



**preussen**  
automation



# SwitchME KNX Switch actuator

User handbook  
Application Description



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## 2. Product overview

This guide is for the following SwitchME KNX models from preussen automation:

SwitchME4 KNX	Switch actuator 4-ch, 4 SU, 230 VAC, 16 A
SwitchME8 KNX	Switch actuator 8-ch, 8 SU, 230 VAC, 16 A
SwitchME12 KNX	Switch actuator 12-ch, 12 SU, 230 VAC, 16 A

## 3. System information

The SwitchME KNX is a product from Instabus KNX Systems and satisfies international standards (ISO/IEC 14543-3). It is assumed that readers will already have acquired specialist knowledge in the form of KNX trainings.

The SwitchME KNX operation is software-dependent. Detailed information on software releases and the respective functional scope as well as the actual software itself can be found on the product database. preussen automation has English and German versions of its database available online for download as a .vd4 file at [www.preussen-automation.eu](http://www.preussen-automation.eu).

preussen automation products comply with the international EMC standard (electromagnetic compatibility / elektromagnetische Kompatibilität).

## 4. Functions

### 4.1 General

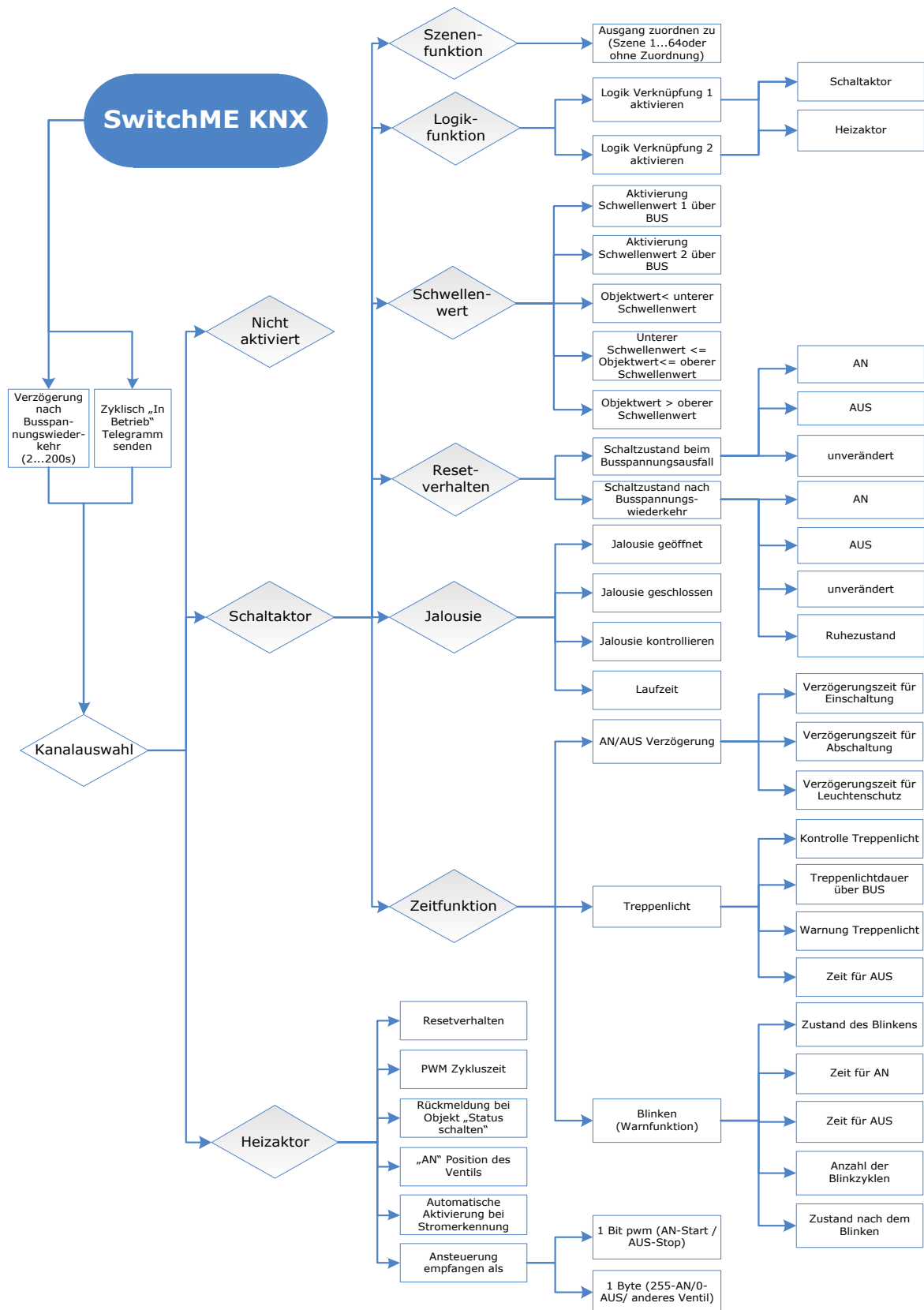
The SwitchME series of KNX actuators is ideally suited to control lighting, window blinds (for example) or other switch functions in a professional KNX bus installation.

4, 8 or 12 channels can be switched simultaneously. The outputs switch a maximum of 16 A and can also be manually operated.

The SwitchME KNX generally requires no additional power supply. The SwitchME 8 and 12 KNX only need an additional 24V DC power supply if synchronous (RTS - real time systems) switching of several channels is necessary. The autonomous switching of up to twelve devices is enabled by shutter contacts.



4.2 Functional overview



▲ Figure 1: Functional overview SwitchME KNX



## 5. Hardware

### 5.1 Technical data

#### ▼ Power supply

Operating voltage (bus)	21 - 30 V DC
Electrical consumption KNX (active)	< 15 mA
Electrical consumption KNX (inactive)	< 5 mA
Power consumption KNX (active)	< 450 mW
Power consumption KNX (inactive)	< 150 mW

#### ▼ Output ratings

Device type	SwitchME4 KNX	SwitchME8 KNX	SwitchME12 KNX
Number of outputs	4	8	12
I max. power	16A	16A	16A
P max. heat dissipation	2.7 W	5.4 W	8 W
U max. voltage	250/440 V AC 50/60 Hz	250/440 V AC 50/60 Hz	250/440 V AC 50/60 Hz

▲ Table 1: Output ratings

#### ▼ Output switching values

AC operation (cosΦ=0.8)	12 A / 230 V
Fluorescent lamp load	16 A / 250 V (150 µF)
minimum switching capacity	0.1 mA / 1 V
DC switching capacity (resistive load)	16 A / 12 V DC
min. switching cycles (mechanical)	> 1,000,000.00
electrical service life	> 100,000.00

#### ▼ Output switch delay without additional power supply

max. delay time per switch change (capacity load time)	
with every SwitchME KNX	400 ms

! Note: Voltage overload protection is integrated into the device. This halts active switch procedures and retains the last relay position in the device memory. If a power drop falls into the cut-off range, this function may prevent the deactivation of a non-switched relay. If the voltage (capacity of the relay driver) again climbs into the active range, the relay can be reactivated again in the memory after the interrupted state. If the load capacity is insufficient the delay time for the switch change is approx. 0.4 s.

#### ▼ Output switch delay with additional power supply

max. delay time upon switch change (capacity load time)	
SwitchME 8 KNX	100 ms
SwitchME 12 KNX	100 ms

! Note: With some applications a synchronous on/off relay switch is required, because excessive delays are not permissible. In such cases an additional 24-30 V DC power supply can be connected. The maximum anticipated power with an active relay is 24 mA, and 4 mA with an inactive relay. If there is insufficient switching capacity, the switch delay for a status change is approx. 100 ms.

#### ▼ Connections



Input	24V DC (KNX bus voltage)
KNX connection	KNX bus clamp (red/grey)
Supply and outputs	screw clamps up to 2.5 mm <sup>2</sup>
Outputs	bistable relay with isolated contacts (230V 50/60Hz)
Cable lugs	12 mm
Tightening torque	max. 0.8 Nm

▼ Display

red LED and KNX button	for relay of physical address
Note on contact position	position lever relay

▼ Temperature range

Operating temperature	-5°C ~ +45°C
Storage temperature	-25°C ~ +55°C
Transport temperature	-25°C ~ +70°C

▼ Ambient impacts

rel. humidity	max. 95% (no condensation)
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▼ External characteristics

Characteristics	SwitchME4 KNX	SwitchME8 KNX	SwitchME12 KNX
Modular according to DIN	REG 35 mm rail	REG 35 mm rail	REG 35 mm rail
Dimensions LxHxD	72x90x64 mm	144x90x64 mm	216x90x64 mm
Sub-units	4 SU	8 SU	12 SU
Device weight	257 g	480 g	700 g
Transport weight	300 g	580 g	825 g
Installation	Fuse box	Fuse box	Fuse box
Material/colour	plastic/black	plastic/black	plastic/black

▲ Table 2: External characteristics

▼ Safety standards

LVD Standard	EN60669-2-1, EN60669-1
EMC Standard	EN50090-2-2

▼ CE certificate

In accordance with EMC and Low Voltage Directives

▼ Hazardous substances

In accordance with RoHS (Restriction of (the use of certain) hazardous substances); German: "Beschränkung (der Verwendung bestimmter) gefährlicher Stoffe")



