor value	< 2 byte unsigned	2 Bytes	RWC---	[7.1] DPT_Value_2_Ucount
This is the analog value which will be used as the input for the setpoint					
412	Setpoint 1 input ext. sensor value	< 4 bytes float	4 Bytes	RWC---	[14] 14.xxx

This is the analog value which will be used as the input for the setpoint					
412	Setpoint 1 input ext. sensor value	< 4 bytes unsigned	4 Bytes	RWC---	[12.1] DPT_Value_4_Ucount
This is the analog value which will be used as the input for the setpoint					
413	Setpoint 1 disable	< On / Off	1 Bit	RWC---	[1] 1.xxx
The setpoint can be disabled with this object					
413	Setpoint 1 disable	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount
The setpoint can be disabled with this object. This can also be used to change the HVAC mode when linking this object of more than one setpoint to the same group address but with different enable values. E.g. If setpoint 1 is enabled by the value 1 and setpoint 2 by the value 2, then setpoint 1 can be the comfort mode and setpoint 2 standby mode.					
559	[A1] Switching On / Off	< On / Off	1 Bit	-WC---	[1.1] DPT_Switch
With this object the switching channels relay will be closed when receiving a 1/ON when configured as N.O. contact. On the other hand it will be opened when receiving a 1/ON when configured as N.C. contact.					
559	[A] Move	< 0=up/1=down	1 Bit	-WC---	[1.8] DPT_UpDown
This object is to move the blind up=0 or down=1					
560	[A1] Switching toggle/inverted	< Inverted	1 Bit	-WC---	[1.1] DPT_Switch
With this object the switching channels relay will be closed when receiving a 0/OFF when configured as N.O. contact. On the other hand it will be opened when receiving a 0/OFF when configured as N.C. contact, if so configured in the parameters to invert. But it can also be used to toggle the output regardless of the previous state of the output. The value to do this can also be configured in the parameters					
560	[A] Stop (Blind=Stop/step)	< 0=stop/step, 1=stop/step	1 Bit	-WC---	[1] 1.xxx
This is to stop/step the blind 0=stop/step up, 1=stop/step down					
560	[A1] Switching toggle/inverted	< Toggle only with 0	1 Bit	-WC---	[1.1] DPT_Switch
With this object the switching channels relay will be closed when receiving a 0/OFF when configured as N.O. contact. On the other hand it will be opened when receiving a 0/OFF when configured as N.C. contact, if so configured in the parameters to invert. But it can also be used to toggle the output regardless of the previous state of the output. The value to do this can also be configured in the parameters					
560	[A1] Switching toggle/inverted	< Toggle with 0 and 1	1 Bit	-WC---	[1.1] DPT_Switch
With this object the switching channels relay will be closed when receiving a 0/OFF when configured as N.O. contact. On the other hand it will be opened when receiving a 0/OFF when configured as N.C. contact, if so configured in the parameters to invert. But it can also be used to toggle the output regardless of the previous state of the output. The value to do this can also be configured in the parameters					
560	[A1] Switching toggle/inverted	< Toggle only with 1	1 Bit	-WC---	[1.1] DPT_Switch
With this object the switching channels relay will be closed when receiving a 0/OFF when configured as N.O. contact. On the other hand it will be opened when receiving a 0/OFF when configured as N.C. contact, if so configured in the parameters to invert. But it can also be used to toggle the output regardless of the previous state of the output. The value to do this can also be configured in the parameters					
561	[A1] Switching status	> On / Off	1 Bit	R-CT--	[1.1] DPT_Switch
This is the current status of the channel. The sending behaviour can be changed by the parameters					
561	[A] Move to position	< 0..100%	1 Byte	-WC---	[5.1] DPT_Scaling

The blind can be moved to a specific absolute position with this object.					
562	[A1] RunHour counter value	> 1 byte unsigned	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
The runhour value of this channel will be sent to the bus. The frequency to be sent can be adjusted. It can also be set to send different values than hours, when using the advanced functions of the runhour. Please see the parameter description.					
562	[A] Move slat	< 0..100%	1 Byte	-WC---	[5.1] DPT_Scaling
This object is to move the slats to an absolute position.					
562	[A1] RunHour counter value	> 2 bytes unsigned	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
The accumulated ON time of the channel is called the runhours and it is sent by this object. The frequency and values to be sent can be changed in the application program. One can even apply different multiplying or division factors in the application.					
562	[A1] RunHour counter value	> 4 bytes unsigned	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
The accumulated ON time of the channel is called the runhours and it is sent by this object. The frequency and values to be sent can be changed in the application program. One can even apply different multiplying or division factors in the application.					
563	[A] Change upper limit	<> 0..100%	1 Byte	RWCT--	[5.1] DPT_Scaling
The blinds can have limits configured in the parameters and the upper limit can be changed by using this object. Should an invalid value (upper limit must be smaller than lower limit) be sent to this object it will be rejected and the previous value will be restored and sent to the bus.					
563	[A1] RunHour counter threshold	< Reading/writing threshold	1 Byte	RWCT--	[5.10] DPT_Value_1_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
563	[A1] RunHour counter threshold	< Reading threshold	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
563	[A1] RunHour counter threshold	< Reading/writing threshold	2 Bytes	RWCT--	[7.1] DPT_Value_2_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
563	[A1] RunHour counter threshold	< Reading threshold	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
563	[A1] RunHour counter threshold	< Reading/writing threshold	4 Bytes	RWCT--	[12.1] DPT_Value_4_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
563	[A1] RunHour counter threshold	< Reading threshold	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
564	[A1] RunHour counter alarm	> 1 = Alarm, 0 = No alarm	1 Bit	R-CT--	[1] 1.xxx
When crossing the threshold value the threshold alarm object will send an alarm message.					
564	[A] Change lower limit	<> 0..100%	1 Byte	RWCT--	[5.1] DPT_Scaling

The blinds can have limits configured in the parameters and the lower limit can be changed by using this object. Should an invalid value (upper limit must be smaller than lower limit) be sent to this object it will be rejected and the previous value will be restored and sent to the bus.					
565	[A1] RunHour counter reset	< 1 = Reset, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
The runhour counter can be reset by this object in order to start counting again from zero. In the parameters one can “to zero or if the counter object should maintain and send the last value at reset					
565	[A] Status blind position	> 0..100%	1 Byte	R-CT--	[5.1] DPT_Scaling
This object sends the absolute blind status. The sending conditions can be set in the parameters.					
566	[A] Status blind lower end position	> 1 = Totally down / 0 = not	1 Bit	R-CT--	[1] 1.xxx
When reaching the lower end position this object will send a 1, for any other position this object will be 0.					
566	[A1] RunHour counter value at reset	> 1 byte unsigned	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the runhour counter at reset.					
566	[A1] RunHour counter value at reset	> 2 bytes unsigned	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the runhour counter at reset.					
566	[A1] RunHour counter value at reset	> 4 bytes unsigned	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the runhour counter at reset.					
567	[A] Status blind upper end position	> 1 = Totally up / 0 = not	1 Bit	R-CT--	[1] 1.xxx
When reaching the upper end position this object will send a 1, for any other position this object will be 0.					
567	[A1] Switching counter value	> 1 byte unsigned	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
This object sends the number of switching’s, whether to count when it switches ON, OFF or both can be configured in the parameters					
567	[A1] Switching counter value	> 2 bytes unsigned	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
This object sends the number of switching’s, whether to count when it switches ON, OFF or both can be configured in the parameters					
567	[A1] Switching counter value	> 4 bytes unsigned	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
This object sends the number of switching’s, whether to count when it switches ON, OFF or both can be configured in the parameters					
568	[A] Status slat position	> 0..100%	1 Byte	R-CT--	[5.1] DPT_Scaling
This sends the status of the slat position after each movement.					
568	[A1] Switching counter threshold	< Reading/writing threshold	1 Byte	RWCT--	[5.10] DPT_Value_1_Ucount
This object is to read and write the threshold value.					
568	[A1] Switching counter threshold	< Reading threshold	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
This object is to only read the threshold value.					
568	[A1] Switching counter threshold	< Reading threshold	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount

This object is to only read the threshold value.					
568	[A1] Switching counter threshold	< Reading/writing threshold	2 Bytes	RWCT--	[7.1] DPT_Value_2_Ucount
This object is to read and write the threshold value.					
568	[A1] Switching counter threshold	< Reading threshold	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
This object is to only read the threshold value.					
568	[A1] Switching counter threshold	< Reading/writing threshold	4 Bytes	RWCT--	[12.1] DPT_Value_4_Ucount
This object is to read and write the threshold value.					
569	[A] Preset 1 execute	< 1 = Execute, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
With a 1 this preset will be executed. 0 = No reaction					
569	[A1] Switching counter alarm	> 1 = Alarm, 0 = No alarm	1 Bit	R-CT--	[1] 1.xxx
When crossing the threshold value the threshold alarm object will send an alarm message.					
570	[A] Preset 2 execute	< 1 = Execute, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
With a 1 this preset will be executed. 0 = No reaction					
570	[A1] Switching counter reset	< 1 = Reset, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
The switching counter can be reset by this object in order to start counting again from zero. In the parameters one can decide to reset to zero or if the counter object maintain and send the last value at reset					
571	[A] Preset 3 execute	< 1 = Execute, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
With a 1 this preset will be executed. 0 = No reaction					
571	[A1] Switching counter value at reset	> 1 byte unsigned	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the switching counter at reset.					
571	[A1] Switching counter value at reset	> 2 bytes unsigned	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the switching counter at reset.					
571	[A1] Switching counter value at reset	> 4 bytes unsigned	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the switching counter at reset.					
572	[A] Preset 4 execute	< 1 = Execute, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
With a 1 this preset will be executed. 0 = No reaction					
572	[A1] Scene number	< Sc1 (0=Play 128=Rec)... Sc64	1 Byte	-WC---	[5.10] DPT_Value_1_Ucount
With this object any of the configured scenes of this channel can be triggered and/or recorded.					
573	[A1] Scene disable	< Disable = 1 / Enable = 0	1 Bit	RWC---	[1] 1.xxx

The scene function for this channel can be disabled by sending a 1 to this object					
573	[A1] Scene disable	< Disable = 0 / Enable = 1	1 Bit	RWC---	[1] 1.xxx
The scene function for this channel can be disabled by sending a 0 to this object					
573	[A] Preset 1 change move position	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This is to change the blind absolute movement position which will be set when calling preset 1					
574	[A1] Timer 1 trigger	< On / Off	1 Bit	-WC---	[1] 1.xxx
This is to trigger the first timer associated to the channel					
574	[A] Preset 2 change move position	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This is to change the blind absolute movement position which will be set when calling preset 2					
575	[A] Preset 3 change move position	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This is to change the blind absolute movement position which will be set when calling preset 3					
575	[A1] Timer 1 change staircase factor	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount
With this object the ON time of the first timer of this channel can be changed. If the base is equal to 1 second, this object will change the time in seconds. If the base is 1 minute the value sent to the object is equal to the minutes the staircase will be ON, etc.					
576	[A1] Timer 1 warning pulse	> On / Off	1 Bit	R-CT--	[1.1] DPT_Switch
An additional object can be activated to send a warning pulse to inform that the staircase is about to expire and therefore have time to react in order to trigger it again.					
576	[A] Preset 4 change move position	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This is to change the blind absolute movement position which will be set when calling preset 4					
577	[A1] Timer 1 disable	< Disable = 0 / Enable = 1	1 Bit	RWCT--	[1] 1.xxx
With this object the timer will be disabled by receiving a 0					
577	[A] Preset 1 change slat position	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This is to change the blind absolute slat position which will be set when calling preset 1					
578	[A1] Timer 2 trigger	< On / Off	1 Bit	-WC---	[1] 1.xxx
This is to trigger the second timer associated to the channel					
578	[A] Preset 2 change slat position	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This is to change the blind absolute slat position which will be set when calling preset 2					
579	[A] Preset 3 change slat position	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This is to change the blind absolute slat position which will be set when calling preset 3					
579	[A1] Timer 2 change staircase factor	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount

With this object the ON time of the second timer of this channel can be changed. If the base is equal to 1 second, this object will change the time in seconds. If the base is 1 minute the value sent to the object is equal to the minutes the staircase will be ON, etc.					
580	[A1] Timer 2 warning pulse	> On / Off	1 Bit	R-CT--	[1.1] DPT_Switch
An additional object can be activated to send a warning pulse to inform that the staircase is about to expire and therefore have time to react in order to trigger it again.					
580	[A] Preset 4 change slat position	< 0..100%	1 Byte	RWC---	[5.1] DPT_Scaling
This is to change the blind absolute slat position which will be set when calling preset 4					
581	[A] Preset 1 save	< 1 = Save, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
The current position of the blind and/or (depending on the parameters) the slats can be saved as the new preset 1 values when sending a 1 to this object					
581	[A1] Timer 2 disable	< Disable = 0 / Enable = 1	1 Bit	RWCT--	[1] 1.xxx
The timer can be disabled by this object by sending a 0					
582	[A] Preset 2 save	< 1 = Save, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
The current position of the blind and/or (depending on the parameters) the slats can be saved as the new preset 1 values when sending a 1 to this object					
582	[A1] Disable channel	< On / Off	1 Bit	RWCT--	[1] 1.xxx
The channel can be disabled by this object. In the parameters one can decide to disable with a 1 or a 0.					
583	[A] Preset 3 save	< 1 = Save, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
The current position of the blind and/or (depending on the parameters) the slats can be saved as the new preset 1 values when sending a 1 to this object					
583	[A2] Switching On / Off	< On / Off	1 Bit	-WC---	[1.1] DPT_Switch
With this object the switching channels relay will be closed when receiving a 1/ON when configured as N.O. contact. On the other hand it will be opened when receiving a 1/ON when configured as N.C. contact.					
584	[A2] Switching toggle/inverted	< Toggle only with 1	1 Bit	-WC---	[1.1] DPT_Switch
With this object the switching channels relay will be closed when receiving a 0/OFF when configured as N.O. contact. On the other hand it will be opened when receiving a 0/OFF when configured as N.C. contact, if so configured in the parameters to invert. But it can also be used to toggle the output regardless of the previous state of the output. The value to do this can also be configured in the parameters					
584	[A] Preset 4 save	< 1 = Save, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
The current position of the blind and/or (depending on the parameters) the slats can be saved as the new preset 1 values when sending a 1 to this object					
584	[A2] Switching toggle/inverted	< Toggle with 0 and 1	1 Bit	-WC---	[1.1] DPT_Switch
With this object the switching channels relay will be closed when receiving a 0/OFF when configured as N.O. contact. On the other hand it will be opened when receiving a 0/OFF when configured as N.C. contact, if so configured in the parameters to invert. But it can also be used to toggle the output regardless of the previous state of the output. The value to do this can also be configured in the parameters					
584	[A2] Switching toggle/inverted	< Toggle only with 0	1 Bit	-WC---	[1.1] DPT_Switch
With this object the switching channels relay will be closed when receiving a 0/OFF when configured as N.O. contact. On the other hand it will be opened when receiving a 0/OFF when configured as N.C. contact, if so configured in the parameters to invert. But it can also be used to toggle the output regardless of the previous state of the output. The value to do this can also be configured in the parameters					
584	[A2] Switching tog-	< Inverted	1 Bit	-WC---	[1.1] DPT_Switch

	gle/inverted				
With this object the switching channels relay will be closed when receiving a 0/OFF when configured as N.O. contact. On the other hand it will be opened when receiving a 0/OFF when configured as N.C. contact, if so configured in the parameters to invert. But it can also be used to toggle the output regardless of the previous state of the output. The value to do this can also be configured in the parameters					
585	[A2] Switching status	> On / Off	1 Bit	R-CT--	[1.1] DPT_Switch
This is the current status of the channel. The sending behaviour can be changed by the parameters					
585	[A] Scene number	< Sc1 (0=Play 128=Rec)... Sc64	1 Byte	-WC---	[5.10] DPT_Value_1_Ucount
With this object any of the configured scenes of this channel can be triggered and/or recorded.					
586	[A] Scene disable	< Disable = 0 / Enable = 1	1 Bit	RWC---	[1] 1.xxx
The scene function for this channel can be disabled by sending a 0 to this object					
586	[A] Scene disable	< Disable = 1 / Enable = 0	1 Bit	RWC---	[1] 1.xxx
The scene function for this channel can be disabled by sending a 0 to this object					
586	[A2] RunHour counter value	> 1 byte unsigned	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
The runhour value of this channel will be sent to the bus. The frequency to be sent can be adjusted. It can also be set to send different values than hours, when using the advanced functions of the runhour. Please see the parameter description.					
586	[A2] RunHour counter value	> 2 bytes unsigned	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
The runhour value of this channel will be sent to the bus. The frequency to be sent can be adjusted. It can also be set to send different values than hours, when using the advanced functions of the runhour. Please see the parameter description.					
586	[A2] RunHour counter value	> 4 bytes unsigned	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
The runhour value of this channel will be sent to the bus. The frequency to be sent can be adjusted. It can also be set to send different values than hours, when using the advanced functions of the runhour. Please see the parameter description.					
587	[A] Disable channel	< On / Off	1 Bit	RWCT--	[1] 1.xxx
The channel can be disabled by this object. In the parameters one can decide to disable with a 1 or a 0.					
587	[A2] RunHour counter threshold	< Reading/writing threshold	1 Byte	RWCT--	[5.10] DPT_Value_1_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
587	[A2] RunHour counter threshold	< Reading threshold	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
587	[A2] RunHour counter threshold	< Reading threshold	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
587	[A2] RunHour counter threshold	< Reading/writing threshold	2 Bytes	RWCT--	[7.1] DPT_Value_2_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
587	[A2] RunHour counter threshold	< Reading threshold	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount

The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
587	[A2] RunHour counter threshold	< Reading/writing threshold	4 Bytes	RWCT--	[12.1] DPT_Value_4_Ucount
The threshold of the runhour counter can be changed by this object. When crossing the threshold value the threshold alarm object will send an alarm message.					
588	[A] Move inverted	< 1=up/0=down	1 Bit	-WC---	[1] 1.xxx
This object is to move the blind down with a 0 and up with a 1. It is very usual to send an all OFF telegram when leaving the house and mostly the clients want the blinds to go down in this case. By linking the all OFF telegram to this object instead of the normal move object the blinds will move DOWN and not UP					
588	[A2] RunHour counter alarm	> 1 = Alarm, 0 = No alarm	1 Bit	R-CT--	[1] 1.xxx
When crossing the threshold value the threshold alarm object will send an alarm message.					
589	[A] Disable limits / calibrate	< Disable =0 / En&calibrate =1	1 Bit	RWC---	[1] 1.xxx
With this object the limits (must be configured in the parameters) will be disabled when receiving a 0. When sending a 1 to this object the limits will be enabled and the blind will make a calibration movement.					
589	[A2] RunHour counter reset	< 1 = Reset, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
The runhour counter can be reset by this object in order to start counting again from zero. In the parameters one can decide to reset to zero or if the counter object maintain and send the last value at reset					
590	[A2] RunHour counter value at reset	> 1 byte unsigned	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the runhour counter at reset.					
590	[A2] RunHour counter value at reset	> 2 bytes unsigned	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the runhour counter at reset.					
590	[A2] RunHour counter value at reset	> 4 bytes unsigned	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the runhour counter at reset.					
591	[A2] Switching counter value	> 1 byte unsigned	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
This object sends the number of switching's, whether to count when it switches ON, OFF or both can be configured in the parameters					
591	[A2] Switching counter value	> 2 bytes unsigned	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
This object sends the number of switching's, whether to count when it switches ON, OFF or both can be configured in the parameters					
591	[A2] Switching counter value	> 4 bytes unsigned	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
This object sends the number of switching's, whether to count when it switches ON, OFF or both can be configured in the parameters					
592	[A2] Switching counter threshold	< Reading threshold	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
This object is to only read the threshold value.					
592	[A2] Switching counter threshold	< Reading/writing threshold	1 Byte	RWCT--	[5.10] DPT_Value_1_Ucount
This object is to read and write the threshold value.					

592	[A2] Switching counter threshold	< Reading/writing threshold	2 Bytes	RWCT--	[7.1] DPT_Value_2_Ucount
This object is to read and write the threshold value.					
592	[A2] Switching counter threshold	< Reading threshold	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
This object is to only read the threshold value.					
592	[A2] Switching counter threshold	< Reading/writing threshold	4 Bytes	RWCT--	[12.1] DPT_Value_4_Ucount
This object is to read and write the threshold value.					
592	[A2] Switching counter threshold	< Reading threshold	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
This object is to only read the threshold value.					
593	[A2] Switching counter alarm	> 1 = Alarm, 0 = No alarm	1 Bit	R-CT--	[1] 1.xxx
When crossing the threshold value the threshold alarm object will send an alarm message.					
594	[A2] Switching counter reset	< 1 = Reset, 0 = Nothing	1 Bit	-WC---	[1] 1.xxx
The switching counter can be reset by this object in order to start counting again from zero. In the parameters one can decide to reset to zero or if the counter object maintain and send the last value at reset					
595	[A2] Switching counter value at reset	> 1 byte unsigned	1 Byte	R-CT--	[5.10] DPT_Value_1_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the switching counter at reset.					
595	[A2] Switching counter value at reset	> 2 bytes unsigned	2 Bytes	R-CT--	[7.1] DPT_Value_2_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the switching counter at reset.					
595	[A2] Switching counter value at reset	> 4 bytes unsigned	4 Bytes	R-CT--	[12.1] DPT_Value_4_Ucount
In the parameters one can decide to activate this object and if it should store and send the last value of the switching counter at reset.					
596	[A2] Scene number	< Sc1 (0=Play 128=Rec)... Sc64	1 Byte	-WC---	[5.10] DPT_Value_1_Ucount
With this object any of the configured scenes of this channel can be triggered and/or recorded.					
597	[A2] Scene disable	< Disable = 1 / Enable = 0	1 Bit	RWC---	[1] 1.xxx
The scene function for this channel can be disabled by sending a 1 to this object					
597	[A2] Scene disable	< Disable = 0 / Enable = 1	1 Bit	RWC---	[1] 1.xxx
The scene function for this channel can be disabled by sending a 0 to this object					
598	[A2] Timer 1 trigger	< On / Off	1 Bit	-WC---	[1] 1.xxx
This is to trigger the first timer					
599	[A2] Timer 1 change staircase factor	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount
With this object the ON time of the first timer of this channel can be changed. If the base is equal to 1 second, this object will change the time in seconds. If the base is 1 minute the value sent to the object is equal					

to the minutes the staircase will be ON, etc.					
600	[A2] Timer 1 warning pulse	> On / Off	1 Bit	R-CT--	[1.1] DPT_Switch
An additional object can be activated to send a warning pulse to inform that the staircase is about to expire and therefore have time to react in order to trigger it again.					
601	[A2] Timer 1 disable	< Disable = 0 / Enable = 1	1 Bit	RWCT--	[1] 1.xxx
With this object the timer will be disabled by receiving a 0					
602	[A2] Timer 2 trigger	< On / Off	1 Bit	-WC---	[1] 1.xxx
This is to trigger the second timer					
603	[A2] Timer 2 change staircase factor	< 1 byte unsigned	1 Byte	RWC---	[5.10] DPT_Value_1_Ucount
With this object the ON time of the second timer of this channel can be changed. If the base is equal to 1 second, this object will change the time in seconds. If the base is 1 minute the value sent to the object is equal to the minutes the staircase will be ON, etc.					
604	[A2] Timer 2 warning pulse	> On / Off	1 Bit	R-CT--	[1.1] DPT_Switch
An additional object can be activated to send a warning pulse to inform that the staircase is about to expire and therefore have time to react in order to trigger it again.					
605	[A2] Timer 2 disable	< Disable = 0 / Enable = 1	1 Bit	RWCT--	[1] 1.xxx
With this object the timer will be disabled by receiving a 0					
606	[A2] Disable channel	< On / Off	1 Bit	RWCT--	[1] 1.xxx
The channel can be disabled by this object. In the parameters one can decide to disable with a 1 or a 0.					