▼ Maximum lamp load

Lamps

Incandescent lamps 3500 W

Low-voltage halogen lamps

Inductive transformer 1800 W

Electronic transformer 2000 W

Halogen lamps 230 V 3500 W

Mercury-vapour lamps

Uncompensated 2800 W

Parallel compensated 2800 W

Fluorescent lamp T5/T8

Uncompensated 3500 W

Parallel compensated 2000 W

DUO lamp 2000 W

Dulux lamp

uncompensated 1500 W

Parallel compensated 1500 W

Switching characteristic (contact)

max. short-circuit current  $I_p$  (120  $\mu s$ ) 600 A

max. short-circuit current  $I_p$  (240  $\mu s$ ) 480 A

max. short-circuit current  $I_p$  (480  $\mu s$ ) 300 A

max. short-circuit current  $I_p$  (1000  $\mu s$ ) 170 A

▼ Application table

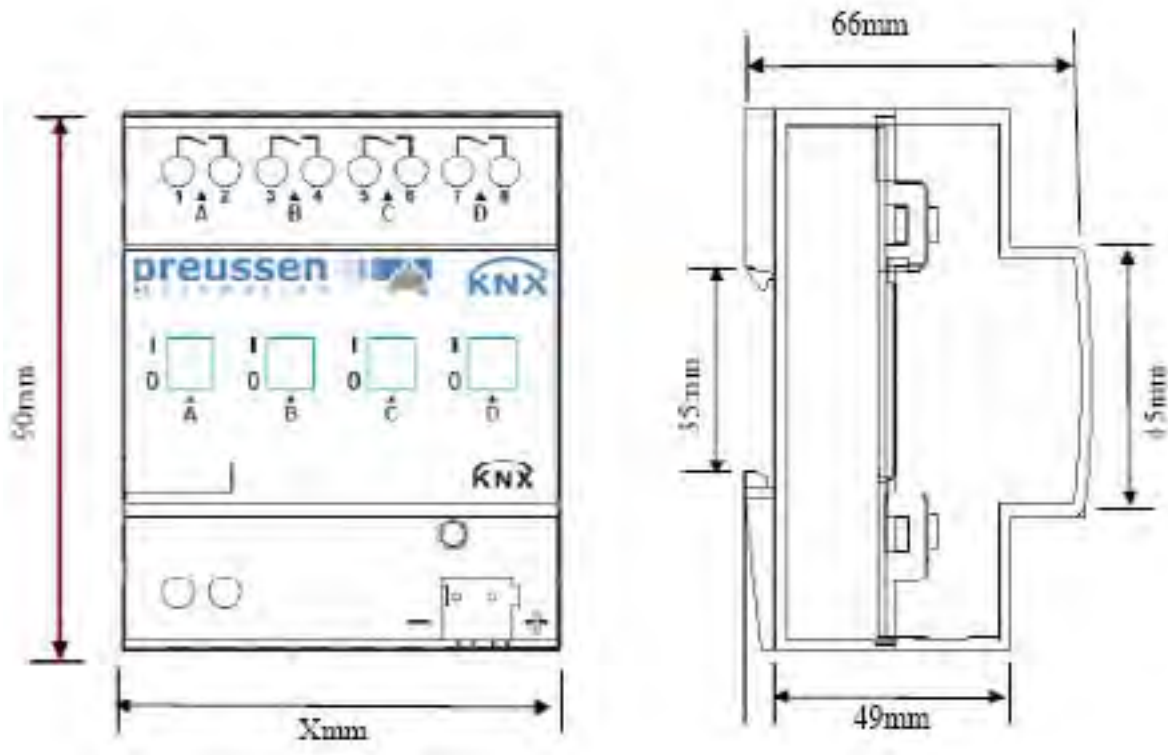
Type	SwitchME4 KNX	SwitchME8 KNX	SwitchME12 KNX
max. number of communication objects	90	170	250
max. number of group addresses	254	254	254
max. number of connections	254	254	254

▲ Table 3: Application table

! Note: Programming requires the use of the KNX software ETS2 V1.3 or ETS3.0. If using ETS2 V1.3, it is recommended that the \*.vd2 release be imported. And if using ETS3.0, it is recommended you import the file with the \*.vd4 suffix.



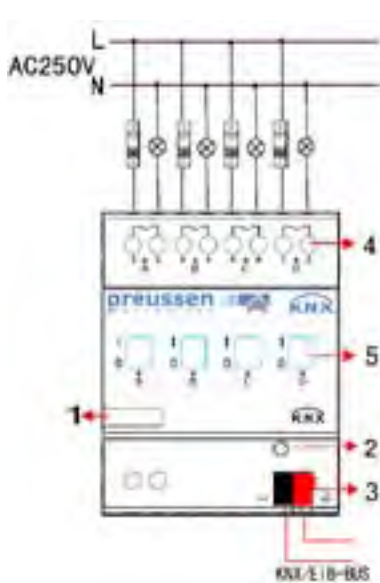
## 5.2 Dimensions



▲ Figure 2: Dimensions

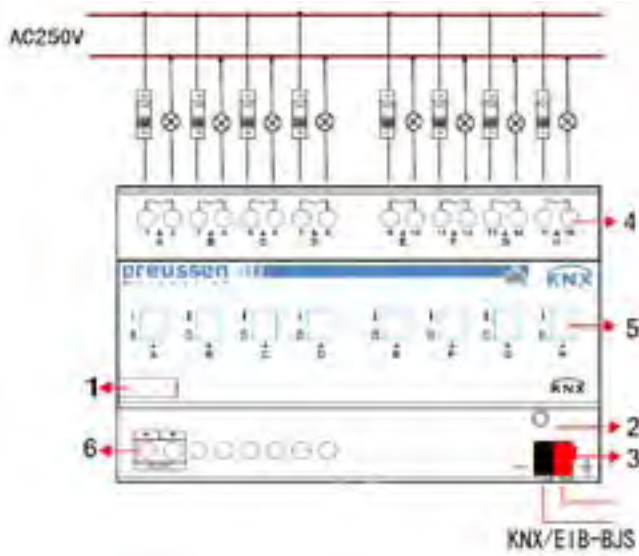
	SwitchME4 KNX	SwitchME8 KNX	SwitchME12 KNX
x =	72 mm	144 mm	216 mm

## 5.3 Connection diagram

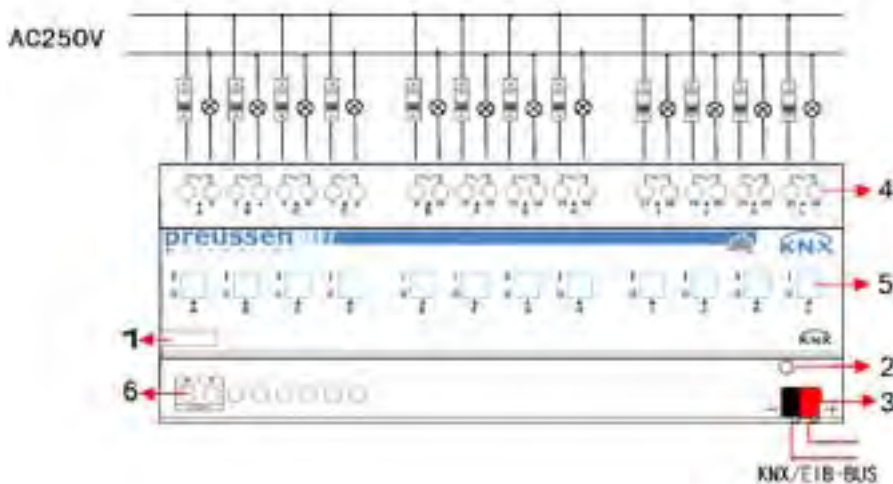


▲ Figure 3: Connection diagram SwitchME4 KNX

1. Label sector
2. Programme button & LED
3. KNX bus connection
4. Pole connector
5. Note on contact position and manual operation
6. Additional 24V power supply (max. 24 mA in operation, min. 4 mA in standby)



▲ Figure 4: Connection diagram SwitchME8 KNX



▲ Figure 5: Connection diagram SwitchME12 KNX

## 6. Installation

### 6.1 Installation instructions

During installation please observe the following:

- Sufficient space for the installation of the actuator
- suitable tool for installation and for repairs at place of installation
- Minimum distance between actuator and other devices in close proximity
- Minimum distance and suitable position for proper ventilation
- The requisite safety devices (e.g. fuses, automatic safety devices, etc.) must be connected in order to prevent excessive voltage.

### 6.2 Service and maintenance guidelines

Electrical devices may only be installed and assembled by specialist technicians The applicable accident



prevention regulations must be observed. Failure to follow the instructions could result in damage to the device, fire or other hazards. Opening the device will render the warranty null and void. Motors up to 4 PS (no three-phase motors!) The place of installation should be well cooled with ambient air. Please ensure the device is adequately protected from moisture, strong vibration and dust. Avoid contact with rainwater and other liquids as well as with corrosive gases. Clean dust away regularly but do not use any liquids such as alcohol, petrol, etc. and make sure not to touch connected contacts. If damage occurs due to moisture or liquid, shut the device off immediately. Regularly check the connected wires and all other connected cables and replace these in good time. For your own safety make sure every connection is made via a fuse or an MCB (Main Control Block).

### 6.3 Start-up

Once the device has been wired up, the physical addresses can be assigned and the channels parametrised.