3 Parameter

3.1 Parameter page: General Settings

Parameter	Settings
DEVICE NAME	**Power Block**
Here a personalized name for each device can be entered. E.g. **Power Block living room**	
Outputs	No **Yes**
Use this parameter to activate or deactivate all outputs parameters and their objects. The outputs of the actuator are by default activated. Nevertheless, this device can also be used as an advanced controller module for logic functions, timers, etc. In this case, you can deactivate the outputs totally and completely hide all their options and objects by selecting “No”.	
ADVANCED FUNCTIONS	
All advanced features of the Power Block actuator can be activated or hidden as desired. It also serves as useful overview of all the functions available. These functions are totally channel-independent. You could even deactivate the outputs totally, thus converting the device into a pure controller module	
Alarms	**No** Yes
Use this parameter to activate or deactivate all alarm parameters and their objects.	
Logics	**No** Yes
Use this parameter to activate or deactivate all logic parameters and their objects.	
Scene controller	**No** Yes
Use this parameter to activate or deactivate all scene controller parameters and their objects.	
Advanced scene controller	**No** Yes
Use this parameter to activate or deactivate all advanced scene controller parameters and their objects.	
Timers	**No** Yes
Use this parameter to activate or deactivate all timer parameters and their objects.	
Setpoints	**No** Yes
Use this parameter to activate or deactivate all setpoint parameters and their objects.	
Internal variables	**No** Yes
Use this parameter to activate or deactivate all parameters for the internal variables.	

Overwrite end-user parameter values at download	No **Yes** Custom
By selecting “no” the end-user parameters will not be overwritten when downloading the application with the ETS. When selecting Custom the “ENDUSER PARAMETERS” tab will be activated in which almost each end-user parameter can be individually selected whether to overwrite or not.	
Central sending object for monitoring device	**No** Yes
Use this parameter to activate or deactivate the “Central cyclic telegram for monitoring” object. This object will send a cyclic ON telegram to the bus in order to supervise the device.	
Behaviour at bus recovery	**No** Yes
Use this parameter to activate or deactivate the behaviour at bus recovery.	

3.1.1 Parameter page: GENERAL SETTINGS / OUTPUTS

Parameter	Settings
Outputs	No **Yes**
The outputs of the actuator are by default activated. Nevertheless, this device can also be used as an advanced controller module for logic functions, timers, etc. In this case, you can deactivate the outputs totally and completely hide all their options and objects by selecting “No”.	

Parameter page: OUTPUTS

Parameter	Settings
CHANNEL A … CHANNEL H	**Binnary** Shutter / Blind No function
Each cannel can be configured either as Two Binary Channels or One Shutter/Blind Channel. If the channel is not meant to be used, you can hide all its options and tabs by choosing the “No Function” option.	
Central ON/OFF, UP/DOWN object	**No** One common object Two separate objects
In order to do a classic KNX “Central function”, this actuator has a specific option that allows for all the channel actions to be performed at once with only one or two objects. This considerably reduces the amount of group address associations (both meant to ease programmers work load, but also to reduce the actuator’s association table). Before we configure the function within the channel, we must activate one of the objects. The actuator has 1 or 2 Central ON/OFF, UP/DOWN objects for binary outputs and/or shutter: 1 common object = “Central switching/move blind” 2 separate objects = “Central switching” + “Central move”	
Manual control	Param Mode + Test Mode Param Mode Test Mode Disable

The Power Block actuator has 2 push buttons and status LEDs per each channel on the front side. These buttons can be used to control the current channel according to your selection in this parameter option. Please, see **Annex 1** to learn more about manual control. In this Parameter menu the behaviour of those push buttons and LEDS can be configured according to the following options: **Param Mode + Test Mode (default option)**: both modes will be available. When the actuator starts up, it finds itself in Parameter Mode. In order to change to Test Mode, you must: Binary: Long press to the binary push button Blinds: Long press to both buttons simultaneously. In both cases, press until the LED of the selected channel starts blinking (short blinking action once every second). To go back to Parameter Mode, you have to press the same button action than before again until the blinking stops. **Param Mode:** only this mode will be available. **Test Mode:** only this mode will be available. **Disable:** you can also deactivate the Manual Control functionality.	
Value for disable object	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
The Manual Control functionality can also disabled via an external object. The command used for enabling/disabling this function can be parameterized here.	

3.2 Parameter page: OUTPUTS / Channel A1…X1 (Binary)

Parameter	Settings
Type of contact	**NO-Normally open: ON=close, OFF=open** NC-Normally close: ON=open, OFF=close
Use this parameter option to set whether the output relay closes with ON (“1”) and opens with OFF (“0”) or if it closes with OFF (“0”) and opens with ON (“1”).	
Reaction on bus voltage failure	**Unchanged** ON OFF
Here you can select one of the following reactions**:** if “Unchanged”, whenever the bus voltage fails, the contact stays the same. If you choose ON/OFF, ***as soon as the bus voltage fails, the contact switches on/off (which means, independent of the type of contact, it closes/opens)***	
Reaction on bus voltage recovery	**Unchanged** ON OFF Recovery status before bus failure Timer 1 reaction at ON Timer 1 reaction at OFF

Here you can select one of the following reactions**:**
If “Unchanged”, whenever the bus voltage returns, the contact stays the same.
With ON/OFF, ***as soon as the bus voltage returns, the contact switches on/off (which means, independent of the type of contact, it closes/opens).***
With “Recovery status before bus failure**”,** the status of the output will be saved in the actuator’s non-volatile memory; therefore, when the actuator initializes, if this option has been chosen, it will switch the output as it was before the bus failure.
Each output has two timer functions. Only the first timer can be assigned to the reaction on bus voltage recovery.
Timer 1 reaction at ON: the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT ON” will be executed.
Timer 1 reaction at OFF: the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT OFF” will be executed.

Status	No **Yes**

While the option Yes activates the “Status tab”, No deactivates the “Status tab” and also the “Status object”.

Advanced functions	No **Yes**

The Power Block Actuator range is also a powerful controller module (logic, timer, counter, etc. module). You can find Advanced Functions:
In the General Settings parameter page: this a totally independent controller module, with its own input and output objects, which can work autonomously (no need to be linked to any actuator function).
On top of that, the most common advanced functions are also available within each and every channel. The main difference is that these are linked to the channel and cannot be used independent from it. This has the advantage that it is not necessary to use group addresses to link them, making configuration easier.

Manual control	**No** Yes

The Power Block actuator has 2 push buttons and status LEDs per each channel on the front side. These buttons can be used to control the current channel if you select “yes” in this parameter option.

Please, see **Annex 1** to learn more about manual control.

3.2.1 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / Status

Each channel has a separate tab to configure its status parameters, such as the different sending conditions.

Parameter	Settings
Send status telegram	**Only on change** Always Only on change - Inverted Always - Inverted No
Only on change: the status of the output will only be sent whenever the contact switches from on to off or vice versa. **Always:** after reception of each channel-dependent telegram (not only via the “Switching object”), the status will be sent to the bus. **Only on change – Inverted:** the inverted status of the output will only be sent whenever the contact switches from on to off or vice versa. **Always – Inverted:** after reception of each channel-dependent telegram (not only via the “Switching object”), the inverted status will be sent to the bus. **No:** the “Status object” of this channel will be hidden.	
Cyclic sending status telegram	**No** Only ON Only OFF Both ON / OFF
No: the status telegram is only sent once. **Only ON:** if the output changes to ON status, it will send the ON status cyclically. **Only OFF:** if the output changes to OFF status, it will send the OFF status cyclically. **Both ON / OFF:** in both cases (when the output changes to ON or OFF status), it will send the corresponding status cyclically. For these last three options the cyclic sending time can have a base of 10s, 1 min, 5 min, 10 min, 1 hour, and the factor can be from 1 to 255. Should a status telegram be sent (not because of cyclic sending) the cyclic sending time will be reset in order to avoid unwanted duplicate telegrams.	
Delay status telegram	**No** Yes
Depending on the previously configured sending condition, the Status telegram can also be sent to the bus with a time delay.	
Send status telegram at bus recovery ***Attention! Activate “Behaviour at bus recovery” & set delay in “General settings”.***	**No** Yes
With Yes, the status of the channel will be sent after bus recovery. This initial status telegram can also be sent with a delay, which can be configured in “General Settings/Behaviour at bus recovery” – “Delay for sending all status telegrams” If this delay is set, and the behaviour after bus recovery is set to switch the channel, this switching after bus recovery will not cause a status telegram to be sent to the bus. Only after the initial status delay (as described above) the status telegram will be sent. This delayed sending behaviour is to avoid that all the devices send their status at the same time after bus recovery (even if all outputs are switched at the same time after bus recovery) For example if the delay is set to be 10 seconds and the behaviour after bus return is set to switch the channel ON. Then the channel will be switched ON immediately after bus recovery (this will not cause any status telegrams to the bus) and then 10 seconds later the status telegrams will be sent.	

3.2.2 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS

Parameter	Settings
Central ON/OFF function	**No reaction** Any value = ON Any value = OFF 0 = OFF, 1 = ON 0 = ON, 1 = OFF Any value = Timer 1 reaction at ON 0 = X, 1 = ON 0 = OFF, 1 = X
No reaction: the channel has no reaction when the Central ON/OFF object/s receive/s a telegram. **Any value = ON:** the channel switches ON when the Central ON/OFF object/s receive/s any telegram (no matter whether “0” or “1” is received). **Any value = OFF:** the channel switches OFF when the Central ON/OFF object/s receive/s any telegram (no matter whether “0” or “1” is received). **0 = OFF, 1 = ON:** the channel switches OFF when the Central ON/OFF object/s receive/s a “0” and switches ON when receiving a “1”. **0 = ON, 1 = OFF:** the channel switches ON when the Central ON/OFF object/s receive/s a “0” and switches OFF when receiving a “1”. **Any value = Timer 1 reaction at ON:** when the Central ON/OFF object/s receive/s any value, the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT ON” will be executed **0 = X, 1 = ON:** the channel has no reaction when the Central ON/OFF object/s receive/s a “0” and switches ON when receiving a “1”. **0 = OFF, 1 = X:** the channel switches OFF when the Central ON/OFF object/s receive/s a “0” and has no reaction when receiving a “1”.	
Additional object	**No** Inverted Toggle only with 0 Toggle only with 1 Toggle with 0 and 1
No: this option hides the additional object. **Inverted:** if the contact has been configured as normally open (default option), it will switch ON with a “0” and switch OFF with a “1”. In other words, it does the opposite to the switching object. **Toggle only with 0:** the output will change its state from OFF to ON or vice versa when receiving “0” (it will ignore the telegram when receiving a “1”) **Toggle only with 1:** the output will change its state from OFF to ON or vice versa when receiving “1” (it will ignore the telegram when receiving a “0”) **Toggle with 0 and 1:** the output will change its state from OFF to ON or vice versa both when receiving “0” or “1”.	
Counters	**No** Yes
There are two counters (one “Run hour” and one “Switching”) per channel available, both of which can be configured to count up or down. **No:** this option hides the counter tab and all its objects and options. **Yes:** this option activates the counter tab.	
Scenes	**No** Yes
KNX standard 1 byte scenes: 1 Scene object per output. The advantage of having a Scene object per channel (and not only one for the all the channels) is that with the same Scene number, different scenes can be executed (since they are linked to another push button, with a different group address). Up to 8 scenes can be configured per channel.	

No: this option hides the Scenes tab and all scene related functions and object for the current channel. Yes: this option activates the Scene tab, with multiple functions and the Scene object for this channel.	
Timer 1 Timer 2	**No** Yes
There are two timers linked to the current channel and which can run parallel; also, they have their own triggering object each. These timers can be configured to works as ON and/or OFF Delay, Staircase, Delay and staircase, blinking, etc. No: the Timer tab and all timer related functions are hidden. Yes: the Timer tab and the trigger object will be available, but they have no function assigned and this must be configured in the Timer tab.	
Disable	**No** Yes
Each and every channel have a Disable object, which blocks all other functions of the channel. The behaviour at Disabling/Enabling can be configured per channel. No: the Disable object and tab will be hidden. Yes: this option activates the Disable object and tab.	
Alarms	**No** Yes
Now, in the Advanced Functions of the current channel, you can configure the behaviour of the channel when the alarm objects receive a telegram. After choosing the “Yes” option, the channel-related Alarms tab will be displayed.	

3.2.2.1 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters

There are two counters (one “Run hour” and one “Switching”) per channel available, both of which can be configured to count up or down.

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters / Run hour counter

Parameter	Settings
Run hour counter	**No** Upward Backward
No: this option hides the Run hour counter tab and all its objects and options. **Upward:** this option is used to count the accumulated time during which the channel has been switched ON. **Backward:** to count down from a configurable initial value.	

Parameter	Settings
Data point type of counter	1 byte unsigned 2 bytes unsigned **4 bytes unsigned**
Usually, a Run hour counter has a 4 bytes unsigned value. But 1 and 2 bytes unsigned can also be configured for the purpose of showing the value in info displays, which cannot display 4 bytes unsigned values.	
Initial value run hour counter	**No** Yes
Attention! After programming this value will only be overwritten if the new starting value is changed.	
This option gives you the possibility to establish an initial value from which the counting will start up. After downloading with the ETS this value will only be overwritten if the new starting value is changed. Practical example: should the actuator be installed in an existing installation, where the load connected to the current channel has already a known number of run-hours, this information can be used as the “New starting value”. But in a later stage, if some other parameter in the actuator must be changed and downloaded, the new current counter value will not be overwritten.	
Run hours threshold value	0
Attention! 0 = Deactivated	

Here you can enter the number of run hours that will trigger the 1 bit alarm object of the current channel. So, this alarm object will be activated and send a “1” to the bus as soon as the Run hour counter passes this threshold. Should the conversion factor be activated and set to be for example “Several run-hours increases 1 step” = 3, and the threshold value is set to 5 then the sequence will be as follows: 0,0,1,1,1,2,2,2,3,3,3,4,4,4,5,… The alarm is sent in the first 5 after 15 pulses. Attention, this alarm will also be sent to the bus immediately after bus recovery.	
Object for reading / writing the threshold value	**No** Only readable Readable and writable
Only readable: this option will activate an unsigned counter object, which can be read by the ETS/other KNX devices. **Readable and writable:** this option will activate an unsigned counter object, which can be read and overwritten by the ETS/other KNX devices. This is meant to allow changing the threshold value with, for instance, a visualization.	
Reaction on overflow (Max. value of DPT) Attention! Both counter & alarm objects will be set to zero	**Reset to 0 and start again** Stay at maximum
Important note: the overflow must not be mistaken with the threshold value, since they are two totally different concepts: An overflow is reached when the object value exceeds the maximum value of the selected data point type. For example, the maximum value of a 1 byte unsigned value is 255; therefore, the overflow is reached when the object value exceeds 255. On the other hand, the threshold refers to any given value of your choice that is valid for this DPT. **Reset to 0 and start again:** when then overflow is reached, the object will start counting from 0 again. Attention! In this case the alarm object will also be set to zero, otherwise one would not know if the threshold has newly been reached or not. **Stay at maximum:** in the event of the overflow being reached, the object will stop at the maximum value of the DPT.	
Additional functions	**No** Yes
In order to keep the application program as easy as possible, only the main and most important functions are displayed at first sight. You will often find the possibility to activate the Additional or Advanced Functions, which disclose new functions that are not essential, but can be very useful.	

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters / Run hour counter – UP / ADDITIONAL FUNCTONS

Parameter	Settings
Cyclic sending of counter value	**No** Yes
When this function is activated, the corresponding object will not send the telegram once, but repeat it infinitely.	
Counter values are sent to the bus every: (Run hours)	1
Enter here the number of hours that must go by before the counter sends its value to the bus. This option is meant to reduce the bus traffic. For instance, if you enter a “5”, the counter will send its first value whenever the accumulated ON time of the channel has reached 5 hours and will then send the value 5 to the bus (10, 15, 20, 25, 30, 35…).	

Conversion factor	**None** Several hours increases 1 step 1 hour increases several steps
None: for each 1 hour accumulated ON time of the channel, the counter increases 1 step. **Several hours increases 1 step:** define here the number of accumulated ON time (in hours) that must go by for the counter to increase 1 step. **1 hour increases several steps:** define here the step increment for each hour of accumulated ON time. For example, after 8 accumulated ON time hours, the counter will have increased 8 x 10 (= 80) steps.	
Send last value of counter at reset by counter object	**No** Yes
No: if you reset the counter by using the 1 bit reset object, the last value of the counter will not be sent to the bus by the counter object. Instead, a “0” will be sent to indicate it has been reset. **Yes:** if you reset the counter by using the 1 bit reset object, the counter object will send its current value before reset to the bus and afterwards it will not reset to 0 but stay at its last value. Only at the next counter step, will the first counter step be sent to the bus. Thus the counter will never have the value “0”.	
Additional object to store last value of counter on reset	**No** Yes Yes and send
No: no additional object to store the last value of the counter on reset will be activated. **Yes:** an additional object to store the last value of the counter on reset will be activated. This object can work parallel with the previous option (Last value of counter at reset by counter object) and it is mainly there to store this last value until the next reset, whereas the counter object only stores it for a short time (until next counter pulse). **Yes and send:** an additional object to store and send the last value of the counter on reset will be activated. This object can work parallel with the previous option (Last value of counter at reset by counter object) and it is mainly there to store this last value until the next reset, whereas the counter object only stores it for a short time (until next counter pulse). This value will then be sent after reset using this additional object.	

3.2.2.2 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters / Run hour counter - BACK

Parameter	Settings
Data point type of counter	1 byte unsigned 2 bytes unsigned **4 bytes unsigned**
Usually, a Run hour counter has a 4 bytes unsigned value. But 1 and 2 bytes unsigned can also be configured for the purpose of showing the value in info displays, which cannot display 4 bytes unsigned values.	
Initial value run hour counter	**8000**
Attention! After programming this value will only be overwritten is the new starting value is changed.	

Here you can establish an initial value from which the counter will count back. After downloading with the ETS this value will only be overwritten if the new starting value is changed. Introduce here the lifespan of the connected load according to its data sheet which then can be used to supervise the lifespan of a lamp or any given load. It sends an alarm telegram when reaching the value zero. So instead of changing the lamp/load when it fails, it can be done before as a proactive measure. This is especially useful in halls with high ceilings. It cost more for a maintenance callout for changing individual bulbs every time they brake, than making a bulk replacement of all bulbs which or are close to or have reached zero, even though they are still working. Should the conversion factor be activated and set to be for example “Several triggers decreases 1 step” = 3, and the “Initial value switching counter” is set to 5 then the sequence will be as follows: 444,333,222,111,000, and only at the last 0 the alarm will be sent.	
Reaction on reaching zero	Stay at zero **Reset to initial value and start again**
Stay at zero: once the counter reaches 0, it will stay there until it has been reset. **Reset to initial value and start again:** once the counter reaches 0, it will start counting back again starting from the initial value of the run hour counter (as parameterized in the previous option).	
Additional functions	**No** Yes
In order to keep the application program as easy as possible, only the main and most important functions are displayed at first sight. You will often find the possibility to activate the Additional or Advanced Functions, which disclose new functions that are not essential, but can be very useful.	

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters / Run hour counter – BACK / ADDITIONAL FUNCTONS

Parameter	Settings
Cyclic sending of counter value	**No** Yes
When this function is activated, the corresponding object will not send the telegram once, but repeat it infinitely.	
Counter values are sent to the bus every: (Run hours)	1
Enter here the number of hours that must go by before the counter sends its value to the bus. This option is meant to reduce the bus traffic. For instance, if you enter a “5”, the counter will have to count back 5 more hours in order to send the next value to the bus (60, 55, 50, 45, 40…).	
Conversion factor	**None** Several hours decreases 1 step 1 hour decreases several steps
None: for each 1 hour accumulated ON time of the channel, the counter decreases 1 step. **Several hours decrease 1 step:** define here the number of accumulated ON time (in hours) that must go by for the counter to decrease 1 step. **1 hour decrease several steps:** define here the step decrement for each hour of accumulated ON time. For example, after 8 accumulated ON time hours, the counter will have decreased 8 x 10 (= 80) steps.	
Send last value of counter at reset by counter object	**No** Yes
No: if you reset the counter by using the 1 bit reset object, the last value of the counter will not be sent to the bus by the counter object. Instead, a “0” will be sent to indicate it has been reset. **Yes:** if you reset the counter by using the 1 bit reset object, the counter object will send its current value before reset to the bus and afterwards it will not reset to 0 but stay at its last value. Only at the next counter step, will the first counter step be sent to the bus. Thus the counter will never have the value “0”.	
Additional object to store last value of counter on reset	**No** Yes

	Yes and send
No: no additional object to store the last value of the counter on reset will be activated. **Yes:** an additional object to store the last value of the counter on reset will be activated. This object can work parallel with the previous option (Last value of counter at reset by counter object) and it is mainly there to store this last value until the next reset, whereas the counter object only stores it for a short time (until next counter pulse). **Yes and send:** an additional object to store and send the last value of the counter on reset will be activated. This object can work parallel with the previous option (Last value of counter at reset by counter object) and it is mainly there to store this last value until the next reset, whereas the counter object only stores it for a short time (until next counter pulse). This value will then be sent after reset using this additional object.	

3.2.2.3 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters / Switching counter

Parameter	Settings
Switching counter	**No** Upward Backward
No: this option hides the Switching counter tab and all its objects and options. **Upward:** this option is used to count the accumulated switching operations of the current channel. **Backward:** to count down from a configurable initial value.	

3.2.2.4 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters / Switching counter - UP

Parameter	Settings
Data point type of counter	1 byte unsigned 2 bytes unsigned **4 bytes unsigned**
Usually, a Switching counter has a 4 bytes unsigned value. But 1 and 2 bytes unsigned can also be configured for the purpose of showing the value in info displays, which cannot display 4 bytes unsigned values.	
Count number of switching's on:	**Only ON** Only OFF ON and OFF
Only ON: the counter will increase only with ON operations. **Only OFF:** the counter will increase only with OFF operations. **ON and OFF:** the counter will increase with both ON and OFF operations.	
Initial value switching counter	**No** Yes
Attention! After programming this value will only be overwritten is the new starting value is changed.	

This option gives you the possibility to establish an initial value from which the counting will start up

After downloading with the ETS this value will only be overwritten if the new starting value is changed.

Practical example: should the actuator be installed in an existing installation, where the load connected to the current channel has already a known number of switching operations, this information can be used as the “New starting value”. But in a later stage, if some other parameter in the actuator must be changed and downloaded, the new current counter value will not be overwritten.

Switching threshold value ***Attention! 0 = Deactivated***	0

Here you can enter the number of switching operations that will trigger the 1 bit alarm object of the current channel. So, this alarm object will be activated and send a “1” to the bus as soon as the switching counter passes this threshold.

Should the conversion factor be activated and set to be for example “Several switching’s increases 1 step” = 3, and the threshold value is set to 5 then the sequence will be as follows: 0,0,1,1,1,2,2,2,3,3,3,4,4,4,5,… The alarm is sent in the first 5 after 15 pulses.

Attention, this alarm will also be sent to the bus immediately after bus recovery.

Object for reading / writing the threshold value	**No** Only readable Readable and writable

Only readable: this option will activate an unsigned counter object, which can be read by the ETS/other KNX devices.
Readable and writable: this option will activate an unsigned counter object, which can be read and overwritten by the ETS/other KNX devices. This is meant to allow changing the threshold value with, for instance, a visualization.

Reaction on overflow (Max. value of DPT) Attention! Both counter & alarm objects will be set to zero	**Reset to 0 and start again** Stay at maximum

Important note: the overflow must not be mistaken with the threshold value, since they are two totally different concepts:
An overflow is reached when the object value exceeds the maximum value of the selected data point type. For example, the maximum value of a 1 byte unsigned value is 255; therefore, the overflow is reached when the object value exceeds 255.
On the other hand, the threshold refers to any given value of your choice that is valid for this DPT.
Reset to 0 and start again: when then overflow is reached, the object will start counting from 0 again. Attention! In this case the alarm object will also be set to zero, otherwise one would not know if the threshold has newly been reached or not.
Stay at maximum: in the event of the overflow being reached, the object will stop at the maximum value of the DPT.

Additional functions	**No** Yes

In order to keep the application program as easy as possible, only the main and most important functions are displayed at first sight. You will often find the possibility to activate the Additional or Advanced Functions, which disclose new functions that are not essential, but can be very useful.

b) Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters / Switching counter – UP / ADDITIONAL FUNCTONS

Parameter	Settings
Cyclic sending of counter value	**No** Yes
When this function is activated, the corresponding object will not send the telegram once, but repeat it infinitely.	
Counter values are sent to the bus every: (Switchings)	1
Enter here the number of switching operations that be executed before the counter sends its value to the bus. This option is meant to reduce the bus traffic. For instance, if you enter a “50”, the counter will send its first value whenever the accumulated switching operations of the channel amount to 50 and will then send the value 50 to the bus (50, 100, 150, 200, 250…).	
Conversion factor	**None** Several hours increases 1 step 1 hour increases several steps
None: for each switching operation of the channel, the counter increases 1 step. **Several hours increases 1 step:** define here the number of switching operations that must be executed for the counter to increase 1 step. **1 hour increases several steps:** define here the step increment for each switching operation. For example, after 50 switching operations, the counter will have increased 50 x 10 (= 500) steps.	
Send last value of counter at reset by counter object	**No** Yes
No: if you reset the counter by using the 1 bit reset object, the last value of the counter will not be sent to the bus by the counter object. Instead, a “0” will be sent to indicate it has been reset. **Yes:** if you reset the counter by using the 1 bit reset object, the counter object will send its current value before reset to the bus and afterwards it will not reset to 0 but stay at its last value. Only at the next counter step, will the first counter step be sent to the bus. Thus the counter will never have the value “0”.	
Additional object to store last value of counter on reset	**No** Yes Yes and send
No: no additional object to store the last value of the counter on reset will be activated. **Yes:** an additional object to store the last value of the counter on reset will be activated. This object can work parallel with the previous option (Last value of counter at reset by counter object) and it is mainly there to store this last value until the next reset, whereas the counter object only stores it for a short time (until next counter pulse). **Yes and send:** an additional object to store and send the last value of the counter on reset will be activated. This object can work parallel with the previous option (Last value of counter at reset by counter object) and it is mainly there to store this last value until the next reset, whereas the counter object only stores it for a short time (until next counter pulse). This value will then be sent after reset using this additional object.	

3.2.2.5 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters / Switching counter - BACK

Parameter	Settings
Data point type of counter	1 byte unsigned 2 bytes unsigned **4 bytes unsigned**

Usually, a Run hour counter has a 4 bytes unsigned value. But 1 and 2 bytes unsigned can also be configured for the purpose of showing the value in info displays, which cannot display 4 bytes unsigned values.	
Count number of switching's on	**Only ON** Only OFF ON and OFF
Only ON: the counter will decrease only with ON operations. **Only OFF:** the counter will decrease only with OFF operations. **ON and OFF:** the counter will decrease with both ON and OFF operations.	
Initial value switching counter *Attention! After programming this value will only be overwritten is the new starting value is changed.*	**8000**
Here you can establish an initial value from which the counter will count back. Attention! This value will never be sent. The 1st value sent will be the first decreased value. It will send a 1 bit alarm telegram with the value "1" when reaching the value zero. After downloading with the ETS this value will only be overwritten if the new starting value is changed. Introduce here the maximum number of switching's of the connected load, (according to its data sheet) which then can be used to supervise the lifespan of a lamp or any given load. It sends an alarm telegram when reaching the value zero. So instead of changing the lamp/load when it fails, it can be done before as a proactive measure. This is especially useful in halls with high ceilings. It cost more for a maintenance callout for changing individual bulbs every time they brake, than making a bulk replacement of all bulbs which or are close to or have reached zero, even though they are still working. Should the conversion factor be activated and set to be for example "Several triggers decreases 1 step" = 3, and the "Initial value switching counter" is set to 5 then the sequence will be as follows: 444,333,222,111,000, and only at the last 0 the alarm will be sent.	
Reaction on reaching zero	Stay at zero **Reset to initial value and start again**
Stay at zero: once the counter reaches 0, it will stay there until it has been reset. **Reset to initial value and start again:** once the counter reaches 0, it will start counting back again starting from the initial value of the switching counter (as parameterized in the previous option). Attention! This initial value will not be sent to the bus, the next trigger sends the decreased value.	
Additional functions	**No** Yes
In order to keep the application program as easy as possible, only the main and most important functions are displayed at first sight. You will often find the possibility to activate the Additional or Advanced Functions, which disclose new functions that are not essential, but can be very useful.	

b) Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Counters / Switching counter – BACK / ADDITIONAL FUNCTONS

Parameter	Settings
Cyclic sending of counter value	**No** Yes
When this function is activated, the corresponding object will not send the telegram once, but repeat it infinitely.	
Counter values are sent to the bus every: (Switchings)	1

Enter here the number of switching operations that must be executed before the counter sends its value to the bus. This option is meant to reduce the bus traffic. For instance, if you enter a “50”, the counter will have to count back 50 switching operations in order to send the next value to the bus (550, 500, 450, 400, 350…).	
Conversion factor	**None** Several hours decreases 1 step 1 hour decreases several steps
None: for each 1 switching operation of the channel, the counter decreases 1 step. **Several hours increases 1 step:** define here the number of switching operations that must be executed for the counter to decrease 1 step. **1 hour increases several steps:** de define here the step decrement for each switching operation. For example, after 50 switching operations, the counter will have decreased 50 x 10 (= 500) steps.	
Send last value of counter at reset by counter object	**No** Yes
No: if you reset the counter by using the 1 bit reset object, the last value of the counter will not be sent to the bus by the counter object. Instead, a “0” will be sent to indicate it has been reset. **Yes:** if you reset the counter by using the 1 bit reset object, the counter object will send its current value before reset to the bus and afterwards it will not reset to 0 but stay at its last value. Only at the next counter step, will the first counter step be sent to the bus. Thus the counter will never have the value “0”.	
Additional object to store last value of counter on reset	**No** Yes Yes and send
No: no additional object to store the last value of the counter on reset will be activated. **Yes:** an additional object to store the last value of the counter on reset will be activated. This object can work parallel with the previous option (Last value of counter at reset by counter object) and it is mainly there to store this last value until the next reset, whereas the counter object only stores it for a short time (until next counter pulse). **Yes and send:** an additional object to store and send the last value of the counter on reset will be activated. This object can work parallel with the previous option (Last value of counter at reset by counter object) and it is mainly there to store this last value until the next reset, whereas the counter object only stores it for a short time (until next counter pulse). This value will then be sent after reset using this additional object.	

3.2.2.6 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Scenes

KNX standard 1 byte scenes: 1 Scene object per output. The advantage of having a Scene object per channel (and not only one for the all the channels) is that with the same Scene number, different scenes can be executed (since they are linked to another push button, with a different group address).
Up to 8 scenes can be configured per channel.

Parameter	Settings
Enable / Disable object	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
Most of the actuator's modules can be deactivated with a "… disable" object. The value (1 or 0) used to disable can also be configured. This option can be very useful for many reasons, including simplifying the configuration: for instance, the logic functions might be a complex task that can take a while to finish; in the meantime, you don't want these modules to be active and cause unwanted actions. Therefore, you can disable them until you finish programming. Another example: you can simply activate/deactivate the scenes for the blind system when not needed.	

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Scenes / COMMON SCENE PARAMETERS

As mentioned before, up to 8 scenes can be configured per channel with identical parameters.

Parameter	Settings
Reaction of channel for	Scene 1 … Scene 64
Attention! Same scene number may not be used twice! Only the first one (top) will prevail	
Here you can define the Scene number where this channel should participate in. All 64 possible KNX scenes can be used. As described in the KNX specifications, in order to reproduce scene 1, the value 0 has to be sent to the scene object of the channel and so on (0=play_scene1 …. 63= play_scene64). Important note: you may not use the same Scene number twice! Should you choose the same Scene number in more than one of the 8 available scene options, only the first one (from top to bottom) will prevail; the other will be ignored.	
Possible to save scene	No **Yes**
It is possible to save the current output state of the actuator as the new scene state. As described in the KNX specifications, in order to save scene 1, the value 128 has to be sent to the scene object of the channel and so on until 192 (128=save_scene1 …. 192= save_scene64). The configured parameter in "Output state for scene" will be overwritten. For example, the end user of the installation can switch ON/OFF the lights as wished and then save the current state for this scene via long press of a standard KNX scene push button. **No:** the scene cannot be saved with the KNX scene object. **Yes:** this option allows to overwrite the current state of the output as the new "Output state for scene", according to the KNX standardization.	

Important note: if the output state for scene is configured as a “Timer 1 reaction at ON” or “Timer 1 reaction at OFF”, the output state will NOT be saved. The end-user parameters (like this one) can be configured in GENERAL SETTINGS/OVERWRITE END-USER PARAMETER VALUES AT DOWNLOAD. Here you can choose for the “Output state for scene” not to be overwritten by ETS download.	
Output state for scene	No function ON OFF Timer 1 reaction at ON Timer 1 reaction at OFF
Here you can establish the initial channel state of the scene. Please, note that this can be overwritten by the end user if you have selected “Yes” in the option above (“Possible to save scene”). **No function**: the channel will have no reaction in the initial stage; the channel will only react to this scene if “save scene” is active and it has been saved by the scene object. **ON:** the channel switches ON when executing the scene (unless otherwise saved via channel scene object) **OFF:** the channel switches OFF when executing the scene (unless otherwise saved via channel scene object) **Timer 1 reaction at ON:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT ON” will be executed (unless otherwise saved via channel scene object) **Timer 1 reaction at OFF:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT OFF” will be executed (unless otherwise saved via channel scene object)	

3.2.2.7 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2

There are two timers linked to the current channel and which can run parallel; also, they have their own triggering object each. These timers can be configured to works as ON and/or OFF Delay, Staircase, Delay and staircase, blinking, etc.

The Timer trigger object is a 1 bit object which will have different behaviours when receiving an ON or OFF respectively. Next we will explain both REACTION AT ON and REACTION AT OFF separately:

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2 / REACTION AT ON

Parameter	Settings
REACTION AT ON	No action Delay **Staircase** Delay and staircase Only ON (without delay/staircase)

The timer can be used as any of the above timer types.

These are the possible actions to be executed when the timer trigger object receives an ON (“1”):

No action: the timer will not be executed.

Delay: the channel switches ON after a time delay.

Staircase: the channel immediately switches ON and stays ON for the configured staircase time and thereafter switches OFF again.

Delay and staircase: the channel switches ON after a time delay and then stays ON for the configured staircase time and thereafter switches OFF again.

Only ON (without delay/staircase): the channel immediately switches ON and stays ON.

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2 / REACTION AT ON / Delay

Parameter	Settings
- ON delay Base	1 s
- ON delay Factor	10
Configure here the time delay for the channel to switch ON	

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2 / REACTION AT ON / Staircase

Parameter	Settings
- Staircase time (ON duration) Base	**1 s** 5 s 10 s 1 min 5 min 10 min 1 h
- Staircase time (ON duration) Factor	**60**
Establish here the wished time for the channel to be ON The Staircase time is the period of time during which the actuator channel will be switched ON. After this time elapses, the channel switches OFF again.	
Staircase time Factor changeable by object	**No** Yes

No (default option): staircase time only configurable via parameters.

Yes: this option activates an object to change staircase time factor. As you can see in the picture below, the time Base can be any of the following:

So, if you have selected, for instance, “1 s”, then the values received in this object will be in “seconds”. If you have selected “5 s” though, the values received will be in “seconds” and multiplied by 5 (base “5 s” x value received at object “10” = “50 seconds”). The same rule applies if the Base has been selected in “minutes” or “hours”.

When using this communication object to modify the staircase factor, if the modification is done while the staircase is active , the modification will be applied after the end of the current staircase

Advanced staircase function	**No** Yes
Here the advanced functions can be activated.	

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2 / REACTION AT ON / ADVANCED STAIRCASE FUNCTIONS

Parameter	Settings
Multiply staircase	**No** Yes
* With Yes: ***Attention! Total staircase time = staircase time x number of consecutive ON telegrams separated by less than 1 sec. from each other***	
Here you can activate the possibility to multiply the staircase time in order to extend the time during which the channel will stay ON. The total staircase ON time is calculated by taking the parameterized staircase time and multiplying it by the number of consecutive ON telegrams received. Keep in mind that the multiplication telegrams (consecutive ON telegrams) must be separated by less than 1 second from each other. Should more than 1 second elapse between two telegrams, then it will only do the multiplication of the previous pulses received. The telegrams received after this, will be ignored or interpreted as a retrigger timer function (if parameterized), see next parameter “Retrigger timer” option. This resulting multiplication time will never exceed the maximum staircase time as can be configured in the parameter option “Maximum staircase time Base/Factor” Practical example: as implied by its name, the staircase time is frequently used in staircases. With the purpose of lowering the costs, instead of using a movement detector for switching ON/OFF, often push buttons are used with the staircase time as defined in the actuator. In order to save energy, the staircase time should be as short as possible, but sometimes you may wish to have the lights longer ON. In this case, this option can be very useful because it allows the end user to easily extend the staircase time by pressing several times (depending on how long the light should stay ON).	
Retrigger timer	No **Yes, excluding multiplication** Yes, including multiplication
It is possible to extend the staircase time by retriggering it (in other words, the timer starts counting again from the start) with an ON telegram. But this function will only be executed after more than 1 second has elapsed between the triggering events of the timer (for trigger events less than 1 second, see the behaviour in the section “MULTIPLY STAIRCASE”). Keep in mind that only the “Staircase time (ON duration)” will be extended. (So if the staircase is configured with an ON delay, when receiving the retrigger telegram it will NOT switch OFF, and the ON delay will be ignored) If the previous parameter option “Multiply staircase” is activated, the retrigger telegrams will also do the multiplication, given the consecutive ON telegrams are separated by less than 1 second from each other.	

No: the staircase will not be retriggered.

Yes, excluding multiplication (default option): this option will retrigger the staircase to be reset to the time (Base/Factor) as configured in the ETS application program.

For example: you have configure the staircase time in the ETS application program to be 1 minute; should the staircase time be, for instance, 1 hour as the result of a previous multiplication (Multiply staircase option), the moment you receive the retrigger telegram it will be reset to 1 minute again.

Yes, including multiplication: this option will retrigger the staircase to be reset to the current staircase time (it could be the parameterized time or the multiplied staircase time).

For example: you have configure the staircase time in the ETS application program to be 1 minute; should the staircase time be, for instance, 1 hour as the result of a previous multiplication (Multiply staircase option), the moment you receive the retrigger telegram it will be reset to 1 hour again.

Warning pulse	**No function** With own output With additional object

The warning pulse is meant to inform the end user about the fact that the staircase time is about to expire.

No function: the light will go OFF without previous warning after the staircase time elapses.

With own output: the same channel will be used for this warning pulse.

According to the default parameters, the output will switch OFF 10 seconds before the end of the staircase time and it will switch ON again 2 seconds after switching OFF. This creates a short blinking effect as a visual warning.

It is important to be able to configure the OFF time because not all loads can switch OFF immediately (for example, lights using transformers). So, if you have selected 1 second as a warning time, it might not switch OFF at all.

With additional object: this option serves the same purpose of warning before the staircase time elapses. It is specially indicated for those places where the channel can/may not be switched ON and OFF quickly. In these cases, the additional object can send a warning pulse to another channel (different load) just before the end of the staircase time of the main load.

Practical example: let's say this channel is used to control the flood lights of a tennis court via contactor. These lights take long to switch ON again (after they have been switched OFF), which is not energy-efficient nor practical. Therefore, to be able to generate a warning pulse, you can use an additional warning light connected to another channel, which this additional object is linked to.

1 action: ON: the additional object only sends a "1" at the configured point in time before the staircase time elapses.

2 actions: 1st OFF, 2nd ON: the additional object can execute two actions by sending:
Time before end of staircase for 1st action: a "0" at the configured point in time before the staircase time elapses.
Time before end of staircase for 2nd action: a "1" at the configured point in time before the staircase time elapses.

2 actions : 1st ON, 2nd OFF: the additional object can execute two actions by sending:

Time before end of staircase for 1st action: a "1" at the configured point in time before the staircase time elapses.
Time before end of staircase for 2nd action: a "0" at the configured point in time before the staircase time elapses.

3 actions: 1st OFF, 2nd ON, 3rd OFF (default option): the additional object can execute three actions by sending:
Time before end of staircase for 1st action: a "0" at the configured point in time before the staircase time elapses.
Time before end of staircase for 2nd action: a "1" at the configured point in time before the staircase time elapses.
Time before end of staircase for 3rd action: a "0" at the configured point in time before the staircase time elapses.

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2 / REACTION AT ON / Delay and staircase

The Staircase function has been explained above. This “Delay and Staircase” combined function could also have:

Parameter	Settings
- ON delay Base	**1 s**
- ON delay Factor	**10 s**
The staircase can start after a configurable time delay	
- Staircase time (ON duration) Base	**1 s**
- Staircase time (ON duration) Factor	**60 s**
Establish here the wished time for the channel to be ON The Staircase time is the period of time during which the actuator channel will be switched ON. After this time elapses, the channel switches OFF again.	
Staircase time factor changeable by object	**No** Yes
No (default option): staircase time only configurable via parameters. Yes: this option activates an object to change staircase time factor. As you can see in the picture below, the time Base can be any of the following: So, if you have selected, for instance, “1 s”, then the values received in this object will be in “seconds”. If you have selected “5 s” though, the values received will be in “seconds” and multiplied by 5 (base “5 s” x value received at object “10” = “50 seconds”). The same rule applies if the Base has been selected in “minutes” or “hours”.	
Blinking / number of repetitions (0 = none, 65535 = infinite)	**0**
A repeated staircase function with an initial delay actually becomes a blinking function. It is indicated to switch a load ON and OFF with a configurable certain frequency (which can have different ON and OFF times). The number of repetitions can be configured and can also be set to any number between 1 and 65534.Infinite repetitions can be achieved by using the value 65535. In order to deactivate the blinking, just enter the value 0.	