1. Connect the interfaces to the bus
2. Connect bus voltage
3. Press the programme button on the device (red programme LED illuminates)
4. Load the physical address from the ETS software via the interface (red LED voltages off once this has been completed successfully) Load the application with the required parametrisation
5. Connect the power supply
6. The required function can be tested once the device is operationally ready (also possibly with the aid of the ETS software)

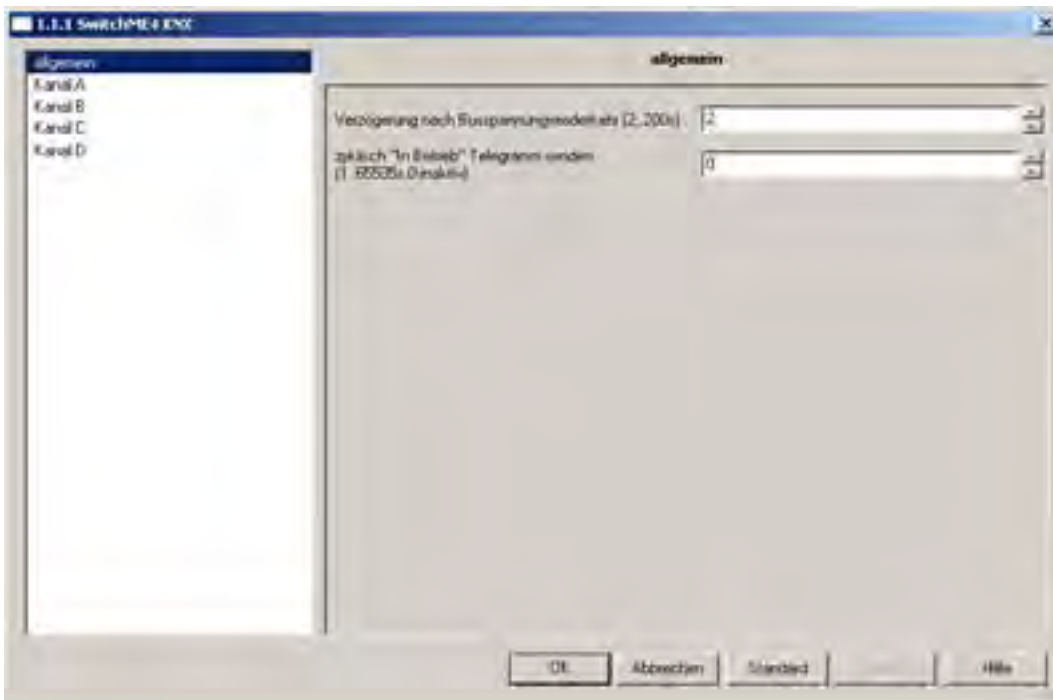
## 7. Software

The databases of the SwitchME KNX from preussen automation enables the ETS3.0 software to perform the requisite configurations on the device. The device types are SwitchME 4 KNX, SwitchME 8 KNX and SwitchME 12 KNX, the associated database name is: SwitchME KNX preussen.vd4. All interfaces and their functions require parameters which you can take from the following descriptions. Each channel output of the switch actuator is independent from and identical to the others. The following section describes the following channel output in detail.

Note: If you are using ETS2V1.3, import the database version "VD2", if you are using ETS3.0 then import the versions "VD3" to "VD5".

## 8. Application Description

### 8.1 General



▲ Figure 6: "general" parameters

Two parameters can be configured in the general parameter configuration window:

Delay following bus voltage recovery

Send "in operation" telegram cyclically

#### ▼ Delay following bus voltage return

The relay switches with a delay time of 2...200 s after switching on. The preconfigured selection is 2 seconds. The delay time is min. 2 s and max. 200 s.

##### ► Options **2...200 s**

If the device is set to start the timer counting and once the delay time has expired, the switch will respond.

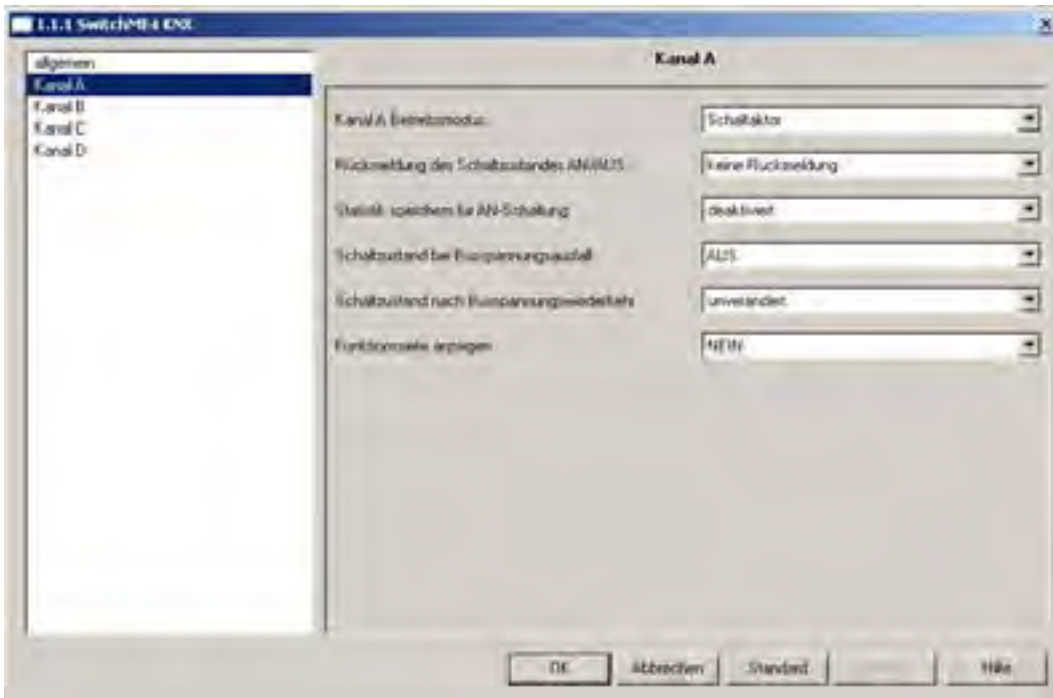
#### ▼ Send "in operation" telegram cyclically

The range of the parameter is 0 to 65535 s. With zero as the parameter the function will be blocked, all other parameters activate it.

##### ► Options **0...65535 s**

If the parameter is not set to zero, the device will send a periodical telegram at regular intervals once the time is expired. The values 0 and 1 will be sent alternately.

## 8.2 Channels "N" functional parameters



▲ Figure 7: "Channel N" parameter (N=A,B,C...)

### ▼ Channel A operating mode

The function of the output "N" can accept 3 operating states.

- ▶ **Options**                      **Switch actuator**
- Heating actuator**
- deactivated**

If "deactivated" is selected, the channel "N" function will then be invalid, and one of the other two options can be employed.

### ▼ Channel as switch actuator

Under "Channel A operating mode" please select the switch actuator if you want to use the device as a switch actuator.

### ▼ Response of the ON/OFF switch status

This parameter decides the working mode by way of a response.

- ▶ **Options**                      **no response**
- continuous response**
- only after change**

If the "no response" option is selected, the switch status will not be communicated. If "continuous response" is selected, the switch status will be continuously sent and with "only after change" the status will only be reported following performance of a change.

### ▼ Save statistics for ON mode

Saving statistics is useful for controlling and monitoring.

- ▶ **Options**                      **activate**
- deactivate**



▼ Switch status with bus power drop

You can decide what happens in the event of a bus power drop. In such a case the device still has the required capacity to set the following options.

- ▶ **Options**                         **unchanged**
- ON**
- OFF**

With "unchanged" the actuator will maintain the switch status. If you select "ON" or "OFF" the channel will be activated or deactivated.

▼ Switch status following bus voltage return

If the power returns following a bus power drop, the following options can be selected:

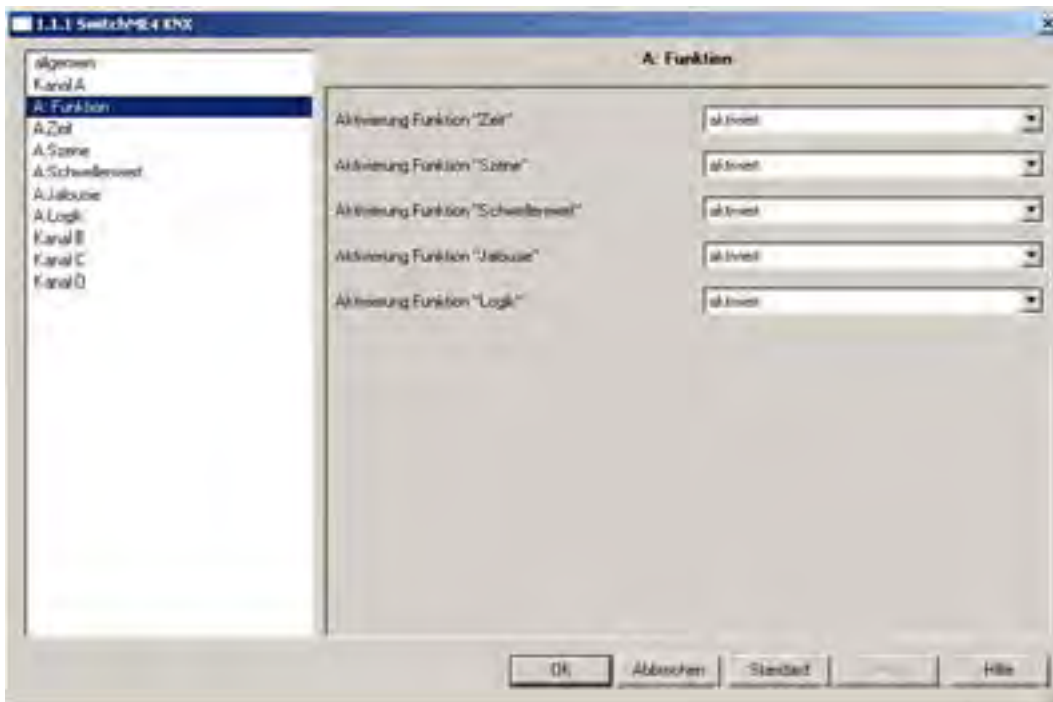
- ▶ **Options**                         **unchanged**
- Standby**
- ON**
- OFF**

If you select "unchanged" the channel will retain the current switch setting once bus voltage is returned. If you select "Standby" the channel will return to the initial status prior to the power drop. The "ON" and "OFF" options activate and deactivate the channel upon return of the bus voltage.

▼ Display function page

If this parameter the channel function page will be displayed. The function page contains the following functions: Time, scenes, threshold value, blind and logic.

### 8.3 Functions



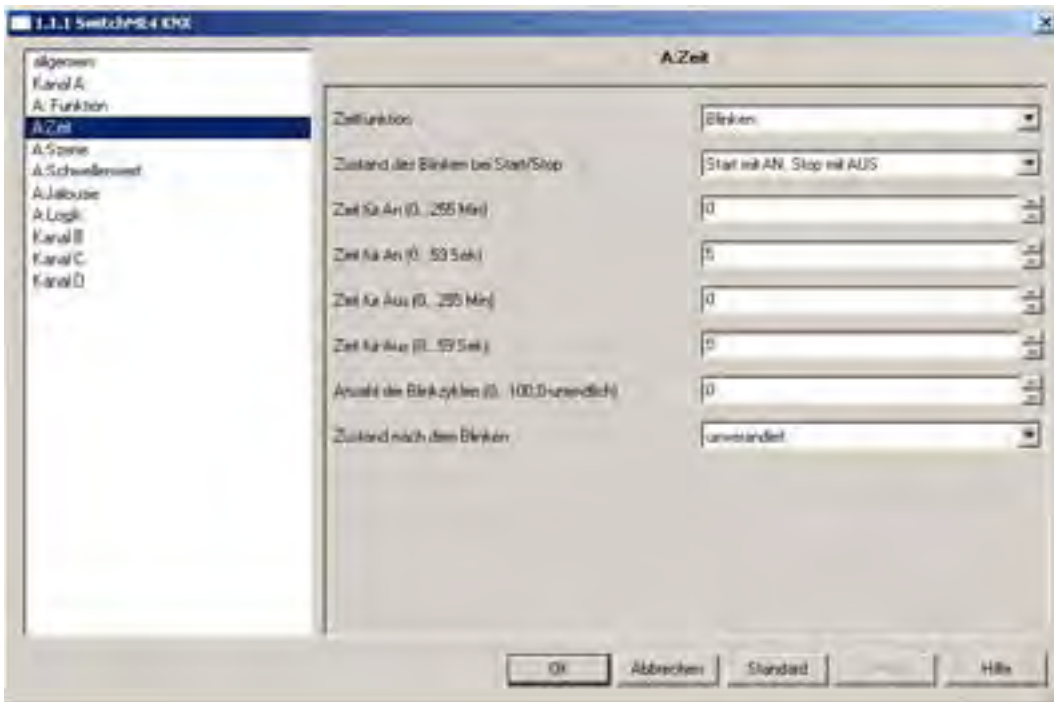
▲ Figure 8: Channel functions

! Important info: A maximum of one function can be activated per channel!



- ▼ Activating "Time" function
  - ▶ Options                    deactivate  
                                 activate
- ▼ Activating "Scene" function
  - ▶ Options                    deactivate  
                                 activate
- ▼ Activating "Threshold" function
  - ▶ Options                    deactivate  
                                 activate
- ▼ Activating "Blind" function
  - ▶ Options                    deactivate  
                                 activate
- ▼ Activating "Logic" function
  - ▶ Options                    deactivate  
                                 activate

8.3.1 "Time" function

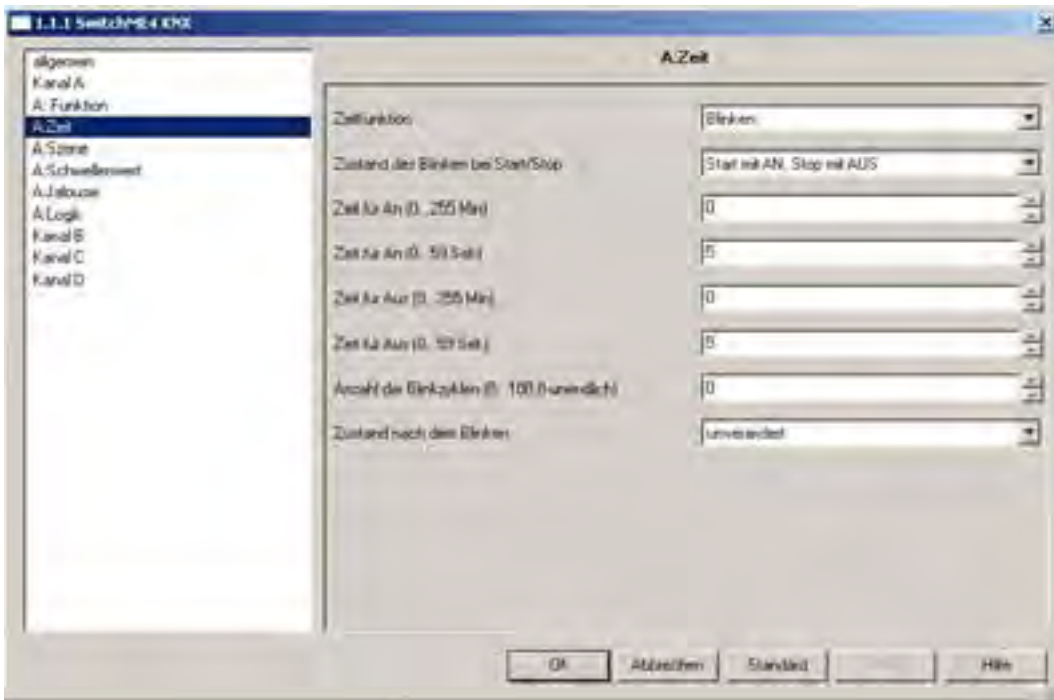


▲ Figure 9: Time function

- ▼ The time function contains three sub-functions available for selection.
  - ▶ Options                    Flash  
                                 Staircase light  
                                 ON/OFF delay



### 8.3.2 "Flash" function



▲ Figure 10: Flash

#### ▼ Flash status (Start/Stop)

##### ► Options

**Start with ON, stop with OFF  
(ON-> flash starts, OFF->flash stops)**

**Start with OFF, stop with ON  
(OFF-> flash starts, ON->flash stops)**

**Constant flashing, Start with ON/OFF  
(ON or OFF -> flashing starts)**

#### ▼ Time for "ON": (0...255 min.)

Length in minutes for "ON" status

#### ▼ Time for "ON": (0...59 sec)

Length in seconds for "ON" status

#### ▼ Time for "OFF": (0...255 min.)

Length in minutes for "OFF" status

#### ▼ Time for "OFF": (0...59 sec)

Length in seconds for "OFF" status

#### ▼ Number of flash cycles (0...100, 0-infinity)

Number of flash cycles in the range from 0 to 100. "0" means unlimited.

#### ▼ Status following flashing

Switch position following flashing once counter overflow ends.

##### ► Options

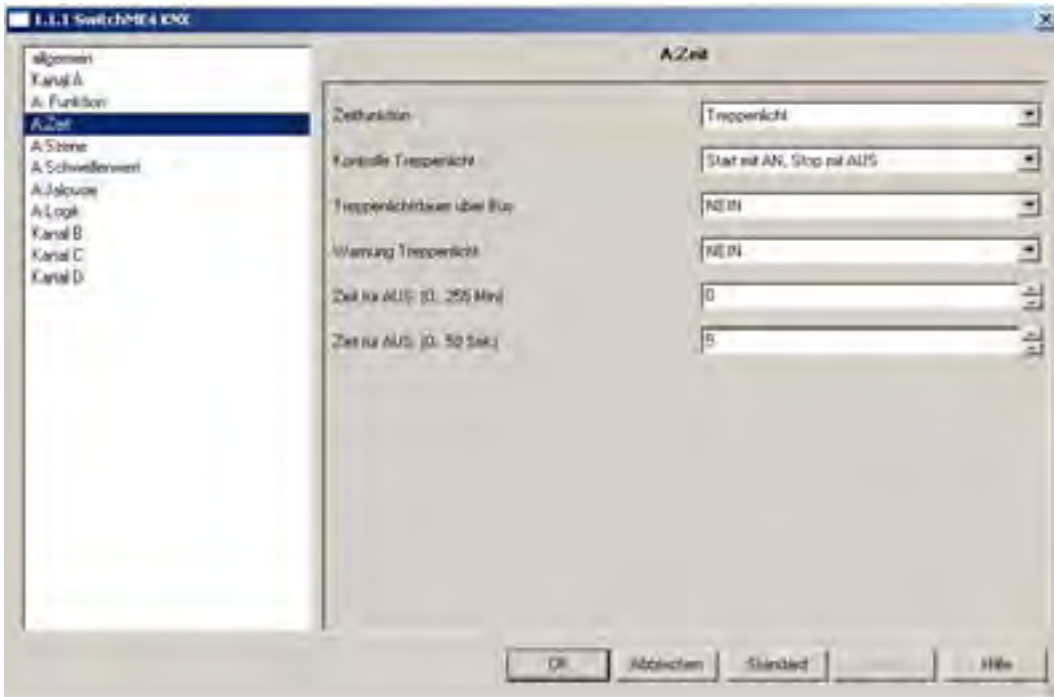
**unchanged (after the counter overflow  
the position remains unchanged)**





**ON (switches to "ON" after counter overflow)**  
**OFF (switches to "OFF" after counter overflow)**

8.3.3 "Staircase" function



▲ Figure 11: "Staircase" function

The staircase function causes the automatic switch-off of the switching procedure after a pre-set time. The staircase time can be parametrised without restriction. There are other optional functions that can be combined with the staircase function; these are described below.

- ▶ **Options**
  - Start with "ON", stop with "OFF"**
  - Start with "ON", without "OFF" function**
  - Start with "ON/OFF", without stop**

If the Start with "ON", stop with "OFF" function is selected, and the switch is activated, the light will be turned on and the timer begins counting until the pre-set set point is achieved after which the light will be turned off. The light can be turned off earlier by manually operating the switch.

If the Start with "ON", without "OFF" function is selected, and the switch is activated, the light will be turned on and the timer begins counting until the pre-set set point is achieved after which the light will be turned off. The light cannot be turned off by manually operating the switch.

If the Start with "ON/OFF", without stop function is selected, and the switch is activated or turned off, the light will be turned on and the timer begins counting until the pre-set set point is achieved after which the light will be turned off. The light cannot be turned off by manually operating the switch.

▼ Staircase light duration with bus

- ▶ **Options**
  - NO**  
Changing the staircase light "OUT" delay not possible via bus, this is automatically controlled by database.
  - YES**  
Allows staircase light "OUT" delay to be performed by user via bus.

▼ Warning staircase light



► Options

NO

YES (activated)

The warning function shows that the staircase light has almost expired and that the output will be deactivated shortly. This occurs by switching off the output for the time period of the parametrised warning time. A small value of 1-3 seconds is recommended. Once the warning has abated, the light will be turned on again for the pre-set advance warning time. This advance warning time enables the staircase light time to be extended or the staircase to be vacated. It is recommended that there be dynamic programming based on the actual circumstances (length of the staircase, next light switch, etc.). The total switching time of the switch cycle is determined by adding up the three times.