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2 /REACTON AT OFF

Parameter	Settings
REACTION AT OFF	No action **OFF without delay** OFF with delay
Attention! Reaction at OFF cancels the running staircase	

This are the possible actions to be executed when the timer trigger object receives an OFF (“0”):

No action: the timer will not be interrupted.

OFF without delay: the channel immediately switches OFF and the timer function is cancelled.

OFF with delay: the channel switches OFF after a time delay.
As soon as the OFF telegram is received, the Timer is cancelled.

Object to disable timer	Yes, immediately Yes, on ending current timer **No**

The disable object will always react as follows (and cannot be otherwise configured):

“0”: disable.
“1”: enable.

Yes, immediately: as soon as the Disable object receives a “1”, the timer will be cancelled and disabled. This option activates the parameter “Reaction on bus voltage recovery”.

Yes, on ending current timer: whenever the Disable object receives a “1”, the timer will be not cancelled, but disabled. Thus, the current timer will finalize normally. This option activates the parameter “Reaction on bus voltage recovery”.

No: the disable object, including the “Reaction on bus voltage recovery” will be hidden.

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2 / REACTION AT OFF / Object to disable timer

Parameter	Settings
Objecto to disable timer	**Yes, immediately** Yes, on ending current timer No

The disable object will always react as follows (and cannot be otherwise configured):
“0”: disable.
“1”: enable.
Yes, immediately: as soon as the Disable object receives a “1”, the timer will be cancelled and disabled. This option activates the parameter “Reaction on bus voltage recovery”.
Yes, on ending current timer: whenever the Disable object receives a “1”, the timer will be not cancelled, but disabled. Thus, the current timer will finalize normally. This option activates the parameter “Reaction on bus voltage recovery”.
No: the disable object, including the “Reaction on bus voltage recovery” will be hidden.

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2 / REACTION AT OFF / Object to disable timer / Reaction on bus voltage recovery

Parameter	Settings
Reaction on bus voltage recovery	**Enable** Disable Last object status

Whether the Timer will be active or not on bus voltage recovery can be configured here. On bus voltage recovery the timer can be enabled, disabled, or have the same state as before the bus failure depending on the above selection. **Enable:** the timer will be enabled. **Disable:** the timer will be disabled. **Last object status:** the status of the Enable object will be saved in the actuator's non-volatile memory; therefore, when the actuator initializes, if this option has been chosen, it will set the object as it was before the bus failure.

Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Timer 1 and 2 / REACTION AT OFF / Reaction when SWITCHING or SCENE objects receive a value while timer is active

Parameter	Settings
Reaction when SWITCHING or SCENE objects receive a value while timer is active	Don't cancel timer and do action **Cancel timer and do action** Ignore telegram
Don't cancel timer and do action: the Switching or Scene function will not cancel the active timer and the function will be executed parallel to the Timer. **Cancel timer and do action:** the Switching or Scene function will cancel the active timer and only the triggered functions (Switching or Scene) will be executed (whereas the Timer will be cancelled and thus will not interfere with these functions). **Ignore telegram:** if a telegram is received via the Switching or Scene objects while the timer is active, these functions (Switching or Scene) will not be executed.	

3.2.2.8 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Disable

Each and every channel has a Disable object, which blocks all other functions of the channel.

The behaviour at Disabling/Enabling can be configured per channel.

On the other hand, the priority of all Disable objects can also be adjusted to have higher/lower priority as the alarms; this can be done in General Settings/Advanced Functions/Alarms (then, Alarm tab)

Parameter	Settings
Disable object	**Disable with ON** Disable with OFF
Disable with ON: the channel will be blocked whenever the Disable object receives a "1"; and enabled again with a "0". **Disable with OFF:** the channel will be blocked whenever the Disable object receives a "0"; and enabled again with a "1".	
- Reaction on bus voltage recovery	**Enable** Disable Last object status
Whether the channel will be disabled or enabled on bus voltage recovery can be configured here. **Enable:** the channel will be enabled. **Disable:** the channel will be disabled. **Last object status:** the status of the Enable object will be saved in the actuator's non-volatile memory; therefore, when the actuator initializes, if this option has been chosen, it will set the object as it was before the bus failure.	
Behaviour at disabling	**Block channel as is** ON

	OFF Timer 1 reaction at ON Timer 1 reaction at OFF
Block channel as is: the channel will be blocked, but not switched ON or OFF when disabling the channel via Disable object. **ON:** the channel will be switched ON and blocked. **OFF:** the channel will be switched OFF and blocked. Each output has two timer functions. Only the first timer can be assigned to the behaviour at disabling: **Timer 1 reaction at ON:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT ON” will be executed and the channel will be blocked. **Timer 1 reaction at OFF:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT OFF” will be executed and the channel will be blocked.	
Behaviour at enabling	**Enable and leave channel as is** ON OFF Timer 1 reaction at ON Timer 1 reaction at OFF Set to tracked state
Enable and leave channel as is: the channel will be enabled, but not switched ON or OFF when enabling the channel via Disable object. **ON:** the channel will be switched ON and enabled. **OFF:** the channel will be switched OFF and enabled. Each output has two timer functions. Only the first timer can be assigned to the behaviour at enabling: **Timer 1 reaction at ON:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT ON” will be executed and the channel will be enabled. **Timer 1 reaction at OFF:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT OFF” will be executed and the channel will be enabled. **Set to tracked state:** while the channel is blocked, the other channel-related objects might receive telegrams. Nevertheless, since the channel is blocked, it does not switch ON or OFF. Even though the actuator does not switch ON or OFF, it does register all these events in order to be able to go to the state where it would have been at enabling (if the channel had not been blocked).	
Attention! Enable channel will trigger the behaviour of the next active (lower priority) alarm. Also the “Behaviour at enabling” will only be executed with no active & acknowledged channel alarms.	

3.2.2.9 Parameter page: OUTPUTS / Channel A1…X1 (Binary) / ADVANCED FUNCTIONS / Alarms

Attention! Alarm function must be activated in “General Settings” tab

First of all, in order for the channel-related Alarms to work, the Alarms must be activated in “General Settings/Advanced Functions/Alarms“. In this tab you can configure up to 8 alarms to be either “analogue” or “digital”.

Channel-dependent alarms: now, in the Advanced Functions of the current channel, you can configure the behaviour of the channel when the alarm objects receive a telegram.

After choosing the “Yes” option, the channel-related Alarms tab will be displayed.

Alarm telegrams are used to block the channel. The reaction of the current channel when any/several of the 8 available alarms have been activated can be configured in the next tab.

Parameter	Settings
Behaviour at beginning of alarm 1…8	**Nothing** Block channel as is ON OFF Timer 1 reaction at ON Timer 1 reaction at OFF
Nothing: the channel will not participate in the alarm. Thus, it will not be blocked. **Block channel as is:** the channel will be blocked, but not switched ON or OFF when activating the alarm. **ON:** the channel will be switched ON and blocked. **OFF:** the channel will be switched OFF and blocked. Each output has two timer functions. Only the first timer can be assigned to the behaviour of the alarm: **Timer 1 reaction at ON:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT ON” will be executed and the channel will be blocked. **Timer 1 reaction at OFF:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT OFF” will be executed and the channel will be blocked.	
Behaviour at end of all alarms	**Nothing** ON OFF Timer 1 reaction at ON Timer 1 reaction at OFF Set to tracked state
Attention! The “Behaviour at end of all alarms” will only be executed with no active & acknowledged channel alarms, and if the “disable channel function” is in enabled state. Only then, the channel will be unblocked.	
Here you can define the behaviour of the current channel when no alarm is active anymore. Important note: in the General Settings tab you can configure whether or not the alarms must be acknowledged. The “Behaviour at end of all alarms” will only be executed with no active & acknowledged channel alarms, and if the “disable channel function” is in enabled state. Only then, the channel will be unblocked. Nothing: the channel will not do anything when enabled. ON: the channel will be switched ON when enabled. OFF: the channel will be switched OFF when enabled. Each output has two timer functions. Only the first timer can be assigned to the behaviour at enabling: **Timer 1 reaction at ON:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT ON” will be executed when enabled. **Timer 1 reaction at OFF:** the function that has been chosen under “OUTPUTS/Timer 1/REACTION AT OFF” will be executed when enabled. **Set to tracked state:** while the channel is blocked, the other channel-related objects might receive telegrams. Nevertheless, since the channel is blocked, it does not switch ON or OFF. Even though the actuator does not switch ON or OFF, it does register all these events in order to be able to go to the state where it would have been at enabling (if the channel had not been blocked).	

3.3 Parameter page: OUTPUTS / Channel X1 (Shutter / blind)

One channel can be used as either two separate relay outputs or as one Shutter / Blind channel. When selecting blind/shutter, the outputs will be interlocked with each other. Meaning that only one output relay can be closed at a time. In order to close one of the channels the other must first be opened.

With these two outputs the blind can be moved (up/down or to a specific position). The channel must always know its current position and therefore it must sometimes be calibrated.

The blind will always be calibrated on the first movement after an ETS download. This calibration procedure can always be interrupted by sending any movement or stop telegram to the channel.

Please, see OUTPUT: CHANNEL TYPE SELECTION and OUTPUT TYPE SELECTION before proceeding.

1 bit Move object	Value received = 0	UP movement
	Value received = 1	DOWN movement
Absolute position shutter/blind	Totally UP	0%
	Totally DOWN	100%
Absolute position slat	Totally UP	0%
	Totally OPEN	50% (usually)
	Totally DOWN	100%

SHUTTER TABLE: KNX standard specifications for shutter/blinds

After choosing “Shutter / Blind”, the following two tabs will be automatically activated, as well as the relevant Shutter objects.

1.- Shutter tab for the current Channel: in this tab you must select the type of drive connected to the channel.
2.- Shutter Status tab for the current Channel

3.4 Parameter page: OUTPUTS / Channel X1 (Shutter / blind)

Parameter	Settings
Type	**Shutter (without slats)** Blind (with slats)
Attention! All slats parameters will be ignored	
Important note “Shutters”: due to ETS technical characteristics, it is not practical to hide all non-applicable, slat related options in the Shutter drop down context menus. So, when you select “Shutter (without slats)”, please ignore the slats parameters (if you select any slat parameter while configuring shutters, these will have no effect at all). By working this way, the common objects and the assigned group addresses will not be deleted when changing from shutters to blinds or vice versa. This could be a great advantage, should the final user change the elements of the installation at any point in time. Important note “Blinds”: if you select “Blinds (with slats)”, all Shutter parameters still apply identically (only Status tab is a totally new one). Furthermore, you will find these additional functions: The “SLATS PARAMETERS” general configuration menu. Also the additional slats options will be now applicable in the Shutter drop down context menus. In this manual, those additional parameters that apply only to slats (blinds) configuration, will appear in brown colour.	

Travel time movement UP	**1 s**
This is the period of time during which the current Channel's UP (first) relay will be closed and then opened again for a full movement (from 100% to 0%). To calculate the total Travel Time of a blind (with slats) you must ignore the period of time while the slats are changing. Only the time while the blind is moving UP/DOWN must be counted	
Different travel time for movement DOWN	**No** Yes
Sometimes (especially when controlling heavy shutters) the shutter moves much faster DOWN than UP. Here you can parameterize the travel time for a full DOWN movement (from 0% to 100%). This is important for the actuator to be able to calculate the absolute position (0-100%) correctly.	
Time for direction change	**500 ms**
This is the time that must go by while moving in one direction to change to the opposite direction. For instance, if you receive a movement DOWN while the shutter is moving UP (first relay of the channel is closed), then the first relay must open and the second relay must close in order to move the blind DOWN. The time for closing the second relay (after opening the first relay) is configured here. This time must be, at least, 500ms, since the two relays for the Shutter output may never be closed at the same time. Practical tip: due to the inertia of heavy shutters, you must be able to extend this time in order to give the shutter the chance to stop before changing direction.	

3.4.1 Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / SLAT PARAMETERS

This functionality only appears when you have chosen "Blinds (with slats)".

Parameter	Settings
Total slat time from 0 to 100%	100 ms 500 ms **1 s** 10 s 1 min 10 min 1 h
Attention! This time should be longer than time for long oper, in push button	

Here you can configure (unlike with many other blinds actuators in the market) not the time for each slat movement, but the total time for a slat to execute a full movement from 0 to 100%.

The reason for this is the fact that the slat movement steps are very short and are difficult to calculate. Also, usually it is more practical to configure the NUMBER OF SLATS STEPS to complete a full movement (than calculating each step time).

Note: the time you choose here should be longer than that used for the long press of a standard KNX shutter/blind push button. Otherwise, the blind will have an undesired behaviour as in the following sequence:

MOVE: By pressing the button (most push buttons immediately send the first telegram), the blind will immediately start to move during the time configured here.
STOP: So, because this time is shorter, the blind will stop before the time for long operation in the push button has elapsed.
MOVE AGAIN: Then, since you are still pressing the button when the time for long operation in the push button has been reached, the blind will start moving UP/DOWN (for the configured total blind time).

Number of slats steps	**5**

Here you can configure the number of steps to be made in a full slat movement from 0 to 100%.

Maintain slat position after blind movement	No **Yes**

When this option has been selected (as it is by default), the slats will automatically return to the position they were in before the UP/DOWN movement.

Take into account that the next parameter option “Slat position after reaching bottom …” has priority over this parameter and if it is selected, the previous slat position will not be maintained.

Slat position after reaching bottom position % (100%=disabled)	**100**

Here you can enter the position the slat must move to after a full movement DOWN (100%).

This option can be disabled by entering the value 100 (%).
Also note that it has preference over “Maintain slat position after blind movement”.

Bus failure	**No** Yes

No: this option hides the Bus failure tab and all its functions. If the blind is moving when the bus fails it will stop (open both relays) immediately and it will store this position in the non-volatile memory. Therefore on bus voltage recovery no calibration movement is needed.
Yes: this option opens the Bus failure tab, which allows the configuration of the reaction of the channel on bus voltage failure/recovery.

Advanced functions	**No** Yes

The Power Block Actuator range is also a powerful controller module (logic, timer, counter, etc. module). You can find Advanced Functions:
In the General Settings parameter page: this a totally independent controller module, with its own input and output objects, which can work autonomously (no need to be linked to any actuator function).
On top of that, the most common advanced functions are also available within each and every channel. The main difference is that these are linked to the channel and cannot be used independent from it. This has the advantage that it is not necessary to use group addresses to link them, making configuration easier.

Manual control	No **Yes**

Attention! Manual control must be activated in outputs

The Power Block actuator has 2 push buttons and status LEDs per each channel on the front side. These buttons can be used to control the current channel if you select “yes” in this parameter option.

Please, see **Annex 1** to learn more about manual control.

3.4.1.1 Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / SLAT PARAMETERS / Bus failure

Parameter	Settings
Reaction on bus voltage failure	Unchanged Up Down **Stop**
Attention! When selecting “Up” or “Down”, the relay will close and stay closed. In case of direction change it will be almost immediate (“Time for direction change” cannot be executed).	
Unchanged: whenever the bus voltage fails, the contact stays the same. **Up:** whenever the bus voltage fails, the first relay will be opened and the second closed. **Down:** whenever the bus voltage fails, the second relay will be opened and the first closed. Important note for UP/DOWN: since the actuator only has a short time buffer to do the actions on bus voltage failure, it cannot open the relay again after UP/DOWN movement. Therefore, the relay will stay in the same position until bus voltage recovery (depending on the Bus voltage recovery configuration). This can be dangerous because the relay will be permanently closed and could still be under tension. If the bus fails while the blind was moving and if this parameter “Reaction on bus voltage failure” is set to either “Unchanged”, “Up” or “Down” the blind will make a calibration movement on the next telegram received to move the blind. In this case it will also do a calibration movement if the next parameter “Reaction on bus voltage recovery” is set to “Position”, “Move to slat and blind position”, “Preset” or “Recovery status before bus failure” as soon as the bus recovers. **Stop:** whenever the bus voltage fails, both contacts open. With this option selected the blind will not do a calibration movement when bus voltage returns nor when receiving a telegram to move the blind.	
Reaction on bus voltage recovery	**Stop** Up Down Position Move to slat and blind position Preset Recovery status before bus failure
Stop: whenever the bus voltage returns, both contacts open. **Up:** whenever the bus voltage returns, the channel moves UP. The second relay will be opened; and the first relay will be closed for the full “Travel time movement UP”, independent of the current blind position. **Down:** whenever the bus voltage returns, the channel moves DOWN. The first relay will be opened; and the second relay will be closed for the full “Travel time movement UP”, independent of the current blind position. If a different time has been defined for moving down, then the time for a full movement will be the DIFFERENT TRAVEL TIME FOR MOVEMENT DOWN. **Position:** whenever the bus voltage returns, the shutter will move to a certain position (0-100%), which can be parameterized here. **Move to slat and blind position:** not applicable for shutter configuration. Blinds (with slats): whenever the bus voltage returns, the blind and the slats will move to a certain position (0-100%) Preset: you can select one of the four previously configured PRESETS (Channel/Advanced Functions) to be executed on bus voltage recovery.	

Attention! Presets parameters must be configured in Channel -> Advanced functions
Recovery status before bus failure: the status of the output will be saved in the actuator's non-volatile memory; therefore, when the actuator initializes, if this option has been chosen, it will move the shutter to the position previous to the bus failure.
Important note on calibration: for "Position", "Move to slat and blind position", "Preset" and "Recovery status before bus failure".

Attention! An absolute position on bus power recovery will cause a calibration movement to the upper end position

Sometimes it is impossible for the actuator to know the exact position of the shutter: for instance, on bus voltage return (the power failure of the bus and that of the current shutter are independent from each other) or with heavy shutters having made several absolute position movements (without having reached the end position).

In these cases, the actuator needs to calibrate itself by making a full movement to the 0/100% position (upper/lower end position) before moving to the desired absolute position.

After calibration, the shutter now has a reference from where to part again for the next movement.

3.4.1.2 Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / SLAT PARAMETERS / Advanced functions

Parameter	Settings
Scenes	**No** Yes
KNX standard 1 byte scenes: 1 Scene object per output. The advantage of having a Scene object per channel (and not only one for the all the channels) is that with the same Scene number, different scenes can be executed (since they are linked to another push button, with a different group address). Up to 8 scenes can be configured per channel. **No:** this option hides the Scenes tab and all scene related functions and object for the current channel. **Yes:** this option activates the Scene tab, with the following functions and the Scene object for this channel. Important note: please see END-USER PARAMETERS	
Presets	**No** Yes
Presets are fixed absolute-positions of the shutter which are executed with a 1 bit object to move the shutter to a specific position. KNX Scenes are always executed with the 1 byte KNX scene object. But sometimes you might want to set the shutter to a specific position with, for instance, a central ON/OFF 1 bit command. In these cases, you can use a Preset, instead of a scene. **No:** this option hides the preset tab and related objects. **Yes:** this option activates the preset tab and, by default, also the first preset and its object.	
Alarms	**No** Yes
Attention! Alarm function must be activated in "General Settings" tab	
First of all, in order for the channel-related Alarms to work, the Alarms must be activated in General Settings/Advanced Functions/Alarms. In this tab you can configure up to 8 alarms to be either "analogue" or "digital". CHANNEL-DEPENDENT ALARMS Now, in the Advanced Functions of the current channel, you can configure the behaviour of the channel when the alarm objects receive a telegram. After choosing the "Yes" option, the channel-related Alarms tab will be displayed. Alarm telegrams are used to block the channel. The reaction of the current channel when any/several of the 8 available alarms have been activated can be configured in the next tab.	
Disable	**No** Yes
Apart from the Alarms, this is another way to block the channel. The main difference is that there is a Disable object for each channel, whereas the Alarm objects are common objects (for all assigned channels). **No:** this option hides this functionality and its related object. **Yes:** this option activates the Disable tab.	
Inverted movement object	**No** Yes
No: this option hides the "Move inverted" object. **Yes:** this option activates the so called "Move inverted" object, which is an additional object to the normal "Move"	

object. As you can see in the Shuter table, the shutter usually moves down with a “1” and up with a “0”. With this object you can invert those values.

Central UP/DOWN function	**No reaction** Any value = Up Any value = Down Any value = Position 0 = Up, 1 = Down 1 = Up, 0 = Down 0 = X, 1 = Down 0 = Up, 1 = X

Attention! Alarm function must be activated in “General Settings” tab

In order to do a classic KNX “Central function”, this actuator has a specific option that allows all the channel actions at once with only one or two objects. This considerably reduces the amount of group address associations (both meant to ease programmers work load, but also to reduce the actuator’s association table).
Before we configure the function within the channel, we must go to GENERAL SETTINGS / CENTRAL ON/OFF, UP/DOWN OBJECT and activate one of the objects.

The actuator has 1 or 2 Central ON/OFF, UP/DOWN objects for binary outputs and/or shutter (depending on the configuration in “General Settings/Outputs”):
1 common object = “Central switching/move blind”
2 separate objects = “Central switching” + “Central move”

No reaction: the channel has no reaction when the Central UP/DOWN object/s receive/s a telegram.
Any value = Up: the channel moves UP when the Central UP/DOWN object/s receive/s any telegram (no matter whether “0” or “1” is received).
Any value = Down: the channel moves DOWN when the Central UP/DOWN object/s receive/s any telegram (no matter whether “0” or “1” is received).
Any value = Position: the channel moves to a certain position when the Central UP/DOWN object/s receive/s any telegram (no matter whether “0” or “1” is received).
0 = Up, 1 = Down: the channel moves UP when the Central UP/DOWN object/s receive/s a “0” and moves DOWN when receiving a “1”.
1 = Up, 0 = Down: the channel moves UP when the Central UP/DOWN object/s receive/s a “1” and moves DOWN when receiving a “0”.
0 = X, 1 = Down: the channel has no reaction when the Central UP/DOWN object/s receive/s a “0” and moves DOWN when receiving a “1”.
0 = Up, 1 = X: the channel moves UP when the Central UP/DOWN object/s receive/s a “0” and has no reaction when receiving a “1”.