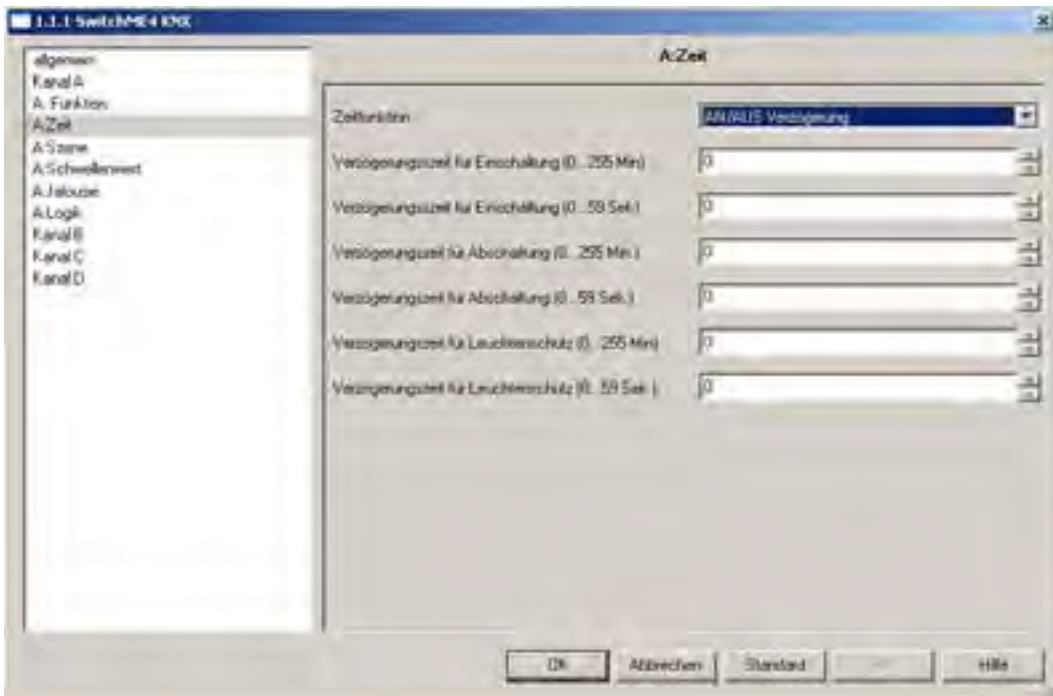
▼ Time for "OFF": (0...255 min.)

Duration of the delay for the "OUT" switch of the staircase light in minutes.

▼ Time for "OFF": (0...59 sec)

Duration of the delay for the "OUT" switch of the staircase light in seconds.

8.3.4 ON/OFF delay function



▲ Figure 12: "On/Off" time delay

The on-delay will time delay the activation of the switching cycle. This means the output will only be activated after a certain time period after the issue of the switch-on command. The off-delay will time delay the switch-off.

These two functions can be combined.

▼ Delay time for switch-on: (0...255 min.)

Time period for delay of "On" switch in minutes.

▼ Delay time for switch-on: (0...59 sec)

Time period for delay of "On" switch in seconds.

▼ Delay time for switch-off: (0...255 min.)

Time period for delay of "Off" switch in minutes.

▼ Delay time for switch-off: (0...59 sec)



Time period for delay of "Off" switch in seconds.

▼ Delay time for light protection: (0...255 min.)

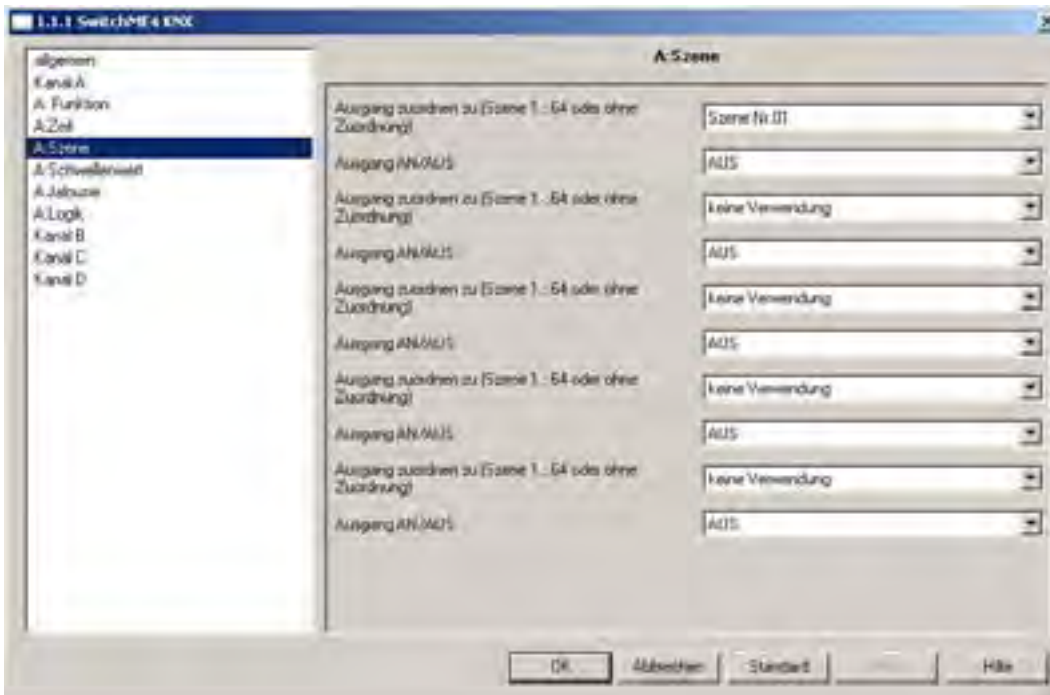
Time period for delay of light protection in minutes.

▼ Delay time for light protection: (0...59 sec)

Time period for delay of light protection in seconds.

! Note: The delay time for light protection starts once the "OFF" switch is activated and will only switch to "ON" once this time has expired.

8.4 "Scene" function



▲ Figure 13: "Scene" function

The scene function is useful if room functions of various elements (e.g. light, heating, blind) are to be synchronously changed.

To enable this the value must be assigned to the appropriate disk space (Scene A...L). Up to 5 scenes can be programmed on each switch output.

In order to call-up a particular scene, the value for that scene must be sent to the communications object for the scene function. In this context the value of the scene call-up however is always one number lower than the pre-set scene number. The scene numbers can therefore have the values 1-64, but the values of the call-up of the scene may only be 0-63.

5 scene memory options are available for each channel.

The 64 available scene numbers can be freely assigned to these 5 memory sets.

A scene will be called up if it receives a binary command (bit0-6 -> scene number, bit7=0) from the bus, corresponding to a scene number. The seventh bit of the dataset must always be "0" in this context.

A scene will be stored if it receives a binary command (bit0-6 -> scene number, bit7=1) from the bus, corresponding to a scene number. The scene status remains unchanged. The seventh bit of the dataset must always be "1".

Assign output (Scene 1...64 or without assignment)

No application

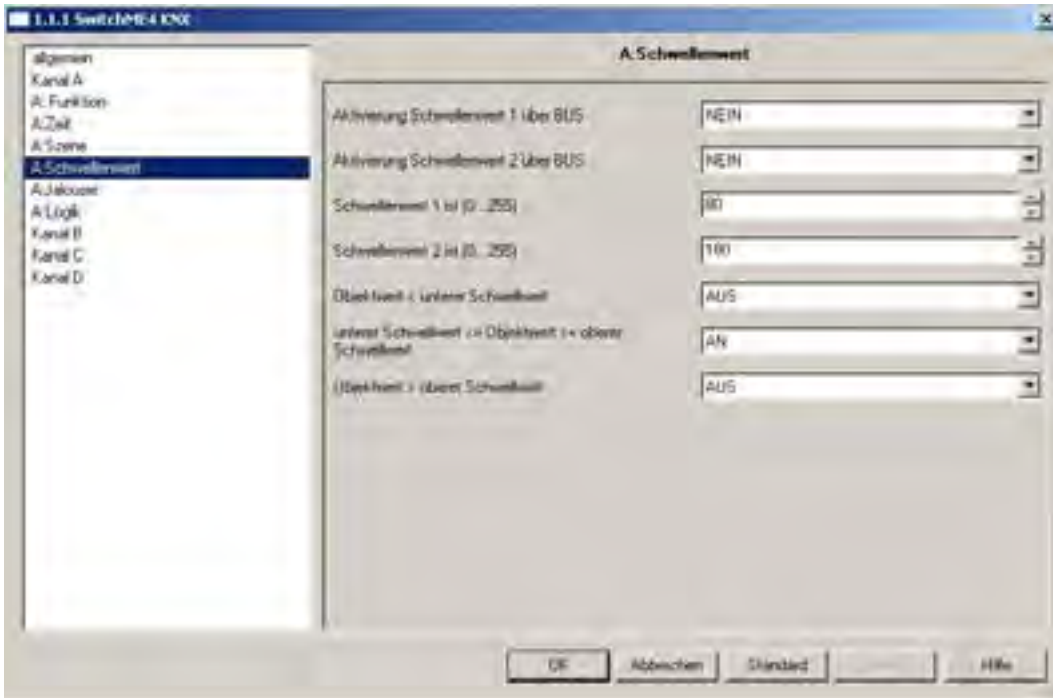
Scene no. 01



Scene no. 02

Scene no. 64

### 8.5 "Threshold" function



▲ Figure 14: "Threshold" function

The threshold value function enables two threshold values to be set. These two threshold values can be set between 0 and 255. The switching status changes once a corresponding value is received from the bus. There are three ways in which threshold values can be activated.

▼ Activation of threshold value 1 via bus:

YES enables threshold value 1 to be changed via the bus.  
NO prohibits the change of threshold value 1 via bus.

▼ Activation of threshold value 2 via bus:

YES enables threshold value 2 to be changed via the bus.  
NO prohibits the change of threshold value 2 via bus.

▼ Threshold 1 is (0...255)

The selection of the first threshold value is between the range of [0...255]. The pre-set value is 80.

▼ Threshold 2 is (0...255)

The selection of the second threshold value is between the range of [0...255]. The preconfigured value is 180.

▼ Object value < lower threshold value

If the object value is less than the lower threshold value, the switch will respond in accordance with the following options:

- ▶ Options **unchanged**

**ON**

**OFF**

▼ lower threshold value  $\leq$  object value  $\leq$  upper threshold value

If the object value lies between the preconfigured threshold values, the switch responds in accordance with the following options:

► **Options**                      **unchanged**

**ON**

**OFF**

▼ Object value  $<$  upper threshold value

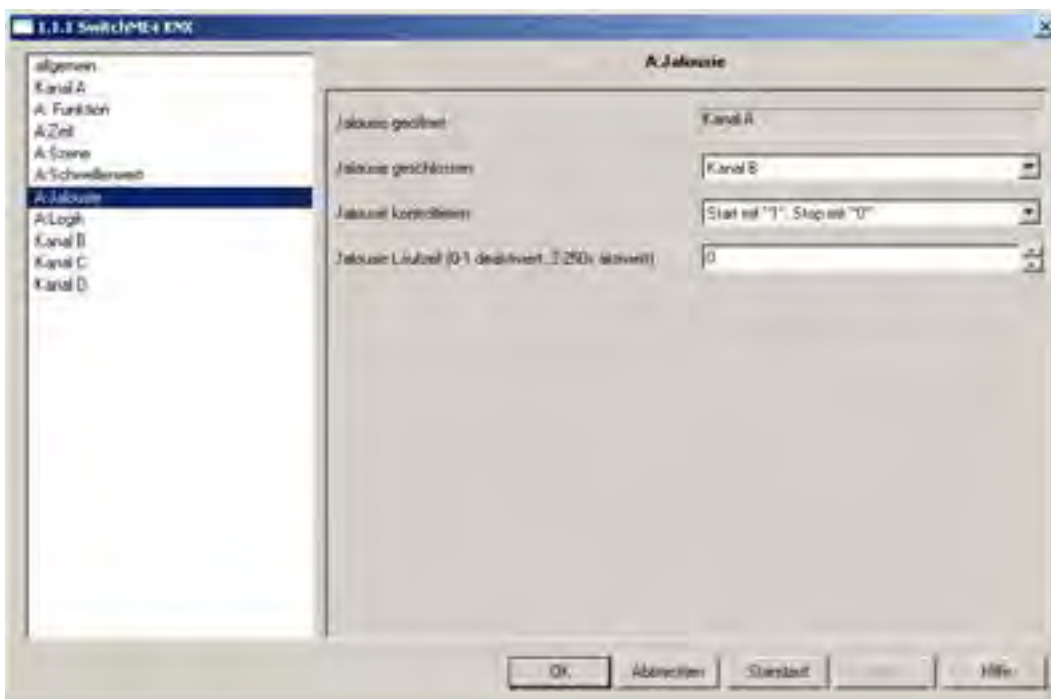
If the received object value is larger than the upper threshold value, the switch responds in accordance with the following options:

► **Options**                      **unchanged**

**ON**

**OFF**

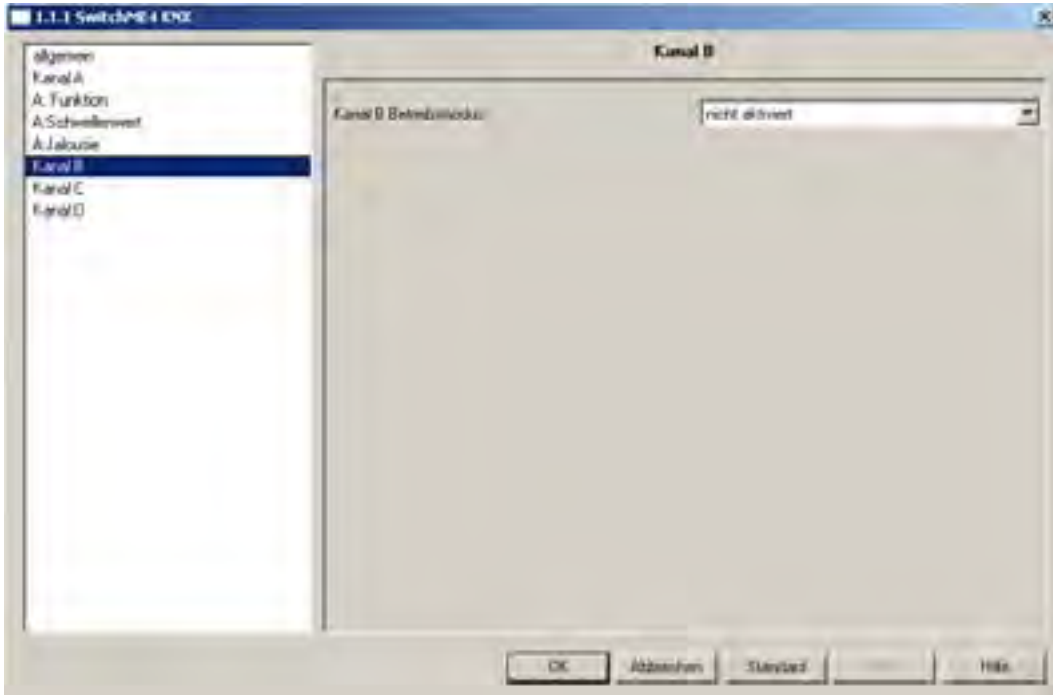
### 8.6 Blind function



▲ Figure 15: Blind function

The blind function requires two channels in combination, one of which opens the blind while the second one closes it. The blind will stop after the expiry of the pre-set time period or by way of a corresponding telegram.

! Important info: If channel A is activated as the blind channel, please be sure to deactivate channel B. This one should be exclusively activated for the function of closing the blind.



▲ Figure 16: Note on blind function

▼ Blind opens

The first channel for "blind opens" is currently the active channel.

Channel "N" (N= current channel (N=A, B, C..)) opens the blind

▼ Blind closes

Another channel can now be designated for the blind closing function. This should be deactivated as shown in Fig. 11 to prevent any dual assignment.

! Note: If the first channel is "A" and the maximum number of channels is 4, then only "B", "C" or "D" may be selected as the second channel.

▼ Control blind

▶ Options:

**Start with "1", stop with "0"**

**Start with "1", with no function with "0"**

**Start with "1"/"0", without stop**

**Start with "1", stop with "0": The blind starts to move when the value "1" is received. If "0" - zero is received, the blind will remain stationary.**

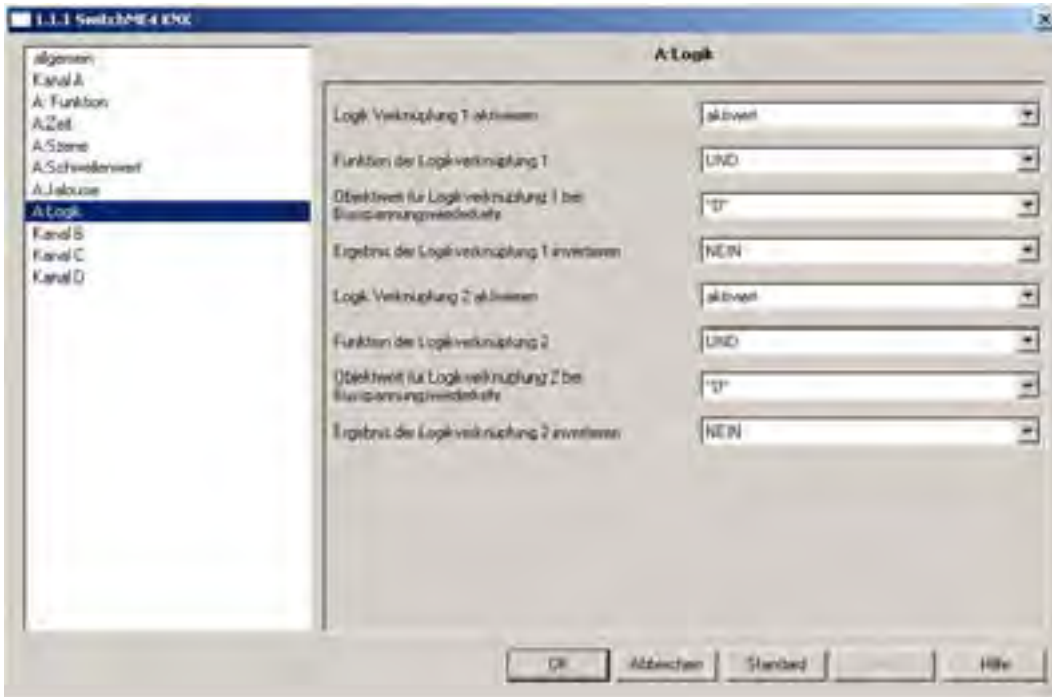
**Start with "1", with no function with "0": The blind starts to move when the value "1" is received and only stops with the time-out.**

**Start with "1"/"0", without stop: The blind starts to move when the values "1" or "0" are received and only stops with the time-out.**

▼ Blind running time (0-1 s deactivated, 2-250 s activated):

If the parameter is set to "0" or "1", the blind continues moving unless a stop value is achieved. The blind stops once the time-out is reached. The time for the time-out can be set in this option.

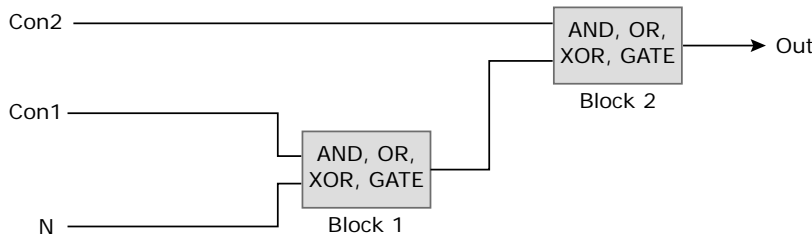
### 8.7 Logic function



▲ Figure 17: Logic function

The logic function block in Fig. 13 contains two logistical blocks.