Limit travelling range / Manual calibration	

Attention! upper limit must be smaller than lower limit, otherwise it will be ignored

Attention! Calibration forces movement to end position, even if limits have been set

With this option you can change both the limits maximum and minimum end positions. The upper limit must be smaller than the lower limit, otherwise it will be ignored.

No: the blind moves from 0-100%.
With “No”, the option “Additional time (after reaching end position” appears:
This is the additional time (in seconds) after having reached one of the end positions (0-100%) during which the output will still be closed in order to make sure that the end position has been reached. When the blind is in 0% and a up command is received the blind will move up during this “Additional time…”. The same will happen when receiving a command to move down while the blind is at 100%.

Due to the mechanical friction of the shutter, which is not identical in each movement, the time to move the shutter

UP/DOWN might sometimes be longer than the previously measured shutter time. This fact can cause that the shutter never reaches the end position (top/bottom) as expected. By using this additional time, the relay will stay closed for this period of time even though the actuator might have already reached 0-100%, thus ensuring that the end position is reached in any case.

Parameters: here you can adjust the upper and lower limits of the shutter's course of movement. This option will also activate a 1 bit object which can be used to disable the limits and enable them while forcing a calibration movement. Disable = 0 / Enable and calibrate = 1
Practical tip: should no limits be needed, this function could be used to manually calibrate the blinds by setting the upper limit to 0% and the lower limit to 100% and to send a 0 followed by 1 to the "Disable limits / calibrate" object.

Via two 1 byte objects: the two 1 byte scaling (0-100%) objects "Change upper limit" and "Change lower limit" are activated. They can be used to set the shutter's maximum and minimum end-position. If you send an invalid value (upper limit > lower limit or vice versa) to any of the limit objects, this value will be discarded and the object will resend the previous value to the bus. This way the user will note that this value was invalid.
This option will also activate a 1 bit object which can be used to disable the limits and enable them while forcing a calibration movement. Disable = 0 / Enable and calibrate = 1

Both: this option activates both the Parameters and the 1 byte objects. The goal is to have initial limits that can be changed in a later stage.

Calibrate blinds outputs by moving to end position	**No** Shortest way Upper end position Lower end position

Sometimes the current blind position and the actuators status blind position get out of sync, especially with heavy shutters having made several absolute position movements (without having reached the end position).

In these cases, the actuator needs to calibrate itself by making a full movement to the 0/100% position (upper/lower end position) before moving to the desired absolute position.

After calibration, the shutter now has a reference from where to part again for the next movement.

No: no calibration will be executed.
Shortest way: the actuator calculates the shortest distance to the end position and makes a full movement of the shutter in that direction to ensure that the end position has been reached.
Upper end position: the shutter makes a full movement UP (the first relay will be closed during the configured TRAVEL TIME MOVEMENT UP) to ensure that the end position has been reached.
Lower end position: the shutter makes a full movement DOWN (the second relay will be closed during the configured TRAVEL TIME MOVEMENT UP. If a different time has been defined for moving down, then the time will be the DIFFERENT TRAVEL TIME FOR MOVEMENT DOWN) to ensure that the end position has been reached.

Manual control	No **Yes**

Attention! Manual control must be activated in outputs

The Power Block actuator has 2 push buttons and status LEDs per each channel on the front side. These buttons can be used to control the current channel if you select "yes" in this parameter option.
You can see the exact behaviour of these buttons in OUTPUTS / MANUAL CONTROL.

3.4.1.3 Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / SLAT PARAMETERS / Advanced functions / Scenes

Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / SLAT PARAMETERS / Advanced functions / Scenes / Enable / Disable object

Parameter	Settings
Attention! The end-user parameter values will only be maintained when "overwrite end-user…" in general tab were set to "Don't overwrite". Important note: please see END-USER PARAMETERS	
Enable / Disable objects	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
Most of the actuator's modules can be deactivated with a "… disable" object. The value (1 or 0) used to disable can also be configured. This option can be very useful for many reasons, including simplifying the configuration: for instance, the logic functions might be a complex task that can take a while to finish; in the meantime, you don't want these modules to be active and cause unwanted actions. Therefore, you can disable them until you finish programming. Another example: you can simply activate/deactivate the timers for the irrigation system when not needed.	

Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / SLAT PARAMETERS / Advanced functions / Scenes / Common scene parameters

As mentioned before, up to 8 scenes can be configured per channel with identical parameters.

Parameter	Settings
Attention! Same scene number may not be used twice! Only the first one (top) will prevail	
Important note: you may not use the same Scene number twice! Should you choose the same Scene number in more than one of the 8 available scene options, only the first one (from top to bottom) will prevail; the other will be ignored.	
Reaction of channel for	**Scene 1** … Scene 64
Here you can define the Scene number where this channel should participate in. All 64 possible KNX scenes can be used. As described in the KNX specifications, in order to reproduce scene 1, the value 0 has to be sent to the scene object of the channel and so on (0=play_scene1 …. 63= play_scene64).	
Output state for scene	**No function** Up Down Move to position Move to slat and blind position Move to preset

No function: the channel will have no reaction in the initial stage; the channel will only react to this scene (If “save scene” is active), and it has been saved by the scene object.
UP: the channel moves UP when executing the scene (unless otherwise saved via channel scene object)
DOWN: the channel moves DOWN when executing the scene (unless otherwise saved via channel scene object)
Move to position: the shutter will move to a certain position (0-100%) when executing the scene (unless otherwise saved via channel scene object); the exact position can be parameterized here.

Move to slat and blind position: not applicable for shutter configuration.
Blinds (with slats): the blind and the slats will move to a certain position (0-100%), which can be parameterized here.

Move to preset: the shutter will move to one of the four previously configured PRESETS (Channel/Advanced Functions) when executing the scene (unless otherwise saved via channel scene object).

Possible to save scene	No **Yes**

It is possible to save the current position of the shutter as the new scene state.

As described in the KNX specifications, in order to save scene 1, the value 128 has to be sent to the scene object of the channel and so on until 192 (128=save_scene1 …. 192= save_scene64).

The configured parameter in OUTPUT STATE FOR SCENE will be overwritten. For example, the end user of the installation can move the shutter UP/DOWN as wished and then save the current position for this scene via long press of a standard KNX scene push button.

No: the scene cannot be saved with the KNX scene object.
Yes: this option allows to overwrite the current position of the shutter as the new OUTPUT STATE FOR SCENE, according to the KNX standardization.
Important note:
The END-USER PARAMETERS (like this one) can be configured in GENERAL SETTINGS/OVERWRITE END-USER PARAMETER VALUES AT DOWNLOAD. Here you can choose for the “Output state for scene” not to be overwritten by ETS download.

3.4.1.4 Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / SLAT PARAMETERS / Advanced functions / Presets

Parameter	Settings
Attention! The end-user parameter values will only be maintained when “overwrite end-user…” in general tab were set to “Don’t overwrite”. Important note: please see END-USER PARAMETERS	
PRESET 1	**Yes** No
PRESET 2 … PRESET 4	Yes **No**
There are 4 Presets available (only the first of which is, by default, activated) Presets are predefined positions of the blind and or slat position which can be reproduced by sending a “1” to the object to execute the preset.	

Set initial default positions	No function **Only movement position** Only slat position Movement and slat position
No function: no preset position can be set as default value in the parameters; the 1 bit preset object is still available, though. In order to set the preset position, the CHANGE MOVEMENT POSITION BY OBJECT must be activated. The preset position can be set afterwards by using this object. **Only movement position:** the shutter will move to a certain position (0-100%) when executing the preset (unless otherwise saved in CHANGE MOVEMENT POSITION BY OBJECT); the exact position can be parameterized here. **Only slat position**: not applicable for shutter configuration. Blinds (with slats): the slats will move to a certain position (0-100%), which can be parameterized here. **Movement and slat position**: not applicable for shutter configuration. Blinds (with slats): the blind and the slats will move to a certain position (0-100%), which can be parameterized here.	
Change movement position by object	No function **Only movement position** Only slat position Movement and slat position
No function: this functionality is hidden. **Only movement position**: the absolute position (0-100%) of the shutter can be changed with the “Preset X change move position” object. **Only slat position**: not applicable for shutter configuration. Blinds (with slats): the absolute position (0-100%) of the slats can be changed with the “Preset X change slat position” object. **Movement and slat position**: not applicable for shutter configuration. Blinds (with slats): the absolute position (0-100%) of the blind and the slats can be changed with the “Preset X change move position” and “Preset X change slat position” objects.	
One bit object to save current blind/slat position as the new preset value	**No function** Only movement position Only slat position Movement and slat position
No function: this functionality is hidden. **Only movement position**: This activates a 1 bit object to save only the current movement position as the new preset value by sending a 1 to this object. The slat position will not be saved. **Only slat position**: not applicable for shutter configuration. Blinds (with slats): This activates a 1 bit object to save only the current slat position as the new preset value by sending a 1 to this object. The movement position will not be saved. **Movement and slat position**: not applicable for shutter configuration. Blinds (with slats): This activates a 1 bit object to save the current movement and slat position as the new preset value by sending a 1 to this object.	

3.4.1.5 Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / SLAT PARAMETERS / Advanced functions / (channel dependent) Alarms

Alarm telegrams are used to block the channel. The reaction of the current channel when any/several of the 8 available alarms have been activated can be configured here:

Parameter	Settings
Alarm 1 … Alarm 8	Nothing **Block channel as is** Move Up Move Down. Move to position Move to preset

Nothing: the channel will not participate in the alarm. Thus, it will not be blocked.
Block channel as is: the channel will be blocked, but not move when activating the alarm. Should the alarm be triggered while the blind is moving, the blind will stop immediately and the current status will be sent to the bus.
Move Up: the channel moves UP. The second relay will be opened; and the first relay will be closed during the remaining time (since the actuator knows the complete TRAVEL TIME MOVEMENT UP, it will now calculate the travel time still needed to complete the full movement depending on the current position)
Move Down: the channel moves DOWN. The first relay will be opened; and the second relay will be closed during the remaining time (since the actuator knows the complete TRAVEL TIME MOVEMENT UP, it will now calculate the travel time still needed to complete the full movement depending on the current position). If a different time has been defined for moving down, then the time for a full movement will be the DIFFERENT TRAVEL TIME FOR MOVEMENT DOWN, and thus the remaining time will be calculated accordingly.
Move to position: the shutter will move to a certain position (0-100%) when executing the alarm:
Only movement position: the exact position can be parameterized:

Only slat position: not applicable for shutter configuration.

Blinds (with slats): the exact position of the slats can be parameterized here.

Movement and slat position: not applicable for shutter configuration.

Blinds (with slats): the exact position of the blind and of the slats can be parameterized:

Move to preset: you can select one of the four previously configured PRESETS (Channel/Advanced Functions) to be executed on alarm.

Behaviour at end of all alarms	Nothing Move Up Move Down Move to position Move to preset Set to tracked state

Here you can define the behaviour of the current channel when no alarm is active anymore.

Important note: in the General Settings tab you can configure whether or not the alarms must be acknowledged. The “Behaviour at end of all alarms” will only be executed with no active & acknowledged channel alarms, and if the “disable channel function” is in enabled state. Only then, the channel will be unblocked.

Nothing: the channel will not do anything at the end of all alarms.
Move Up: the channel moves UP. The second relay will be opened; and the first relay will be closed during the remaining time (since the actuator knows the complete TRAVEL TIME MOVEMENT UP, it will now calculate the travel time still needed to complete the full movement depending on the current position)
Move Down: the channel moves DOWN. The first relay will be opened; and the second relay will be closed during the remaining time (since the actuator knows the complete TRAVEL TIME MOVEMENT UP, it will now calculate the travel time still needed to complete the full movement depending on the current position). If a different time has been defined for moving down, then the time for a full movement will be the DIFFERENT TRAVEL TIME FOR MOVEMENT DOWN, and thus the remaining time will be calculated accordingly.
Move to position: the shutter will move to a certain position (0-100%) at the end of all alarms.

Only movement position: the exact position can be parameterized:

Only slat position: not applicable for shutter configuration.

Blinds (with slats): the exact position of the slats can be parameterized.

Movement and slat position: not applicable for shutter configuration.
Blinds (with slats): the exact position of the blind and of the slats can be parameterized.

Move to preset: you can select one of the four previously configured PRESETS (Channel/Advanced Functions) to be executed at the end of all alarms.
Set to tracked state: while the channel is blocked, the other channel-related objects might receive telegrams. Nevertheless, since the channel is blocked, it does not move.

Even though the actuator does not move, it does register all the absolute position events (not the one bit movements, like up/down, slat up/down) in order to be able to go to the state where it would have been at enabling (if the channel had not been blocked).

Attention! The "Behaviour at the end of all alarms" will only be executed with no active & acknowledged channel alarms, and if the "disable channel function" is in enabled state. Only then, the channel will be unblocked.

3.4.1.6 Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / SLAT PARAMETERS / Advanced functions / Disable

Parameter	Settings
Disable object	**Disable with ON** Disable with OFF
This is the object that can be used to block the channel. The priority of all the disable objects (of all channels together – not individually), when compared with the alarms, can be configured in GENERAL SETTINGS / ALARMS / PRIORITY OF DISABLE OBJECT FOR ALL CHANNELS. Disable with ON: the current channel will be blocked with a "1" (ON telegram). Disable with OFF: the current channel will be blocked with a "0" (OFF telegram).	
- Reaction on bus voltage recovery	**Enable** Disable Last object status
Attention! Establish the priority in general functions	
Enable: the channel will be enabled. **Disable:** the channel will be blocked. **Last object status:** the status of the Enable object will be saved in the actuator's non-volatile memory; therefore, when the actuator initializes, if this option has been chosen, it will set the object as it was before the bus failure.	
Behaviour at disabling	**Block channel as is** Move Up Move Down Move to position Move to slat and blind position Move to preset
Block channel as is: the channel will be blocked, but not move on disabling. Should the alarm be triggered while the blind is moving, the blind will stop immediately and the current status will be sent to the bus **Move Up:** the channel moves UP. The second relay will be opened; and the first relay will be closed during the remaining time (since the actuator knows the complete TRAVEL TIME MOVEMENT UP, it will now calculate the travel time still needed to complete the full movement depending on the current position) **Move Down:** the channel moves DOWN. The first relay will be opened; and the second relay will be closed during the remaining time (since the actuator knows the complete TRAVEL TIME MOVEMENT UP, it will now calculate	

the travel time still needed to complete the full movement depending on the current position). If a different time has been defined for moving down, then the time for a full movement will be the DIFFERENT TRAVEL TIME FOR MOVEMENT DOWN, and thus the remaining time will be calculated accordingly.
Move to position: the shutter will move to a certain position (0-100%) on disabling. The exact position can be parameterized here.
Move to slat and blind position: not applicable for shutter configuration.
Blinds (with slats): the blind and the slats will move to a certain position (0-100%) on disabling. The exact position can be parameterized here.

Move to preset: you can select one of the four previously configured PRESETS (Channel/Advanced Functions) to be executed on disabling.

Behaviour at enabling	**Enable and leave channel as is** Move Up Move Down Move to position Move to slat and blind position Move to preset Set to tracked state

Enable and leave channel as is: the channel will not do anything when enabled.
Move Up: the channel moves UP. The second relay will be opened; and the first relay will be closed during the remaining time (since the actuator knows the complete TRAVEL TIME MOVEMENT UP, it will now calculate the travel time still needed to complete the full movement depending on the current position)
Move Down: the channel moves DOWN. The first relay will be opened; and the second relay will be closed during the remaining time (since the actuator knows the complete TRAVEL TIME MOVEMENT UP, it will now calculate the travel time still needed to complete the full movement depending on the current position). If a different time has been defined for moving down, then the time for a full movement will be the DIFFERENT TRAVEL TIME FOR MOVEMENT DOWN, and thus the remaining time will be calculated accordingly.
Move to position: the shutter will move to a certain position (0-100%) on enabling. The exact position can be parameterized here.

Move to slat and blind position: not applicable for shutter configuration.

Blinds (with slats): the blind and the slats will move to a certain position (0-100%) on enabling. The exact position can be parameterized here.

Move to preset: you can select one of the four previously configured PRESETS (Channel/Advanced Functions) to be executed on enabling.
Set to tracked state: while the channel is blocked, the other channel-related objects might receive telegrams. Nevertheless, since the channel is blocked, it does not move.
Even though the actuator does not move, it does register all the absolute position events (not the one bit movements, like up/down, slat up/down) in order to be able to go to the state where it would have been at enabling (if the channel had not been blocked).

Attention! ***Enable channel will trigger the behaviour of the next active (lower priority) alarm. Also the "Behaviour at enabling" will only be executed with no active & acknowledged channel alarms.***

3.4.2 Parameter page: OUTPUTS / Channel X1 (Shutter / blind) / Status shutter / blind

Whenever you choose in OUTPUTS, for channel X "SHUTTER" and then, within the channel, "SHUTTER (WITHOUT SLATS)", the "Status Shutter" tab is automatically activated (and, unlike in the binary outputs, cannot be hidden).

On the other hand, if you choose in “BLIND (WITH SLATS)”, the “Status Blind” tab is automatically activated.

In the “Status shutter” and “Status blind” tabs you can define which and when the different status telegrams will be sent.

Parameter	Settings
Send 1 byte position status telegram	**At end of movement** During movement and at end No
At end of movement: only after reaching the commanded position on any movement, will the 1 byte “Status blind position” object send this position. **During movement and at end:** both during the course of the movement and after reaching the commanded position on any movement, the 1 byte “Status blind position” object will send this position. The frequency of sending the status telegram during movement can be adjusted here. **No:** the 1 byte “Status blind position” object will be hidden.	
Send 1 byte slat position status telegram	No **Yes**
When you select “Yes” in this option, the “Status slat position” object will be activated, which can be used to inform about the exact position of the slats after each movement.	
Cyclic sending time for blind/slats position	**No** Yes
If you choose to activate this option, you can adjust the frequency on which: The 1 byte “Status blind position” (Shutters) object will be sent. The 1 byte “Status blind position” and the “Status slat position” (Blinds) objects will be sent. Should the slat be set to a new position, this new future position will be sent cyclic and not the current position of the slat during its movement.	
1 bit status object for blind at lower end position	**No** Yes
If you select “Yes” on this menu, the 1 bit “Status blind 100%” object will be activated. Only if the shutter has completed its full (lower-end position) movement (100%), will this object = 1. With any other shutter position, the object value = 0.	
1 bit status object for blind at upper end position	**No** Yes
If you select “Yes” on this menu, the 1 bit “Status blind 0%” object will be activated. Only if the shutter is at its start / upper-end position (0%), will this object = 1. With any other shutter position, the object value = 0.	
Send status telegram at bus recovery	**No** Yes
With this option, the channel’s status telegram can also be sent as soon as the device has initialized after bus recovery. You can also configure a delay for sending this status telegram, which can be done in GENERAL SETTINGS / ADVANCED FUNCTIONS / BEHAVIOUR AT BUS RECOVERY / DELAY FOR SENDING ALL STATUS TELEGRAMS.	

4 Parameter page: ADVANCED FUNCTIONS

Tip! REDUCE CONFIG TIME! All repetitive Tab & Sub-Tab parameters (Ex. “Channel A1…X” or “Logic 1…X”…) can be changed at the same time by selecting multiple tabs with “CTRL + Click”.

4.1 Parameter page: Alarms

Parameter	Settings
Alarms	**No** Yes

First of all, in order for the channel-related Alarms to work, the Alarms must be activated by selecting yes.

Then up to 8 alarms to be either “analog” or “digital” can configured

Now, in the Advanced Functions of the channel-dependent alarms which can be found in OUTPUTS/Channel X/Advanced functions/Alarms, you can configure the behaviour of the channel when the alarm objects receive a telegram.

Alarm telegrams are used to block the channel. The reaction of the current channel when any/several of the 8 available alarms have been activated can be configured in the Alarms tab in the output.

Terminology for alarms:
Alarm X enabled / disabled: The alarm can be disabled with the “Alarm X disable” object. This leaves the alarm without any function.

Alarm active / Alarm activated: This means that the alarm has receive a telegram on its “Alarm X” object which triggers the alarm in its active state. This causes the channels (depending on the channel parameters) to be blocked.

Alarm is triggered: if the alarm is activated while it was already active it will not be triggered if “only the first time” is selected in the trigger parameter.

Alarm inactive / Alarm deactivated / Alarm not active / Alarm ended: This means that the alarm has receive a telegram on its “Alarm X” object which ends the alarm in its inactive state.

Channel disabled: Each channel has a “[X] Disable channel” object with which the channel can be blocked.

Channel enabled: Each channel has a “[X] Disable channel” object with which the channel can be enabled. It will only be unblocked though with no active and acknowledged channel alarms

Channel blocked: Due to an active alarm or if the channel was disabled with the “[X] Disable channel” object the channel will be blocked.

Channel unblocked: The channel will only be unblocked with no active and acknowledged channel alarms and if the “disable channel function” is in the enabled state.

Alarm acknowledged: An alarm can only be acknowledged if it is not active. If the acknowledge function is active the channel will have no reaction (no change in the output nor can it be unblocked) until the alarm is acknowledged. This is independent of the “disable channel object” i.e. the alarm can be acknowledged even though the channel is disabled

Example Alarms Table with “Acknowledge needed” active, and “Priority of disable object for all channels” > Alarm 2.