- ▶ **Block1 has two inputs: one of which is "N" (N=A,B,C,D,..) and the other is "Con1". The logic Block1 output is linked with the logic Block2 input.**
- ▶ **Alongside this, Block2 also has a second input "Con2" and relays the result via the output. Both logic blocks, logic Block1 and logic Block2, allow the selection of "AND", "OR", "NOT EQUAL TO", "GATE" connections.**



▲ Figure 18: Logic block

▼ Activate logic link 1

The logic link Block1 can be activated or deactivated using this option.

▼ Function of logic link 1

This logic block enables the user to choose between Boolean operations such as: "AND", "OR", "NOT EQUAL TO" or "GATE".

AND (Boolean AND)

OR (Boolean OR)

NOT EQUAL TO (Boolean OR NOT)

GATE ("N" can only pass the logic block if the value 1 has been configured for "Con1". The output of logic Block1 remains unchanged for this time.)



▼ Object value for logic link 1 with voltage return

The selection of the value is triggered by the restoration of the bus power supply; the following options are available to you:

- O: Initialisation of "Con1" with 0
- 1: Initialisation of "Con1" with 1

▼ Inverting the result of logic link 1

If this parameter is set to "YES", the output from link 1 will be inverted. "No" on the other hand will result in no change.

▼ Activate logic link 2

The logic link Block2 can be activated or deactivated using this option.

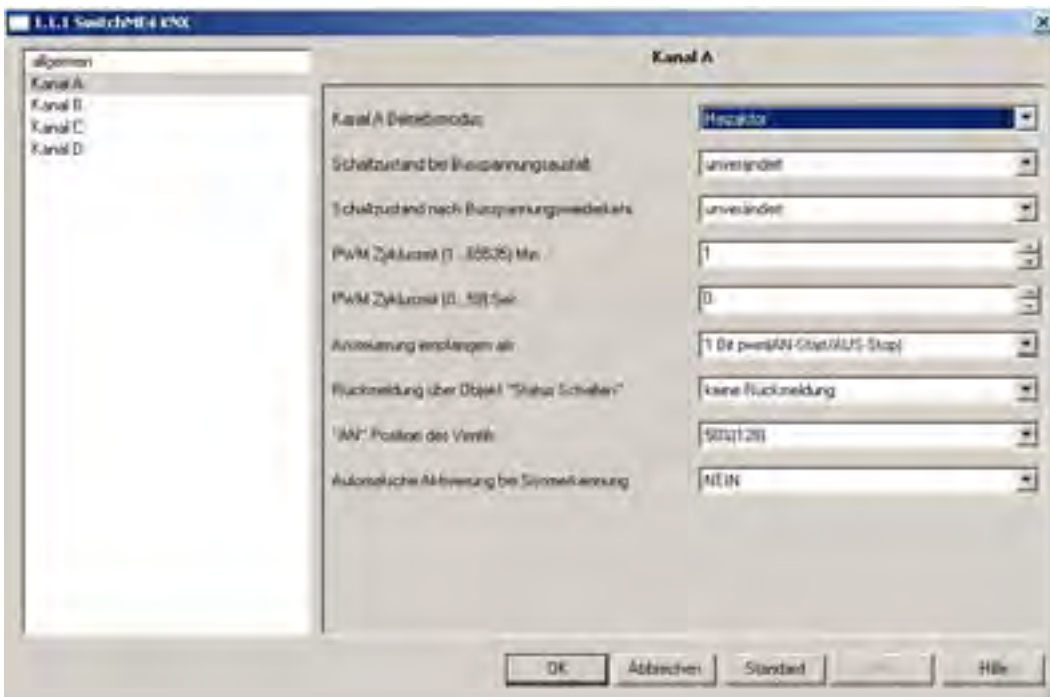
▼ Functional method of logic block2

This logic block again enables the user to choose between Boolean operations such as: "AND", "OR", "NOT EQUAL TO" or "GATE".

- AND (Boolean AND)
- OR (Boolean OR)
- NOT EQUAL TO (Boolean OR NOT)

GATE ("N" can only pass the logic block if the value 1 has been configured for "Con2". The output of logic Block2 remains unchanged for this time.)

### 8.8 Heating actuator



▲ Figure 19: Heating actuator

This channel operates in PWM mode (pulse width modulation, 1 bit or 1byte) and can be used to control a heating valve.

▼ Switch status with bus power drop

- ▶ Options **unchanged**





ON  
OFF

With "unchanged" the actuator will maintain the switch status. If you select "ON" or "OFF" the channel will be activated or deactivated.

▼ Switch status following bus voltage return

If the power is to be returned following a bus voltage failure, the following functions can be selected:

- ▶ **Options**
  - unchanged
  - Standby
  - ON
  - OFF

If you select "unchanged" the channel will retain its current setting once bus voltage is returned. If you select "Standby" the channel will return to the initial status prior to the power drop. The "ON" and "OFF" options activate and deactivate the channel.

▼ PWM cycle time (1..65535 min)

The minimum cycle time amounts to 1 minute.

▼ PWM cycle time (0..59 sec)

The cycle time can also be stated in seconds

▼ Receive control as

- ▶ **Options**
  - 1bit PWM (1-Start/0-Stop)
  - 1byte (255-ON/0-OFF/Intermediate values)

With the value "255" you permanently switch "ON", with "0" you permanently switch "OFF", the values between (1-254) define the switching points within the PWM cycle.

▼ Response on "Switching status" object

- ▶ **Options**
  - no response
  - continuous response
  - only after change (only respond if status changes)

▼ ON position of the valve

The following values determine the switching points of the PWM cycle in 1-bit operation (in the 1-byte operation the switching points are defined by the value of the sent telegram):

0%	(OFF)
10%	(26)
20%	(51)
30%	(77)
40%	(102)
50%	(128)
60%	(153)
70%	(179)
80%	(204)
90%	(230)
100%	(ON)

▼ Automatic activating when current is detected

The PWM starts automatically when switched on when set to "YES". With "NO" only when requested (manual).

## 9. Description of the communication objects

In this section we explain the communication objects. You will be able to see these objects if you have activated the function. Depending on the function selected, the relevant communication objects will be displayed for each of the channels. The communication objects can be subsequently used for the assignment of group addresses.

! Note: In the following section N=A, B, C, D,....

- **Key to Flags**
- C: Communication**
  - R: Read**
  - W: Write**
  - A: Assign**
  - U: Update**

### 9.1 Objects in general and output N



▲ Figure 20: Objects in general and output N

Number	Name	Function	Flags	Data types
0	General	Send cycles	C R W	EIS1 DPT 1.003 1bit
This object is always active and valid. If a value changes, the next run will be assigned to the bus, e.g. the most recently assigned value was "1" the next will therefore be "0"-zero.				

▲ Table 4: General objects

Number	Name	Function	Flags	Data types
10,30,...	Output "N"	Channel output	C T U	EIS1 DPT 1.001 1bit
This channel output objects enable a channel "N" to be turned ON/OFF. A channel output is turned ON/OFF if the object contains the value "1/0".				

▲ Table 5: Output objects

### 9.2 All objects of channel "N"



Number	Name	Function	Length	R	W	U	A
0	allgemein - zyklisch senden	zyklisch senden	1 Bit	F	A	-	U
10	Ausgang A - Kanal Ausgang	Kanal Ausgang	1 Bit	F	-	S	-
11	Ausgang A - Rückmeldung Schließ	Rückmeldung Schließzustand	1 Bit	F	A	-	U
12	Ausgang A - Statistik für ON-Schaltung	Statistik für ON-Schaltung	2 Byte	F	A	S	U
13	Ausgang A - Treppenlichtdauer	Treppenlichtdauer	2 Byte	F	-	S	U
14	Ausgang A - Warnung Treppenlicht	Warnung Treppenlicht	1 Bit	F	A	-	U
15	Ausgang A - Szene (0&U)	Szene (0&U)	1 Byte	F	-	S	-
16	Ausgang A - Schwellenwert Eingang	Schwellenwert Eingang	1 Byte	F	-	S	A
17	Ausgang A - Änderung Schwellenwert 1	Änderung Schwellenwert 1	1 Byte	F	-	S	A
18	Ausgang A - Änderung Schwellenwert 2	Änderung Schwellenwert 2	1 Byte	F	-	S	A
19	Ausgang A - Jalousie öffnen	Jalousie öffnen	1 Bit	F	-	S	-
20	Ausgang A - Jalousie schließen	Jalousie schließen	1 Bit	F	-	S	-
21	Ausgang A - Logik-Verbindung 1	Logik-Verbindung 1	1 Bit	F	-	S	-
22	Ausgang A - Logik-Verbindung 2	Logik-Verbindung 2	1 Bit	F	-	S	-
50	Ausgang C - Kanal Ausgang	Kanal Ausgang	1 Bit	F	-	S	-
70	Ausgang D - Kanal Ausgang	Kanal Ausgang	1 Bit	F	-	S	-

▲ Figure 21: All objects of channel "N"

### 9.2.1 Object – switch status response

Number	Name	Function	Flags	Data types
11	Output "N"	Switch status response	C R A	EIS1 DPT 1.001 1bit

This object is used to respond to the switch status of channel "N", channel on ON the response is "1", otherwise a "0"-zero is returned.

▲ Table 6: Switch status response

### 9.2.2 Object – Statistics for ON switch

Number	Name	Function	Flags	Data types
12	Output "N"	Statistics for ON mode	C R W A U	EIS10 DPT 7.007 2byte

This object creates statistics for channel "N". It can be read/written via the bus if this function has been activated.

▲ Table 7: Statistics for ON mode

### 9.2.3 Object - staircase light

Number	Name	Function	Flags	Data types
13	Output "N"	Staircase light duration	C W U	EIS10 DPT 7.005 2byte

This object can be used to regulate the staircase light time; when this function is activated control is permitted via the data bus.