This table describes the different behaviours (on the right of the grey column) with consecutive events (left side of the grey column) The order of the events and their respective behaviours are indicated by a number starting from the first event/behaviour with 1 and counting up with each new event. For example line two:

Event (left side of the grey column)	Behaviour (on the right of the grey column)
1) Alarm 1 is activated	1) Behaviour alarm 1 & Block channel
2) An acknowledge is received	2) No reaction
3) Alarm 1 is deactivated	3) No reaction
4) An acknowledge is received	4) Behaviour at end of all alarms & Unblock Channel

Alarm 1 = 0	Alarm 1 = 1	Disable	Enable	Alarm 2 = 0	Alarm 2 = 1	Ack		Behaviour alarm 1	Behaviour at disable	Behaviour at enable	Behaviour alarm 2	Behaviour at end of all alarms	Block channel	Unblock Channel	No reaction	Alarms ACK but do Nothing
						1									1	
3	1					2, 4		1				4	1	4	2, 3	
2	1					3		1				3	1	3	2	
		1	2						1	2			1	2		
				2	1	3					1	3	1	3	2	
3.1	1	2	4			3.2, 5		1	3.2	4			1	4	2	
3	1	2	4			5		1		4		5	1	5	2, 3, 4	
3.1	1			4	2	3.2, 5		1			3.2	5	1	5	2, 3.1, 4	
3	2	1	5			4		2	1, 4	5			1	5	3	
		2	5	3	1	4			2	5	1		1	5	3	4
		2	4	3	1	5			2		1	5	1	5	3, 4	
6	3	2	5	4	1	7		3	2		1	7	1	7	4, 5, 6	
5	3	2	7	4	1	6		3	2, 6	7	1		1	7	4, 5	6
		2	3	4	1	5			2		1, 3	5	1	5	4	
4.1	3	2	5	6	1	4.2, 7		3	2, 4.2		1, 5	7	1	7	6, 4.1	
3	1	2	5			4		1	4	5			1	5	2, 3	
		2	4	3	1			1	2	4			1		3	

Parameter	Settings
Alarm 1	No **Yes**
By default the first alarm is activated. This option activates or hides the alarm tab with all its parameters.	
Alarm 2…8	**No** Yes
By default the first alarm is deactivated. This option activates or hides the alarm tab with all its parameters.	
Acknowledge needed	Ack. with 0 Ack. with 1 **No**
* Ack. with 0 / 1: ***Attention! Acknowledge will not execute the "Behaviour at end of all alarms" if the "disable channel object" is in disabled state, but if all alarms have ended, they will be acknowledged.***	
By activating this function the alarm must be acknowledged (either with a 1 or with a 0 depending on the above parameter selection) in order to unblock the channel. An alarm can only be acknowledged if it is not active. The channel will have no reaction (no change in the output nor can it be unblocked) until the alarm is acknowledged. This is independent of the "disable channel object" i.e. the alarm can be acknowledged even though the channel is disabled.	
Priority of disable object for all channels	**< Alarm 8** > Alarm 1 > Alarm 2 > Alarm 3 > Alarm 4 > Alarm 5 > Alarm 6 > Alarm 7 > Alarm 8
Each and every channel has a Disable object, which blocks all other functions of the channel. The behaviour at Disabling/Enabling can be configured per channel. The priority of all Disable objects can here be adjusted to have higher/lower priority as the alarms.	

4.1.1 Parameter page: Alarm 1…8

Parameter	Settings
Description	
This enables the integrator to add a personalized description in the text field.	
Type of alarm	**Digital** Analog
Both digital and analog alarms can be used.	

4.1.2 Parameter page: Alarms / Digital

Parameter	Settings
Digital alarm is active when receiving	**On** Off

This parameter is to decide with which useful data of the telegram the alarm will be activated.	
Object to disable Alarm	**No** Yes
The alarm can be disabled with a one bit object. It will be disabled with a 1 and enabled with a 0	
Reaction on bus voltage recovery	**Enable** Disable Last object status
On bus voltage recovery the alarm can be enabled, disabled, or have the same state as before the bus failure depending on the above selection.	
Monitoring time base	**10 s** 1 min 5 min 10 min 1 h
The alarm object must receive a telegram within this time, otherwise the alarm will become active.	
Alarm is triggered	**Always** Only first time
This parameter indicates if the alarm should be triggered each time it is activated or if it should only be triggered the first time. If the alarm is activated while it was already active it will not be triggered if “only the first time” is selected.	

4.1.3 Parameter page: Alarms / Analog

Parameter	Settings
Input value Analog alarm	1 byte unsigned 1 byte scaling **2 bytes float** 4 bytes unsigned 4 bytes float
The analog alarms can have any of the above datapoint types. With the analog alarms you only need to have sensors to send the analog values. You are not forced to use the usually very “rigid” logic of a KNX whether station. Apart from not being flexible to create the correct condition one only disposes of the number of threshold of the weather station. On the other hand with this function in the actuator there are much more thresholds.	
Alarm setpoint [x 0.1]	**300**
This is the setpoint of the analog alarm.	
Hysteresis [x 0.1]	**10**
This is the hysteresis of the analog alarm	
Type of Hysteresis (Threshold calculation)	**Setpoint = Upper Threshold** Setpoint = Lower Threshold Setpoint = Symmetric (1/2 between THs)

The hysteresis can be asymmetric or symmetric as can be seen in the above options. If Setpoint = Upper Threshold then the Lower Threshold = Setpoint – Hysteresis If Setpoint = Lower Threshold then the Upper Threshold = Setpoint + Hysteresis If Setpoint = Symmetric (1/2 between THs) then the Upper Threshold = Setpoint + ½ Hysteresis and the Lower Threshold = Setpoint - ½ Hysteresis	
Objects for changing Setpoint/Hysteresis values	**No** Yes
* With Yes ***Attention! The end-user parameter values will only be maintained when "Overwrite end-user…" in general tab were set to "Don't overwrite".***	
Both the setpoint value and the Hysteresis can be changed from the bus. Together with a visualization the customer can adjust each and every threshold to his own criteria. E.g. Wind speed for the awnings, light lux level for the blind position, sun position to move the slats of the blinds, etc.	
Analog alarm is active when	**Exceeding/equal upper threshold** Falling below/equal lower threshold Between upper and lower threshold >/= upper or </= lower threshold
This is to decide when the analog alarm should be active and when it should end (be inactive).	
Object to disable alarm	No **Yes**
The alarm can be disabled with the "Alarm X disable" object. This leaves the alarm without any function.	
Reaction on bus voltage recovery	**Enable** Disable Last object status
On bus voltage recovery the alarm can be enabled, disabled, or have the same state as before the bus failure depending on the above selection.	
Monitoring time base	**10 s** 1 min 5 min 10 min 1 h
The alarm object must receive a telegram within this time, otherwise the alarm will become active.	
Alarm is triggered	Always **Only first time**
This parameter indicates if the alarm should be triggered each time it is activated or if it should only be triggered the first time. If the alarm is activated while it was already active it will not be triggered if "only the first time" is selected.	

4.2 Parameter page: Logics

There are 20 logic functions available

Parameter	Settings
Logics	**No** Yes
The logic functions can be activated here.	

Parameter	Settings
Description	
This enables the integrator to add a personalized description in the text field.	
Type of logic	No function **Boolean** Gate / Filter Mathematical Comparators Converters
One of the above logic functions can be selected.	

4.2.1 Parameter page: Logics / Boolean

Parameter	Settings
Enable / Disable object	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
The function can be enabled or disabled by object when selecting this parameter. It can be configured to enable with an ON telegram and to disable with an OFF telegram or vice versa.	
Type of Boolean function	**AND** NAND OR NOR XOR XNOR
One of the following Boolean logic functions can be configured.	

4.2.1.1 Parameter page: Logics / Boolean / Input

Parameter	Settings
Input 1 Input 2	**Yes** Yes, inverted
The inputs can be activated or inverted	

Input 3 Input 4	**No** Yes Yes, inverted
The inputs can be activated, deactivated or inverted	
Reaction with event on input	**Execute logic** Don't execute logic
The logic can be executed (triggered) with an event on the input or not depending on the above selection. If "Don't execute logic" is selected the input will change and will not execute the logic, but if another input receives a value it will take the received value into account.	
Input constant / value after bus recovery	**Value before bus failure** Read on init after initial delay Set input to 0 Set input to 1
The input can be set to a constant value by the parameter "set input to X" given it is not changed from the bus afterwards It can also read the value from the bus after bus recovery, or be saved on bus failure in order to set this value on bus voltage recovery. When it is set to read the value after bus recovery, and in the output of the logic "Execute on init." is set to "Yes", then the answers of the read requests will not execute the logic. (unless the delay of the read requests is set to be greater than 2 seconds) The output will be sent with the reaction of the "Execute on init." command.	

4.2.1.2 Parameter page: Logics / Boolean / Output

Parameter	Settings
Datapoint type of output	**1 bit** 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
For this function one of the above standard KNX datapoint types can be selected.	
Sending condition	**On change** Always
In this parameter one can decide when the value must be sent. If the value must change in order to send it or not.	
Send when true	No **Yes**
If a value should be sent when true	
Value when true	1
Set here the value that should be sent when true	
Send when false	No **Yes**

If a value should be sent when false	
Value when false	0
Set here the value that should be sent when false	
Cyclic sending time	**No** Send when true Send when false Both
If a value should be sent cyclically when true, false or both.	
Execute on init	**No** Yes
The function will be executed after bus voltage recovery if “yes” is selected. With “No”: Attention! If No is selected, not even the response of the read on init will execute the logic With “Yes” and the inputs set to read on init, the output is calculated with all response telegrams	

4.2.2 Parameter page: Logics / Gate / Filter

Parameter	Settings
Enable / Disable object	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
The function can be enabled or disabled by object when selecting this parameter. It can be configured to enable with an ON telegram and to disable with an OFF telegram or vice versa.	
Reaction on bus voltage recovery of both disable objects	**Enable** Disable Last object status
On bus voltage recovery the logic can be enabled, disabled, or have the same state as before the bus failure depending on the above selection.	

4.2.2.1 Parameter page: Logics / Gate/Filter / Input

Parameter	Settings
Datapoint type	**1 bit** 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
For this function one of the above standard KNX datapoint types can be selected.	
Reaction of output with event on input	**Always** On change Don’t send telegram

The reaction of output with event on input can be configured with the above options	
Enable / Disable GATE/FILTER	No **En = 1 / Dis = 0** En = 0 / Dis = 1
This is the enable / disable input of the gate (not of the logic block) Depending of the above selection the gate will let the values of the input through to the output or not.	
Trigger input to output on en-/disable	**Nothing** Always, on every enable telegram Only when changed from disabled to enabled Always, on every disable telegram Only when changed from enabled to disabled Always, on every en-/disable telegram
The input will be triggered to the output when receiving a telegram on the Enable / disable input independent of the in/out sending conditions. One can decide with this parameter when to do the trigger.	
Input constant / value after bus recovery	**Value before bus failure** Read on init after initial delay Set input to value
The input can be set to a constant value by the parameter “set input to value” given it is not changed from the bus afterwards It can also read the value from the bus after bus recovery, or be saved on bus failure in order to set this value on bus voltage recovery.	

4.2.2.2 Parameter page: Logics / Gate/Filter / Output

Parameter	Settings
Datapoint type of output	**1 bit** 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
For this function one of the above standard KNX datapoint types can be selected.	
Sending condition	**On change** Always
In this parameter one can decide when the value must be sent. If the value must change in order to send it or not.	
Cyclic sending	**No** Yes
The telegram will be repeated cyclically (with a configurable frequency)	
Output filter	**No** Only let through within range Only let through outside of range
The values to be let through or not (filtered) can be configured here.	

Execute on init	**No** Yes
The function will be executed after bus voltage recovery if “yes” is selected. With “No”: Attention! If No is selected, not even the response of the read on init will execute the logic With “Yes” and the inputs set to read on init, the output is calculated with all response telegrams	

4.2.3 Parameter page: Logics / Mathematical

Parameter	Settings
Enable / Disable object	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
The function can be enabled or disabled by object when selecting this parameter. It can be configured to enable with an ON telegram and to disable with an OFF telegram or vice versa.	
Type of mathematical function	**ADD** SUBSTRACT MULTIPLY DIVIDE MAXIMUM MINIMUM AVERAGE
The type of mathematical function can be selected from one of the options above.	

4.2.3.1 Parameter page: Logics / Mathematical / Input

Parameter	Settings
Input 1 Input 2	No **Yes**
The inputs can be activated or inverted	
Input 3 Input 4	**No** Yes
The inputs can be activated, deactivated or inverted	
Datapoint type of input	**1 bit** 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
For this function one of the above standard KNX datapoint types can be selected.	

Reaction with event on input	**Execute logic** Don't execute logic
The logic can be executed (triggered) with an event on the input or not depending on the above selection. If "Don't execute logic" is selected the input will change and will not execute the logic, but if another input receives a value it will take the received value into account.	
Input constant / value after bus recovery	**Value before bus failure** Read on init after initial delay Set input to value
The input can be set to a constant value by the parameter "set input to value" given it is not changed from the bus afterwards It can also read the value from the bus after bus recovery, or be saved on bus failure in order to set this value on bus voltage recovery.	

4.2.3.2 Parameter page: Logics / Mathematical / Output

Parameter	Settings
Datapoint type of output	**1 bit** 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
For this function one of the above standard KNX datapoint types can be selected.	
Sending condition	**On change** Always
In this parameter one can decide when the value must be sent. If the value must change in order to send it or not.	
Cyclic sending	**No** Yes
The telegram will be repeated cyclically (with a configurable frequency)	
Output filter	**No** Only let through within range Only let through outside of range
The values to be let through or not (filtered) can be configured here.	
Execute on init	**No** Yes
The function will be executed after bus voltage recovery if "yes" is selected. With "No": Attention! If No is selected, not even the response of the read on init will execute the logic With "Yes" and the inputs set to read on init, the output is calculated with all response telegrams	

4.2.4 Parameter page: Logics / Comparators

Parameter	Settings
Enable / Disable object	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
The function can be enabled or disabled by object when selecting this parameter. It can be configured to enable with an ON telegram and to disable with an OFF telegram or vice versa.	
Type of comparators function	**EQUAL** GREATER SMALLER GREATER OR EQUAL SMALLER OR EQUAL DISTINCT
The type of comparator function can be selected from one of the options above.	

4.2.4.1 Parameter page: Logics / Comparators / Input

Parameter	Settings
Input 1 Input 2	No **Yes**
The inputs can be activated or inverted	
Input 3 Input 4	**No** Yes
The inputs can be activated, deactivated or inverted	
Datapoint type of input	**1 bit** 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
For this function one of the above standard KNX datapoint types can be selected.	
Reaction with event on input	**Execute logic** Don’t execute logic
The logic can be executed (triggered) with an event on the input or not depending on the above selection. If “Don’t execute logic” is selected the input will change and will not execute the logic, but if another input receives a value it will take the received value into account.	
Input constant / value after bus recovery	**Value before bus failure** Read on init after initial delay Set input to value
The input can be set to a constant value by the parameter “set input to value” given it is not changed from the bus afterwards It can also read the value from the bus after bus recovery, or be saved on bus failure in order to set this value on bus voltage recovery.	

4.2.4.2 Parameter page: Logics / Comparators / Output

Parameter	Settings
Datapoint type of output	**1 bit** 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
For this function one of the above standard KNX datapoint types can be selected.	
Sending condition	**On change** Always
In this parameter one can decide when the value must be sent. If the value must change in order to send it or not.	
Send when true	No **Yes**
If a value should be sent when true	
Value when true	1
Set here the value that should be sent when true	
Send when false	No **Yes**
If a value should be sent when false	
Value when false	0
Set here the value that should be sent when false	
Cyclic sending time	**No** Send when true Send when false Both
If a value should be sent cyclically when true, false or both.	
Execute on init	**No** Yes
The function will be executed after bus voltage recovery if “yes” is selected. With “No”: Attention! If No is selected, not even the response of the read on init will execute the logic With “Yes” and the inputs set to read on init, the output is calculated with all response telegrams	

4.2.5 Parameter page: Logics / Converters

Parameter	Settings
Enable / Disable object	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
The function can be enabled or disabled by object when selecting this parameter. It can be configured to enable with an ON telegram and to disable with an OFF telegram or vice versa.	

4.2.5.1 Parameter page: Logics / Converters / Input

Parameter	Settings
Datapoint type of input	**1 bit** 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
For this function one of the above standard KNX datapoint types can be selected.	
Reaction with event on input	**Execute logic** Don't execute logic
The logic can be executed (triggered) with an event on the input or not depending on the above selection. If "Don't execute logic" is selected the input will change and will not execute the logic, but if another input receives a value it will take the received value into account.	
Input constant / value after bus recovery	**Value before bus failure** Read on init after initial delay Set input to value
The input can be set to a constant value by the parameter "set input to value" given it is not changed from the bus afterwards It can also read the value from the bus after bus recovery, or be saved on bus failure in order to set this value on bus voltage recovery.	

4.2.5.2 Parameter page: Logics / Converters / Output

Parameter	Settings

Datapoint type of output	1 bit 1 byte scaling **1 byte unsigned** 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
For this function one of the above standard KNX datapoint types can be selected.	
Sending condition	**On change** Always
In this parameter one can decide when the value must be sent. If the value must change in order to send it or not.	
Cyclic sending	**No** Yes
The telegram will be repeated cyclically (with a configurable frequency)	
When result value exceeds max. allowed DPT of output value:	Don't send **Send max. value of output** Send value
An overflow is reached when the object value exceeds the maximum value of the selected data point type. For example, the maximum value of a 1 byte unsigned value is 255; therefore, the overflow is reached when the object value exceeds 255. If the result exceeds this maximum DPT value one can select to not send anything, send max. value of output, or send a predefined value.	
When result value is lower than allowed DPT of output value:	Don't send **Send min. value of output** Send absolute value (without sign) Send value
If the result is lower than the minimum value of the DPT one can select to not send anything, send min. value of output, Send absolute value (without sign) or send a predefined value.	
Output filter	**No** Only let through within range Only let through outside of range
The values to be let through or not (filtered) can be configured here.	
Execute on init	**No** Yes
The function will be executed after bus voltage recovery if "yes" is selected. With "No": Attention! If No is selected, not even the response of the read on init will execute the logic With "Yes" and the inputs set to read on init, the output is calculated with all response telegrams	

4.3 Parameter page: Scene controller

Parameter	Settings
Scene controller	**No** Yes
The actuator can also be used as a scene controller with a KNX scene input object (play and record function) and with up to 8 output objects each with its own DPT and values.	

Parameter	Settings
Attention! The end-user parameter values will only be maintained when "Overwrite end-user…" in general tab were set to "Don't overwrite".	
First scene	No **Yes**
Second scene … Tenth scene	**No** Yes
There are 10 scenes which can be individually activated here	

Parameter	Settings
Description	
This enables the integrator to add a personalized description in the text field.	
Scene number	**Scene 1** … Scene 64
Each scene can be assigned by this parameter a different input KNX scene number. Any of the 64 possible numbers can be used. The scene number to be received can be configured here. Scene 1 = value 0, Scene 2 = value 1 and so forth up to value Scene 64 = value 63.	
Possible to save scene	No **Yes**
With this selection the scene can be saved. Saving Scene 1 will requires the value 128, Scene 2 requires value 129 and so forth up to Scene 64 requires value 191 to be received in the scene input object.	
Object values are updated with	Read request to bus **Last values stored in the objects**
The values to be used when saving can be configured here, either with a read request to bus or with the last values received in the objects. Thus the user can set the desired values (e.g. using normal pushbuttons or with a visualization) of the loads and then save the new scene with a long press of the button. (according to the KNX scene standard)	
Enable / Disable object	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
The function can be enabled or disabled by object when selecting this parameter. It can be configured to enable with an ON telegram and to disable with an OFF telegram or vice versa.	
Output value for event 1 … Output value for event 8	**No function** 1 bit 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float

Each output can have its own DPT, even 4 byte values.

4.3.1 Parameter page: Advanced scene controller

Parameter	Settings
Advanced scene controller	**No** Yes
The actuator can also be used as an advanced scene controller with a free configurable input object (with different DPTs and triggers) and with up to 8 output objects each with its own DPT and values. These outputs can even have a delay between events.	

Parameter	Settings
Attention! The end-user parameter values will only be maintained when "Overwrite end-user…" in general tab were set to "Don't overwrite".	
First scene	No **Yes**
Second scene … Tenth scene	**No** Yes
There are 10 advanced scenes which can be individually activated here	

Parameter	Settings
Description	
This enables the integrator to add a personalized description in the text field.	
DPT for Play, Record, Restore and Stop	**1 bit** 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
The input object, unlike the standard KNX scene, can have any of the above DPTs and have different values for the following trigger events: Play, Record, Restore and Stop	
Play value	**0**
Value to start the scene	
Record	**No function** Set record value
Value to record the scene	

Restore	**No function** Set record value
Value to restore the scene. All the previous values of the output objects are always stored in a buffer in order to be able to restore to the previous values before the scene was executed.	
Stop	**No function** Set record value
The scene can have delay between events and can be stopped with this value at any time.	
Enable / Disable object	**No** En = 1 / Dis = 0 En = 0 / Dis = 1
The function can be enabled or disabled by object when selecting this parameter. It can be configured to enable with an ON telegram and to disable with an OFF telegram or vice versa.	
Behaviour at reception of new play value while executing scene	**Restart scene** Do nothing
The behaviour at reception of new play value while executing the scene can be configured to either do nothing or to restart the scene.	
Output value for event 1 … Output value for event 8	**No function** 1 bit 1 byte scaling 1 byte unsigned 1 byte signed 2 bytes unsigned 2 bytes signed 2 bytes float 4 bytes unsigned 4 bytes signed 4 bytes float
Each output can have its own DPT, even 4 byte values.	

4.4 Parameter page: Timers

Parameter	Settings
Timers	**No** Yes
The actuator can be used as a timer module with many advanced functions. It can delay any DPT or it can be used as a 1 bit very advanced staircase controller	

Parameter	Settings
Timer 1	No **Yes**
Timer 2 … Timer 10	**No** Yes
There are 10 timers which can be individually activated here.	

Parameter	Settings
Description	

This enables the integrator to add a personalized description in the text field.	
Timer type	Only “Reaction at OFF” Delay **Staircase** Delay and staircase Only ON (without delay/staircase)
The timer can be used as any of the above timer types. Only the delay can have different DPTs; the rest the of the timer trigger objects are 1 bit objects which will have different behaviours when receiving an ON or OFF respectively. This are the possible actions to be executed when the timer trigger object receives an ON (“1”): Only “Reaction at OFF”: the timer will not be executed. Delay: the channel switches ON after a time delay. Staircase: the channel immediately switches ON and stays ON for the configured staircase time and thereafter switches OFF again. Delay and staircase: the channel switches ON after a time delay and then stays ON for the configured staircase time and thereafter switches OFF again. Only ON (without delay/staircase): the channel immediately switches ON and stays ON.	

Parameter	Settings
- Staircase time (ON duration) Base	**1 s** 5 s 10 s 1 min 5 min 10 min 1 h
- Staircase time (ON duration) Factor	**60**
Establish here the wished time for the channel to be ON The Staircase time is the period of time during which the actuator channel will be switched ON. After this time elapses, the channel switches OFF again.	
Staircase time Factor changeable by object	**No** Yes
No (default option): staircase time only configurable via parameters. Yes: this option activates an object to change staircase time factor. As you can see in the picture below, the time Base can be any of the following: So, if you have selected, for instance, “1 s”, then the values received in this object will be in “seconds”. If you have selected “5 s” though, the values received will be in “seconds” and multiplied by 5 (base “5 s” x value received at object “10” = “50 seconds”). The same rule applies if the Base has been selected in “minutes” or “hours”. Attention: if you send a 0 to "Timer one change staircase factor" the staircase will switch ON with a “1” and stay ON.	
Advanced staircase function	**No** Yes
Here the advanced functions can be activated.	

4.4.1 Parameter page: Timers/Advanced staircase function

Parameter	Settings
Multiply staircase	**No** Yes
* With Yes: ***Attention! Total staircase time = staircase time x number of consecutive ON telegrams separated by less than 1 sec. from each other***	
Here you can activate the possibility to multiply the staircase time in order to extend the time during which the channel will stay ON. The total staircase ON time is calculated by taking the parameterized staircase time and multiplying it by the number of consecutive ON telegrams received. Keep in mind that the multiplication telegrams (consecutive ON telegrams) must be separated by less than 1 second from each other. Should more than 1 second elapse between two telegrams, then it will only do the multiplication of the previous pulses received. The telegrams received after this, will be ignored or interpreted as a retrigger timer function (if parameterized), see next parameter “Retrigger timer” option. This resulting multiplication time will never exceed the maximum staircase time as can be configured in the parameter option “Maximum staircase time Base/Factor” Practical example: as implied by its name, the staircase time is frequently used in staircases. With the purpose of lowering the costs, instead of using a movement detector for switching ON/OFF, often push buttons are used with the staircase time as defined in the actuator. In order to save energy, the staircase time should be as short as possible, but sometimes you may wish to have the lights longer ON. In this case, this option can be very useful because it allows the end user to easily extend the staircase time by pressing several times (depending on how long the light should stay ON).	
Retrigger timer	No **Yes, excluding multiplication** Yes, including multiplication
It is possible to extend the staircase time by retriggering it (in other words, the timer starts counting again from the start) with an ON telegram. But this function will only be executed after more than 1 second has elapsed between the triggering events of the timer (for trigger events less than 1 second, see the behaviour in the section “MULTIPLY STAIRCASE”). Keep in mind that only the “Staircase time (ON duration)” will be extended. (So if the staircase is configured with an ON delay, when receiving the retrigger telegram it will NOT switch OFF, and the ON delay will be ignored) If the previous parameter option “Multiply staircase” is activated, the retrigger telegrams will also do the multiplication, given the consecutive ON telegrams are separated by less than 1 second from each other. No: the staircase will not be retriggered. Yes, excluding multiplication (default option): this option will retrigger the staircase to be reset to the time (Base/Factor) as configured in the ETS application program. For example: you have configure the staircase time in the ETS application program to be 1 minute; should the staircase time be, for instance, 1 hour as the result of a previous multiplication (Multiply staircase option), the moment you receive the retrigger telegram it will be reset to 1 minute again. Yes, including multiplication: this option will retrigger the staircase to be reset to the current staircase time (it could be the parameterized time or the multiplied staircase time). For example: you have configure the staircase time in the ETS application program to be 1 minute; should the staircase time be, for instance, 1 hour as the result of a previous multiplication (Multiply staircase option), the moment you receive the retrigger telegram it will be reset to 1 hour again.	

Warning pulse	**No function** With own output With additional object

The warning pulse is meant to inform the end user about the fact that the staircase time is about to expire.

No function (default option): the light will go OFF without previous warning after the staircase time elapses.

With own output: the same channel will be used for this warning pulse.

According to the default parameters, the output will switch OFF 10 seconds before the end of the staircase time and it will switch ON again 2 seconds thereafter. This creates a short blinking effect as a visual warning.

It is important to be able to configure the OFF time because not all loads can switch OFF immediately (for example, lights using transformers). So, if you have selected 1 second as a warning time, it might not switch OFF at all.

With additional object: this option serves the same purpose of warning before the staircase time elapses. It is specially indicated for those places where the channel can/may not be switched ON and OFF quickly. In these cases, the additional object can send a warning pulse to another channel (different load) just before the end of the staircase time of the main load.

Practical example: let's say this channel is used to control the flood lights of a tennis court via contactor. These lights take long to switch ON again (after they have been switched OFF), which is not energy-efficient nor practical. Therefore, to be able to generate a warning pulse, you can use an additional warning light connected to another channel, which this additional object is linked to.

1 action: ON: the additional object only sends a "1" at the configured point in time before the staircase time elapses.

2 actions : 1st OFF, 2nd ON: the additional object can execute two actions by sending:
Time before end of staircase for 1st action: a "0" at the configured point in time before the staircase time elapses.
Time before end of staircase for 2nd action: a "1" at the configured point in time before the staircase time elapses.

Time before end of staircase for 1st action: a "1" at the configured point in time before the staircase time elapses.
Time before end of staircase for 2nd action: a "0" at the configured point in time before the staircase time elapses.

3 actions: 1st OFF, 2nd ON, 3rd OFF (default option): the additional object can execute three actions by sending:
Time before end of staircase for 1st action: a "0" at the configured point in time before the staircase time elapses.
Time before end of staircase for 2nd action: a "1" at the configured point in time before the staircase time elapses.
Time before end of staircase for 3rd action: a "0" at the configured point in time before the staircase time elapses.

Parameter	Settings
REACTION AT OFF	No action OFF without delay OFF with delay

Attention! Reaction at OFF cancels the running staircase

This are the possible actions to be executed when the timer trigger object receives an OFF ("0"):

No action: the timer will not be interrupted.

OFF without delay (default option): the channel immediately switches OFF and the timer function is cancelled.

OFF with delay: the channel switches OFF after a time delay.

OFF WITH DELAY
As soon as the OFF telegram is received, the Timer is cancelled.

Object to disable timer	Yes, immediately Yes, on ending current timer **No**
The disable object will always react as follows (and cannot be otherwise configured): “0”: disable. “1”: enable. Yes, immediately: as soon as the Disable object receives a “0”, the timer will be cancelled and disabled. This option activates the parameter “Reaction on bus voltage recovery”. Yes, on ending current timer: whenever the Disable object receives a “0”, the timer will be not cancelled, but disabled. Thus, the current timer will finalize normally. This option activates the parameter “Reaction on bus voltage recovery”. No (default option): the disable object, including the “Reaction on bus voltage recovery” will be hidden.	

Object to disable timer:

With “Object to disable timer:”
Yes, immediately
Yes, on ending current timer

Parameter	Settings
Reaction on bus voltage recovery	**Enable** Disable Last object status
On bus voltage recovery the timer can be enabled, disabled, or have the same state as before the bus failure depending on the above selection.	

4.5 Parameter page: Setpoints

Parameter	Settings
Setpoints	**No** Yes
Here the setpoints can be activated. Setpoints can be used as a two-point regulator (2 thresholds) or as an window comparator (2 thresholds + within thresholds)	

Parameter	Settings
Practical example: Thermostat mode control by using 3 setpoints. Setpoint 1 = 22ºC > Enable value = 1 > Comfort mode Setpoint 2 = 20ºC > Enable value = 2 > Standby mode Setpoint 3 = 18ºC > Enable value = 3 > Night mode	

Setpoint 1 … Setpoint 3	No **Yes**
Thermostat controller by using the first 3 setpoints. They have been activated by default and the parameters in each setpoint have been selected individually to build a full KNX room thermostat.	
Setpoint 4 … Setpoint 30	**No** Yes
Here the individual setpoints to use as a Two-point Regulator (2 thresholds), Window comparator (2 thresholds + within thresholds) or simple thermostat can be activated.	

4.5.1 Parameter page: Setpoints 1 … 3

Parameter	Settings
Description	Setpoint 1 default parameter: **Comfort Mode Heat=22ºC, Cool=(22+2)=24ºC** Setpoint 2 default parameter: **Standby Mode Heat=20ºC, Cool=(20+6)=26ºC** Setpoint 3 default parameter: **Night Mode Heat=18ºC, Cool=(18+10)=28ºC**
This enables the integrator to add a personalized description in the text field.	

The actuator does not have a full thermostat module integrated, nevertheless by using 3 setpoints this can be achieved. In order to facilitate the understanding of how to configure the 3 setpoints they have been activated by default and the parameters in each setpoint have been selected individually to build a full KNX room thermostat. It is important to treat these 3 setpoints as “one”. Meaning that the same objects in each of the three setpoints should be linked with the same group address.

E.g. to change the “HVAC mode” i.e. comfort, standby and night mode, the enable object is set to 1 byte and in each setpoint the value to enable the setpoint is different. In the example for Setpoint 1 the enable value is 1, Setpoint 2 the enable value is 2 and Setpoint 3 the enable value is 3. So if the same group address is connected to all three objects, by sending the value 1 the setpoint 1 will be enabled and the other two setpoints disabled. (all other values but the enable value disables the setpoint)

To change the new current setpoint temperature one should, as previously described also connect the same group address to the three “Setpoint X setpoint value/status” objects. Only the enabled setpoint would accept the new setpoint change, thus unlike other room thermostats when changing the current setpoint with the same group address it always changes the value of the current selected mode. Let’s have a detailed look at the default parameter example which uses the first three setpoints:

Thermostat mode control by using 3 setpoints.
1) Setpoint 1 = 22ºC > Enable value = 1 > Heat/Cool = 1 > Mode = Comfort-Heat
2) Setpoint 2 = 20ºC > Enable value = 2 > Heat/Cool = 1 > Mode = Standby-Heat
3) Setpoint 3 = 18ºC > Enable value = 3 > Heat/Cool = 1 > Mode = Night-Heat

4) Setp.1=22ºC+(2ºC Cool offset)=24ºC > Enable=1 > Heat/Cool=0 >Mode=Comfort-Cool
5) Setp.2=20ºC+(6ºC Cool offset)=26ºC > Enable=2 > Heat/Cool=0 >Mode=Standby-Cool
6) Setp.3=18ºC+(10ºC Cool offset)=28ºC > Enable=3 > Heat/Cool=0 >Mode=Night-Cool

As we can see the “Room Thermostat” can be set in 6 states. Now referring to the above states “1) - 6)” let’s see what happens when sending the new setpoint value to all three setpoints at the same time.

Let’s say we start off in state 1) now we send the value 21 as the new setpoint value, this will result in the following:

1) Setpoint 1 = 21ºC > Enable value = 1 > Heat/Cool = 1 > Mode = Comfort-Heat
2) Setpoint 2 = 20ºC > Enable value = 2 > Heat/Cool = 1 > Mode = Standby-Heat

3) Setpoint 3 = 18ºC > Enable value = 3 > Heat/Cool = 1 > Mode = Night-Heat

4) Setp.1=21ºC+(2ºC Cool offset)=23ºC > Enable=1 > Heat/Cool=0 >Mode=Comfort-Cool
5) Setp.2=20ºC+(6ºC Cool offset)=26ºC > Enable=2 > Heat/Cool=0 >Mode=Standby-Cool
6) Setp.3=18ºC+(10ºC Cool offset)=28ºC > Enable=3 > Heat/Cool=0 >Mode=Night-Cool

Now let's say we change to state 2) now we send the value 19 as the new setpoint value, this will result in the following:

1) Setpoint 1 = 21ºC > Enable value = 1 > Heat/Cool = 1 > Mode = Comfort-Heat
2) Setpoint 2 = 19ºC > Enable value = 2 > Heat/Cool = 1 > Mode = Standby-Heat
3) Setpoint 3 = 18ºC > Enable value = 3 > Heat/Cool = 1 > Mode = Night-Heat

4) Setp.1=21ºC+(2ºC Cool offset)=23ºC > Enable=1 > Heat/Cool=0 >Mode=Comfort-Cool
5) Setp.2=19ºC+(6ºC Cool offset)=25ºC > Enable=2 > Heat/Cool=0 >Mode=Standby-Cool
6) Setp.3=18ºC+(10ºC Cool offset)=28ºC > Enable=3 > Heat/Cool=0 >Mode=Night-Cool

Now let's say we change to state 6) now we send the value 27 as the new setpoint value, this will result in the following:

1) Setpoint 1 = 21ºC > Enable value = 1 > Heat/Cool = 1 > Mode = Comfort-Heat
2) Setpoint 2 = 19ºC > Enable value = 2 > Heat/Cool = 1 > Mode = Standby-Heat
3) Setpoint 3 = 17ºC > Enable value = 3 > Heat/Cool = 1 > Mode = Night-Heat

4) Setp.1=21ºC+(2ºC Cool offset)=23ºC > Enable=1 > Heat/Cool=0 >Mode=Comfort-Cool
5) Setp.2=19ºC+(6ºC Cool offset)=25ºC > Enable=2 > Heat/Cool=0 >Mode=Standby-Cool
6) Setp.3=17ºC+(10ºC Cool offset)=27ºC > Enable=3 > Heat/Cool=0 >Mode=Night-Cool

So as can be seen in this last step the setpoint change will always change the current setpoint status (not the parameter value) It does not matter in which KNX HVAC mode or in Heat/Cool state it is in.

This is a big advantage over most KNX room thermostats. To change the setpoint from a visualization you only need one control element to set the desired current setpoint value and it will always correspond to the current setpoint status.

Parameter page: Setpoints 1…3/DTP

Parameter	Settings
Datapoint type of setpoint objects	1 byte unsigned 1 byte scaling 2 bytes unsigned **2 bytes float** 4 bytes unsigned 4 bytes float
Attention! The "… setpoint value/status" object can only be changed if the Setpoint is enabled. Initial setpoint status value if Heat/Cool modes are used: Heating = parameter value, Cooling = parameter value + "Cool offset"	
Here the DPT for both the setpoint and the hysteresis can be set. **Setpoint for most of the important DPTs (not only temperature)** This allows for instance in combination with energy meters and visualization systems to set the maximum consumption for each load and use the 4 byte values as a setpoint in order not to exceed the appointed maximum ¼ hour energy values and therefore reduce the monthly costs.	

Parameter page: Setpoints 1 … 3 / DPT / X bytes float

Parameter	Settings
Datapoint type of setpoint objects	… **2 bytes float** … 4 bytes float
The usual DPT for temperature values is a 2 byte float value	

Setpoint [x 0.1]	Setpoint 1 default parameter: **220** Setpoint 2 default parameter: **200** Setpoint 3 default parameter: **180**
Here the initial setpoint value can be set. It can also be changed from the bus and depending on the end-user parameters be overwritten or not when downloading with the ETS. **Higher than normal temperature setpoint value;** use setpoints (as a thermostat) to control high setpoint temperature values. (most devices in the market don't allow temp. setpoint higher than 45ºC) Very useful for solar panel installation control.	
Hysteresis [x 0.1]	10
Here the hysteresis value can be set.	
Type of Hysteresis (Threshold calculation)	Setpoint = Upper threshold Setpoint = Lower threshold Setpoint = Symmetric (1/2 between THs) **Heating / Cooling object**
Here the type of hysteresis for the threshold calculation can be selected. When selecting "Setpoint = Upper threshold" the Lower Threshold = Setpoint – Hysteresis (typically for heating) This is typically used for an analogue value that starts off from a lower value and when reaching the higher threshold value sends a telegram to switch the load. E.g. switch off the heating, lower the shades, etc. When selecting "Setpoint = Lower threshold" the Upper Threshold = Setpoint + Hysteresis (typically for cooling) This is typically used for an analogue value that starts off from a higher value and when reaching the lower threshold value sends a telegram to switch the load. E.g. switch off the cooling, switching on a light when getting too dark, etc. When selecting "Setpoint = Symmetric (1/2 between THs)" the Upper Threshold = Setpoint + ½ Hysteresis and the Lower Threshold = Setpoint - ½ Hysteresis. When selecting "Heating / Cooling object" it switches between the first two options by sending to this object a 1 for Heating or a 0 for Cooling. In this case the "reaction exceeding…, …falling…, and …within…" cannot be selected in the parameters. It is fixed to the following: **For Heating:** Reaction exceeding/equal upper threshold = OFF Reaction falling below/equal lower threshold = ON **For Cooling:** Reaction exceeding/equal upper threshold = ON Reaction falling below/equal lower threshold = OFF	
Send output value	**On change** Always
When selecting "On change" the output will only be sent the first time reaching/crossing the threshold. It will only send again when reaching/crossing the other threshold. "Always" on the other hand will send the output on each input event.	
Offset in setpoint for Cooling [x0.1]	Setpoint 1 default parameter: **20** Setpoint 2 default parameter: **60**

	Setpoint 3 default parameter: **100**
Here the offset of the setpoint temperature when changing to the cool mode can be selected. Example: Assuming the setpoint is 22ºC, when the value in this parameter is 20 (2K), then the setpoint for cooling will be 22 + 2 = 24ºC	
Enable / disable function	**No** Yes
The setpoint can be enabled or disabled by object when selecting this parameter.	
Attention! The end-user parameter values will only be maintained when "Overwrite end-user…" in general tab were set to "Don't overwrite".	

Parameter page: Setpoints 1 … 3/Enable/Disable function

Parameter	Settings
Enable / disable object	1 bit **1 byte unsigned**
The setpoint can be enabled with a 1 bit on/off telegram or with a 1 byte unsigned telegram. The latter can be used for instance to set the HVAC mode.	
Enable / Disable	Setpoint 1 default parameter: **1** Setpoint 2 default parameter: **2** Setpoint 3 default parameter: **3**
When selecting 1 bit, it can be configured to enable with an ON telegram and to disable with an OFF telegram or vice versa. When selecting 1 byte to enable the setpoint, the enable value can be set in the parameters. When sending this enable value to the object the setpoint will be enabled, any other value disables the setpoint. When using it for the HVAC mode use one of the following enable values: Comfort mode = 1 Standby mode = 2 Night/saving mode = 3 Frost/Heat protection = 4	
- Reaction on bus voltage recovery	**Enable** Disable Last object status
Whether the setpoint will be active or not on bus voltage recovery can be configured here. On bus voltage recovery the setpoint can be enabled, disabled, or have the same state as before the bus failure depending on the above selection. **Enable:** the setpoint will be enabled. **Disable:** the setpoint will be disabled. **Last object status:** the status of the Enable object will be saved in the actuator's non-volatile memory; therefore, when the actuator initializes, if this option has been chosen, it will set the object as it was before the bus failure.	
Reaction of output and setpoint at enabling	Nothing Set calculated output Send setpoint **Both**

The reaction of output and setpoint at enabling can be selected to send the Send setpoint, Set calculated output or both the former. This is especially useful to control Air Condition systems as additional heating and/or cooling. Most KNX thermostats don't send the setpoint values with each change (heat/cool, Comfort/Standby/…) to the bus. In order to control a Split unit as an additional cooling via a gateway it is essential to send the new setpoint on each and every change.	
Reaction of output and setpoint at disabling	**Block and send nothing** Block and set output to 0 and send
The reaction of output and setpoint at disabling can be selected to block and send nothing or to block and set output to 0 and send the setpoint value. This is also useful for the above example.	

4.5.2 Parameter page: Setpoints 4 … 30

Parameter	Settings
Description	
This enables the integrator to add a personalized description in the text field.	
Input value	**By object** Temp. sensor 1 result Temp. sensor 2 result Temp. sensor 3 result Temp. sensor 4 result Temp. sensor 5 result Temp. sensor 6 result
The reference value for the setpoint can be either one of the temperature sensors resulting values (weighted output) of the inputs or it can receive its value from the bus by selecting "By object"	

Parameter page: Setpoints 4 … 30/DPT

Parameter	Settings
Datapoint type of setpoint objects	1 byte unsigned 1 byte scaling 2 bytes unsigned **2 bytes float** 4 bytes unsigned 4 bytes float
Attention! The "… setpoint value/status" object can only be changed if the Setpoint is enabled. Initial setpoint status value if Heat/Cool modes are used: Heating = parameter value, Cooling = parameter value + "Cool offset"	
Here the DPT for both the setpoint and the hysteresis can be set. **Setpoint for most of the important DPTs (not only temperature)** This allows for instance in combination with energy meters and visualization systems to set the maximum consumption for each load and use the 4 byte values as a setpoint in order not to exceed the appointed maximum ¼ hour energy values and therefore reduce the monthly costs.	

Parameter page: Setpoints 4…30/DPT/X bytes float

Parameter	Settings
Datapoint type of setpoint objects	… **2 bytes float** … 4 bytes float
Setpoint [x 0.1]	220
Here the initial setpoint value can be set. It can also be changed from the bus and depending on the end-user parameters be overwritten or not when downloading with the ETS. **Higher than normal temperature setpoint value;** use setpoints (as a thermostat) to control high setpoint temperature values. (most devices in the market don't allow temp. setpoint higher than 45ºC) Very useful for solar panel installation control.	
Hysteresis [x 0.1]	10
Here the hysteresis value can be set.	
Type of Hysteresis (Threshold calculation)	**Setpoint = Upper threshold** Setpoint = Lower threshold Setpoint = Symmetric (1/2 between THs) Heating / Cooling object
Here the type of hysteresis for the threshold calculation can be selected. When selecting "Setpoint = Upper threshold" the Lower Threshold = Setpoint – Hysteresis (typically for heating) This is typically used for an analogue value that starts off from a lower value and when reaching the higher threshold value sends a telegram to switch the load. E.g. switch off the heating, lower the shades, etc. When selecting "Setpoint = Lower threshold" the Upper Threshold = Setpoint + Hysteresis (typically for cooling) This is typically used for an analogue value that starts off from a higher value and when reaching the lower threshold value sends a telegram to switch the load. E.g. switch off the cooling, switching on a light when getting too dark, etc. When selecting "Setpoint = Symmetric (1/2 between THs)" the Upper Threshold = Setpoint + ½ Hysteresis and the Lower Threshold = Setpoint - ½ Hysteresis. When selecting "Heating / Cooling object" it switches between the first two options by sending to this object a 1 for Heating or a 0 for Cooling. In this case the "reaction exceeding…, …falling…, and …within…" cannot be selected in the parameters. It is fixed to the following: **For Heating:** Reaction exceeding/equal upper threshold = OFF Reaction falling below/equal lower threshold = ON **For Cooling:** Reaction exceeding/equal upper threshold = ON Reaction falling below/equal lower threshold = OFF	
Reaction exceeding/equal upper threshold	No reaction On **Off** On, first time exceeding Off, first time exceeding

Here the reaction exceeding/equal upper threshold can be set.	
Reaction falling below/equal lower threshold	No reaction **On** Off On, first time falling below Off, first time falling below
Here the reaction falling below/equal lower threshold can be set.	
Reaction within threshold	**No reaction** On Off On, first time entering Off, first time entering
Here the reaction within threshold can be set	
Enable / disable function	**No** Yes
The setpoint can be enabled or disabled by object when selecting this parameter.	
Attention! The end-user parameter values will only be maintained when "Overwrite end-user…" in general tab were set to "Don't overwrite".	

Parameter page: Setpoints 4… 30/DPT/X bytes float/Enable/Disable function

Parameter	Settings
Enable / disable object	**1 bit** 1 byte unsigned
The setpoint can be enabled with a 1 bit on/off telegram or with a 1 byte unsigned telegram. The latter can be used for instance to set the HVAC mode.	
Enable / Disable	**En =1 / Dis = 0** En =0 / Dis = 1
When selecting 1 bit, it can be configured to enable with an ON telegram and to disable with an OFF telegram or vice versa. When selecting 1 byte to enable the setpoint, the enable value can be set in the parameters. When sending this enable value to the object the setpoint will be enabled, any other value disables the setpoint. When using it for the HVAC mode use one of the following enable values: Comfort mode = 1 Standby mode = 2 Night/saving mode = 3 Frost/Heat protection = 4	
- Reaction on bus voltage recovery	**Enable** Disable Last object status
Whether the setpoint will be active or not on bus voltage recovery can be configured here. On bus voltage recovery the setpoint can be enabled, disabled, or have the same state as before the bus failure depending on the above selection. **Enable:** the setpoint will be enabled. **Disable:** the setpoint will be disabled. **Last object status:** the status of the Enable object will be saved in the actuator's non-volatile memory; therefore, when the actuator initializes, if this option has been chosen, it will set the object as it was before the bus failure.	

Reaction of output and setpoint at enabling	**Nothing** Set calculated output Send setpoint Both
The reaction of output and setpoint at enabling can be selected to send the Send setpoint, Set calculated output or both the former. This is especially useful to control Air Condition systems as additional heating and/or cooling. Most KNX thermostats don't send the setpoint values with each change (heat/cool, Comfort/Standby/…) to the bus. In order to control a Split unit as an additional cooling via a gateway it is essential to send the new setpoint on each and every change.	
Reaction of output and setpoint at disabling	**Block and send nothing** Block and set output to 0 and send
The reaction of output and setpoint at disabling can be selected to block and send nothing or to block and set output to 0 and send the setpoint value. This is also useful for the above example.	

4.6 Parameter page: Internal variables

Parameter	Settings
Internal variables	**No** Yes
This can be used to make internal links like the links done by using group addresses but with the main difference that they are not sent to the bus. Only output objects can be linked to input objects. Care should be taken to link only objects with the same DPT, this must be checked by the integrator, it is not checked by the application program. Should they have different sizes it will not work.	

Parameter	Settings
Internal variables 1…10	No **Yes**
Internal variables 11…20 Internal variables 21…30 Internal variables 31…40 Internal variables 41…50	**No** Yes
Attention! It is recommended to only use variables for internal links. If group addresses are also linked, execution will take longer.	
A total of 50 internal links can be done	

4.6.1 Parameter page: Variables 1…10

Parameter	Settings
Description	
This enables the integrator to add a personalized description in the text field.	

Parameter	Settings
Variable 1	No **Yes**
Variable 2 … Variable 10	**No** Yes
There are a total of 10 variable per page	

4.6.1.1 Parameter page: Variables 1…10 / Output object

Parameter	Settings
Output object to send variable	General **Switching channels** Blind channels Logic Scenes Advanced scenes Timers Setpoints
In order to find and select the output object to be linked with the input object one has different filters. This is the main filter where all main functions of the actuator are listed.	

Parameter	Settings
Output object to send variable	General
In order to find and select the output object to be linked with the input object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Object name	**Central cyclic telegram for monitoring** Telegram at bus recovery
In order to find and select the output object to be linked with the input object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	

Parameter	Settings
Output object to send variable	**Switching channels**
In order to find and select the output object to be linked with the input object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select channel	**A1** A2 B1 B2 C1 C2
In order to find and select the output object to be linked with the input object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Switching status** RunHour counter RunHour counter alarm RunHour counter value at reset Switching counter Switching counter alarm

	Switching counter value at reset Timer 1 warning pulse Timer 2 warning pulse
In order to find and select the output object to be linked with the input object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Output object to send variable	Blind channels
In order to find and select the output object to be linked with the input object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select channel	**A** B C
In order to find and select the output object to be linked with the input object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Status blind position** Status blind 100% Status blind 0% Status slat position
In order to find and select the output object to be linked with the input object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Output object to send variable	Logics
In order to find and select the output object to be linked with the input object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select logic	**Logic 1** … Logic 20
In order to find and select the output object to be linked with the input object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Logic output**
In order to find and select the output object to be linked with the input object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Output object to send variable	Scenes
In order to find and select the output object to be linked with the input object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select KNX scene	**Scene 1** … Scene 10
In order to find and select the output object to be linked with the input object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Scene event 1** … Scene event 8

In order to find and select the output object to be linked with the input object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.

Parameter	Settings
Output object to send variable	Advanced scenes
In order to find and select the output object to be linked with the input object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select flexible scene	**Scene 1** … Scene 10
In order to find and select the output object to be linked with the input object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Advanced scene event 1** … Advanced scene event 8
In order to find and select the output object to be linked with the input object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Output object to send variable	Timers
In order to find and select the output object to be linked with the input object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select timer	**Timer 1** … Timer 10
In order to find and select the output object to be linked with the input object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Timer warning pulse** Timer output
In order to find and select the output object to be linked with the input object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Output object to send variable	Setpoints
Select setpoint	**Setpoint 1** … Setpoint 30
In order to find and select the output object to be linked with the input object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Setpoint output regulator**
In order to find and select the output object to be linked with the input object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

4.6.1.2 Parameter page: Variables 1…10 / Input object

Parameter	Settings
Input object to send variable	General **Switching channels** Blind channels Alarms Logic Scenes Advanced scenes Timers Setpoints
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	

Parameter	Settings
Input object to send variable	General
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Object name	**Central switching/move blind** Central move Manual control disable
In order to find and select the input object to be linked with the output object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	

Parameter	Settings
Input object to send variable	**Switching channels**
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select channel	**A1** A2 B1 B2 C1 C2
In order to find and select the input object to be linked with the output object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	

Object name	**Switching** Switching toggle / inverted RunHour counter threshold RunHour counter reset Switching counter threshold Switching counter reset Scene number Scene disable Timer 1 trigger Timer 1 change staircase factor Timer 1 disable Timer 2 trigger Timer 2 change staircase factor Timer 2 disable Disable channel
In order to find and select the input object to be linked with the output object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Input object to send variable	Blind channels
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select channel	**A** B C
In order to find and select the input object to be linked with the output object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Move** Stop (Blind = Stop/Step) Move to position Move to slat Change upper limit Change lower limit Preset 1 execute Preset 2 execute Preset 3 execute Preset 4 execute Preset 1 change move position Preset 2 change move position Preset 3 change move position Preset 4 change move position Preset 1 change slat position Preset 2 change slat position Preset 3 change slat position Preset 4 change slat position Preset 1 save Preset 2 save Preset 3 save Preset 4 save Scene number Scene disable Disable function Move inverted

In order to find and select the input object to be linked with the output object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.

Parameter	Settings
Input object to send variable	Alarms
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select alarm	**Alarm 1** … Alarm 8
In order to find and select the input object to be linked with the output object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Alarm** Alarm setpoint Alarm hysteresis Alarm disable
In order to find and select the input object to be linked with the output object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Input object to send variable	Logics
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select logic	**Logic 1** … Logic 20
In order to find and select the input object to be linked with the output object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Logic disable** Logic input 1 Logic input 2 / Enable Gate Logic input 3 Logic input 4
In order to find and select the input object to be linked with the output object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Input object to send variable	Scenes
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select KNX scene	**Scene 1** … Scene 10
In order to find and select the input object to be linked with the output object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Scene input** Scene disable

In order to find and select the input object to be linked with the output object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.

Parameter	Settings
Input object to send variable	Advanced scenes
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select flexible scene	**Scene 1** … Scene 10
In order to find and select the input object to be linked with the output object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Advanced scene input** Advanced scene disable
In order to find and select the input object to be linked with the output object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Input object to send variable	Timers
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select timer	**Timer 1** … Timer 10
In order to find and select the input object to be linked with the output object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Timer trigger** Timer change staircase factor Timer disable
In order to find and select the input object to be linked with the output object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

Parameter	Settings
Input object to send variable	Setpoints
In order to find and select the input object to be linked with the output object one has different filters. This is the main filter where all main functions of the actuator are listed.	
Select setpoint	**Setpoint 1** … Setpoint 30
In order to find and select the input object to be linked with the output object one has different filters. This is the first sub-filter where all the sub functions of the previously selected main function of the actuator are listed.	
Object name	**Setpoint Heat / Cool** Setpoint disable Setpoint value/status Setpoint input ext. sensor value
In order to find and select the input object to be linked with the output object one has different filters. This is the second sub-filter where all the secondary sub functions of the previously selected sub-function of the actuator are listed.	

4.7 Parameter page: Overwrite end-user parameter values at download

Parameter	Settings
Overwrite end-user parameter values at download	No **Yes** Custom
It is very important for the end user to be able to change (via dedicated objects linked, for instance, to a visualization) certain settings of his/her KNX installation. This actuator allows for these changes to be maintained even when downloading the application program with the ETS again. If no end-user parameters should be downloaded the “No” option should be selected. But it is also possible by selecting “Custom” to individually decide whether or not the end-user parameters should be downloaded.	

Parameter page: ENDUSER PARAMETERS

Parameter	Settings
Attention! For blind selection only Channel_1 parameters are used. In this case ignore parameters for Channel_2!	
The channels always are either two binary channels or one shutter/blind channel. It is done like this to reduce the needed parameters.	

4.7.1 Parameter page: ENDUSER PARAMETERS / ADVANCED FUNCTIONS

4.7.1.1 Parameter page: ADVANCED FUNCTIONS / Alarms

Parameter	Settings
Alarms	**Overwrite complete module** Overwrite individually Don’t overwrite
If none of the Alarm end-user parameters should be downloaded the “Don’t overwrite” option should be selected. But it is also possible by selecting “Overwrite individually” to individually decide whether or not the end-user parameters of any one of the 8 Alarms should be downloaded.	

Parameter page: ADVANCED FUNCTIONS / Alarms / Overwrite individually

Parameter	Settings
Alarms	Overwrite individually
- Alarm 1 … - Alarm 8	Overwrite Don’t overwrite
Select here whether to overwrite or not	

4.7.1.2 Parameter page: ADVANCED FUNCTIONS / Scenes

Parameter	Settings
Scenes	**Overwrite complete module** Overwrite individually Don't overwrite
If none of the Scene end-user parameters should be downloaded the "Don't overwrite" option should be selected. But it is also possible by selecting "Overwrite individually" to individually decide whether or not the end-user parameters of any one of the 10 scenes should be downloaded.	

Parameter page: ADVANCED FUNCTIONS / Scenes / Overwrite individually

Parameter	Settings
Scenes	Overwrite individually
- First scene … - Tenth scene	Overwrite Don't overwrite
Select here whether to overwrite or not	

Parameter page: ADVANCED FUNCTIONS / Advanced scenes

Parameter	Settings
Advanced scenes	**Overwrite complete module** Overwrite individually Don't overwrite
If none of the Advanced Scene end-user parameters should be downloaded the "Don't overwrite" option should be selected. But it is also possible by selecting "Overwrite individually" to individually decide whether or not the end-user parameters of any one of the 10 Advanced scenes should be downloaded.	

Parameter page: ADVANCED FUNCTIONS / Advanced scenes / Overwrite individually

Parameter	Settings
Advanced scenes	Overwrite individually
- First scene … - Tenth scene	Overwrite Don't overwrite
Select here whether to overwrite or not	

4.7.1.3 Parameter page: ADVANCED FUNCTIONS/Timers

Parameter	Settings
Timers	**Overwrite complete module** Overwrite individually Don't overwrite
If none of the Timers end-user parameters should be downloaded the "Don't overwrite" option should be selected. But it is also possible by selecting "Overwrite individually" to individually decide whether or not the end-user parameters of any one of the 10 Timers should be downloaded.	

Parameter page: ADVANCED FUNCTIONS/Timers/Overwrite individually

Parameter	Settings
Timers	Overwrite individually
- Timer 1 … - Timer 10	Overwrite Don't overwrite
Select here whether to overwrite or not	

4.7.1.4 Parameter page: ADVANCED FUNCTIONS / Setpoints

Parameter	Settings
Setpoints	**Overwrite complete module** Overwrite individually Don't overwrite
If none of the Setpoints end-user parameters should be downloaded the "Don't overwrite" option should be select-ed. But it is also possible by selecting "Overwrite individually" to individually decide whether or not the end-user parameters of any one of the 30 Setpoints should be downloaded.	

Parameter page: ADVANCED FUNCTIONS/Setpoints/Overwrite individually

Parameter	Settings
Setpoints	Overwrite individually
- Setpoint 1 … - Setpoint 30	Overwrite Don't overwrite
Select here whether to overwrite or not	

4.7.2 Parameter page: ENDUSER PARAMETERS/OUTPUTS

Parameter	Settings
OUTPUTS	**Overwrite all channels** Overwrite individually Don't overwrite
If none of the binary and blind outputs end-user parameters should be downloaded the "Don't overwrite" option should be selected. But it is also possible by selecting "Overwrite individually" to individually decide whether or not the end-user parameters of any one of the binary and blind outputs parameters should be downloaded.	

Parameter page: ENDUSER PARAMETERS / OUTPUTS / CHANNEL A1… C1 (BINNARY / CHANNEL A BLIND)

Parameter	Settings
OUTPUTS	Overwrite individually
- Scenes	Overwrite Don't overwrite
Select here whether to overwrite or not	

- Counters	Overwrite Don’t overwrite
Select here whether to overwrite or not	
- Presets / Limits (only for shutter/blind)	Overwrite Don’t overwrite
Select here whether to overwrite or not	

Parameter page: ENDUSER PARAMETERS / OUTPUTS / CHANNEL A2… C2 (ONLY BINARY)

Parameter	Settings
OUTPUTS	Overwrite individually
- Scenes	Overwrite Don’t overwrite
Select here whether to overwrite or not	
- Counters	Overwrite Don’t overwrite
Select here whether to overwrite or not	

4.8 Parameter page: Central sending object for monitoring device

Parameter	Settings
Central sending object for monitoring device	**No** Yes
This activates a central cyclic sending object which can be used to monitor if the device is still sending this telegram. This way a KNX line and or the actuator can be supervised if they are still reachable.	

Parameter	Settings
- Sending period (0=only answer) min.	**0**
The cyclic sending rate can be introduced here, should the object be polled it is not necessary to send it cyclically and therefore it can be set to zero. Then this object will only answer to read requests.	

4.9 Parameter page: Behaviour at bus recovery

Parameter	Settings
Behaviour at bus recovery	**No** Yes
The behaviour at bus voltage failure and recovery can be established in most parts (outputs, advanced functions) in the application program of the actuator, but the sending delays and frequencies can be adjusted here.	

Parameter	Settings

- Send telegram for external use	**No** Yes
It is very usual to have to do different actions when the KNX devices are powered up, like a scene to establish some default parameters (establish temperature setpoint values, trigger a scene, reset a variable, etc...). By activating this function the actuator will send a telegram with a fixed value to the bus after bus recovery. The DPT can also be selected to be: 1 bit, 1 byte unsigned, 1 byte scaling and 2 byte float.	
- Delay for sending all status telegrams	Immediately 1 s **5 s** 10 s 20 s 30 s 1 min 3 min 5 min 10 min
The behaviour at bus voltage failure and recovery can be established in most parts (outputs, advanced functions) in the application program of the actuator, which could cause generating status telegrams after recovery of the bus voltage, but some devices might take longer to start-up (like touch displays, visualization servers, etc.). In these cases the delay for sending the status telegrams can be set here.	
- Delay for all initial read request and execute on init commands	Immediately 1 s 5 s **10 s** 20 s 30 s 1 min 3 min 5 min 10 min
The delay for all initial read request and execute on initialization commands can be set here.	
- Delay between read request / status telegrams	Immediately **500 ms** 1 s 2 s
Should the behaviour on bus voltage return be configured in many places in the actuator, this could cause multiple telegrams to the bus be sent at the same time. For this not to happen one can select here the delay between telegrams sent to the bus after bus recovery.	

5 Firmware version and update

If there is a new firmware available, it can be updated via a micro SD card in only a couple of seconds.
Procedure:
1) Remove the bus connector of the device leaving it without bus voltage.
2) Copy the xxxxx.bin (e.g. for the Power Block device the file would be: P1_o8.bin or P2_o16.bin) file to the micro SD card and put it into the micro SD card slot of the device.
3) Press the ETS physical address programing button next to the bus connector of the device
4) Without releasing the button plug in the bus connection while maintaining to hold the button until the programming LED starts to flash and then release it (before it stops to flash)
5) Finished! Now the ETS application program can be download by using the normal procedure using the ETS.

Attention! Never insert the micro SD Card when the device is connected to the KNX bus voltage! This could cause the device to reset without storing the variables previously to the Flash memory. Thus all these variables (e.g. counter values, scene values …) will be lost.

6 Reset to conditions at delivery

To reset the device to its original settings, repeat the same procedure as above using the last valid firmware.

This leads to a factory reset. All device settings return to their status at delivery and the device has the physical address 15.15.255.

7 ANNEXES

7.1 ANNEX 1: MANUAL CONTROL

The Power Block actuator has 2 push buttons and 2 status LEDs for each channel on the front side:
These buttons can be activated to control each and every channel/output individually if you select “yes” in the relevant parameter options in Binary outputs and/or Shutter/Blinds.
The LEDs are arranged in two rows, whereas the LEDs represent:
Binary outputs for Power Block o8:
The top row: channels A1, A2, B1, B2
The bottom row: channels C1, C2, D1, D2
Shutter/blinds for Power Block o8:
The top row: channel’s first relay A1->UP, A2->DOWN, B1->UP, B2->DOWN
The bottom row: channel’s second relay C1->UP, C2-> DOWN, D1-> UP, D2->DOWN

Binary outputs for Power Block o16:
The top row: channels A1, A2, B1, B2, C1, C2, D1, D2.
The bottom row: channels E1, E2, F1, F2, G1, G2, H1, H2
Shutter/blinds for Power Block o16:
The top row: channel’s first relay A1->UP, A2->DOWN, B1-UP, etc.
The bottom row: channel’s second relay E1->UP, E2-> DOWN, F1-> UP, etc.

<table>
<tr><td colspan="2">MANUAL CONTROL – PARAMETER MODE

The Parameter Mode allows you to control all the channels of the actuator as configured in the ETS.

The Action simulates a telegram received at the switching object of the selected channel.</td></tr>
<tr><td>BINARY</td><td>SHUTTER/BLIND</td></tr>
<tr><td><u>Press action:</u> Sends Toggle ON/OFF command “0/1” to the “Switching” object

  LED = ON (indicates channel status)
  LED = OFF (indicates channel status)</td><td><u>Long press action (Channel output 1):</u> Sends a UP command “0” to the “Move” object.
<u>Long press action (Channel output 2):</u> Sends a DOWN command “1” to the “Move” object.

<u>Short press action (any output)</u> (while shutter/blind is moving) of same button: sends a Stop/Step command to the “Stop…” object.

  LED blinks while moving UP/DOWN during parameterized time</td></tr>
</table>

7.2 Manual Control – Test Mode

MANUAL CONTROL – TEST MODE

The Test Mode allows you to test all the loads/wiring connected to the channels. It is independent from the ETS configuration of the actuator (since the “Manual Control / Param mode + Test mode” is a default option, you can use the Test mode even before programming the actuator).

Important note: Should a blind/shutter be connected to a channel, the 2 channels may never be closed at the same time. Therefore, even in Test mode, if the channel is configured as a blind, this safety measure is implemented. For this reason, it is better to first commission the OUTPUT: CHANNEL TYPE SELECTION before using the Test mode.

To change into the test mode, both of the buttons of any channel, must be pressed for 2 seconds. To change back to the normal “Parameter Mode” the same procedure should be repeated. Be aware by changing back to “Parameter Mode” the device will restart. Also after the device has restarted and if the channel is configured to be a blind channel, it will do a calibration movement on the first movement command.

 In order to indicate that the actuator is in Manual Control / Test Mode, the LED of the selected channel is continuously making a short blinking action every second; no matter whether the channel is ON (LED ON) or OFF (LED OFF).

The Action switches/moves the channel, as you can see in the table below:

BINARY	SHUTTER/BLIND
Press action: Sends toggle ON/OFF command to the relay (ON = Contact closed / OFF = Contact open)  LED = ON (indicates channel status)  LED = OFF (indicates channel status)	Rising edge press action (Channel X): Contact closed Falling edge press action (Channel X): Contact open  LED = ON (indicates channel status)  LED = OFF (indicates channel status)

7.3 ANNEXES 2 FLOWCHARTS