▲ Table 8: Staircase light duration



9.2.4 Object – warning staircase light

Number	Name	Function	Flags	Data types
14	Output "N"	Warning staircase light	C R A	EIS1 DPT 1.005 1bit
<p>This object is a safety against unwanted ON/OFF switching; if the staircase light goes On or Off, the object sends a warning via the bus:</p> <p style="text-align: center;">Channel "N" is ON -&gt; a "1", other a "0"-zero</p>				

▲ Table 9: Warning staircase light

9.2.5 Scene object

Number	Name	Function	Flags	Data types												
15	Output "N"	Scene (8bit)	C W U	EIS14 DPT 18.001 1byte												
<p>The purpose of this object is to control scenes. See the following explanation:            Telegram value (8-bit): C7 R6 N5 N4 N3 N2 N1 N0            C: By setting the 7th bit to "0" the scene will be called up, "1" continue scene (if scene has been assigned and is valid)            R: Reserved            N: Scene No. (binary: 050403020100...151413121110=1...64)            e.g.: Hexadecimal</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 150px;">00h</td> <td>Call up scene1 (if scene assigned)</td> </tr> <tr> <td>01h</td> <td>Call up scene2 (if scene assigned)</td> </tr> <tr> <td>3Fh</td> <td>Call up scene64 (if scene assigned)</td> </tr> <tr> <td>80h</td> <td>Load scene1 (if scene assigned)</td> </tr> <tr> <td>81h</td> <td>Load scene2 (if scene assigned)</td> </tr> <tr> <td>BFh</td> <td>Load scene64 (if scene assigned)</td> </tr> </table>					00h	Call up scene1 (if scene assigned)	01h	Call up scene2 (if scene assigned)	3Fh	Call up scene64 (if scene assigned)	80h	Load scene1 (if scene assigned)	81h	Load scene2 (if scene assigned)	BFh	Load scene64 (if scene assigned)
00h	Call up scene1 (if scene assigned)															
01h	Call up scene2 (if scene assigned)															
3Fh	Call up scene64 (if scene assigned)															
80h	Load scene1 (if scene assigned)															
81h	Load scene2 (if scene assigned)															
BFh	Load scene64 (if scene assigned)															

▲ Table 10: Scene (8bit)

9.2.6 Threshold value object

Number	Name	Function	Flags	Data types
16	Output "N"	Threshold value input	C W U	EIS14 DPT 5.004 1byte
<p>If this object is activated, the input value will be compared with threshold values 1 and 2 and the switch status will be determined in accordance with the configuration.</p>				
17	Output "N"	Change threshold value 1	C W U	EIS14 DPT 5.004 1byte
<p style="text-align: center;">Changing the threshold value1 via the bus only.</p>				



18	Output "N"	Change threshold value 2	C W U	EIS14 DPT 5.004 1byte
Changing the threshold value2 via the bus only.				

▲ Table 11: Threshold value

### 9.2.7 Blind object

Number	Name	Function	Flags	Data types
19	Output "N"	Open blind	C W U	EIS1 DPT 1.010 1bit
This object opens the blind.				
20	Output "N"	Close blind	C W U	EIS1 DPT 1.010 1bit
This object closes the blind.				

▲ Table 12: Blind

### 9.2.8 Logic object

Number	Name	Function	Flags	Data types
21	Output "N"	Logic link 1	C W U	EIS1 DPT 1.002 1bit
If this function is activated, the object will be visible and the logic function has validity. The logic function contains: AND, OR, XOR, GATE.				
22	Output "N"	Logic link 2	C W U	EIS1 DPT 1.002 1bit
If this function is activated, the object will be visible and the logic function has validity. The logic function contains: AND, OR, XOR, GATE.				

▲ Table 13: Logic

### 9.2.9 Heating actuator object

Nummer	Name	Funktion	Länge	K	L	S	Ü	A
0	allgemein	zyklisch senden	1 bit	K	L	-	Ü	-
10	Ausgang A	Schaltung mit Bit-Kontrolle	1 bit	K	-	S	-	A

▲ Figure 22: Heating actuator object with bit control

Nummer	Name	Funktion	Länge	K	L	S	Ü	A
0	allgemein	zyklisch senden	1 bit	K	L	-	Ü	-
10	Ausgang A	Schaltung mit Byte-Kontrolle	1 Byte	K	-	S	-	A

▲ Figure 23: Heating actuator object with byte control



Number	Name	Function	Flags	Data types
10	Output "N"	Switching with bit control	C W U	EIS1 DPT 1.001 1bit
The PWM will be started when "1" is received and stopped when "0" is received. Runs automatically via the ETS once turned on.				
22	Output "N"	Switching with byte control	C W U	EIS1 DPT 5.004 1byte
Output "ON" always if value 255, output "OFF" if value 0. Otherwise the switching points of the PWM cycle will be determined via a value delivered by the bus.				

▲ Table 14: Heating actuator

## 10. Applications

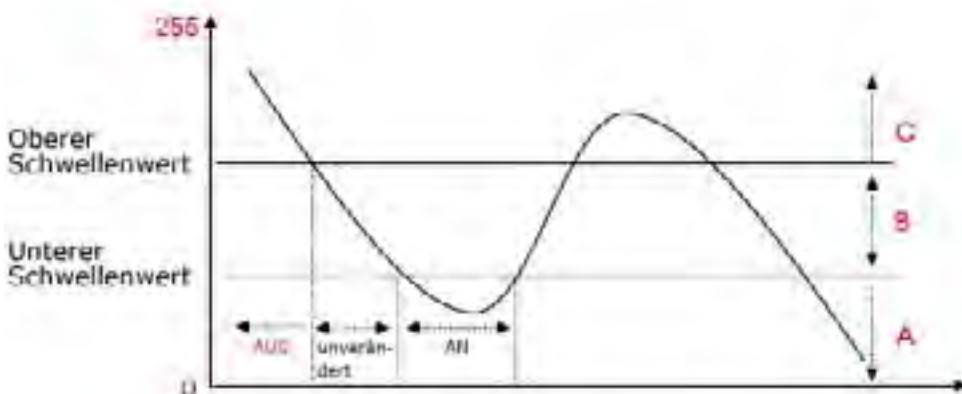
### 10.1 Scene



▲ Figure 24: Application scene

5 scenes per channel can be stored in the device. The scene numbers can be selected between 1 and 64.

### 10.2 Threshold value



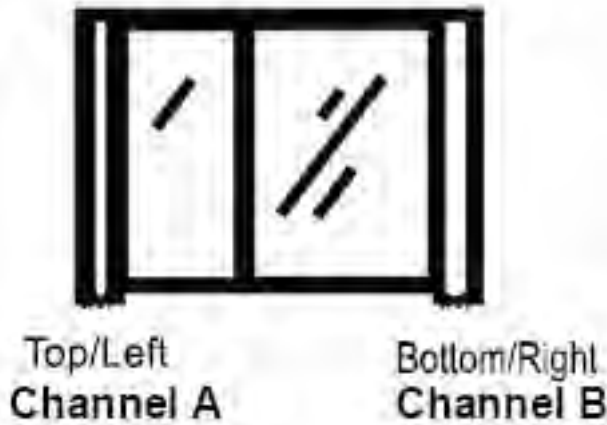
▲ Figure 25: Threshold value application

This function contains two threshold values, the upper and lower threshold value, both of which can be defined between 0...255.



### 10.3 Blind

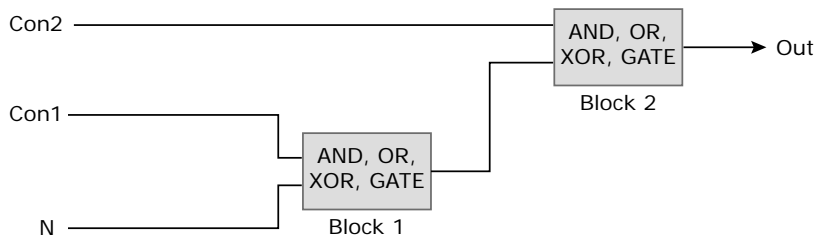
This function requires two channel outputs, the first of which opens the blind while the second one closes it.



▲ Figure 26: Blind application

If the blind/the curtain is to be opened, channel A switches to ON and channel B to OFF. If the blind/the curtain is to be closed, channel B switches to ON and channel A to OFF. With time-out or a stop command, both channels will be switched to OFF.

### 10.4 Logic function

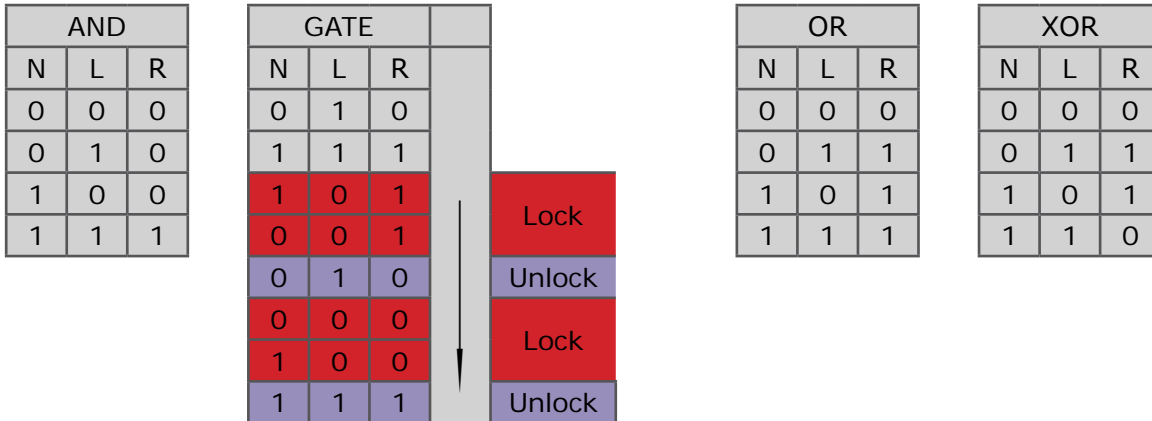


▲ Figure 27: Logic function application



The logic function contains two logic blocks. Both of these logic blocks, logic Block1 and logic Block2, allow the user to choose between the following Boolean operations: AND, OR, NOT EQUAL TO, GATE.

! Note: N = "channel" – "A, B, C,.."  
Con1=logic link1  
Con2=logic link2



▲ Figure 28: Boolean operation

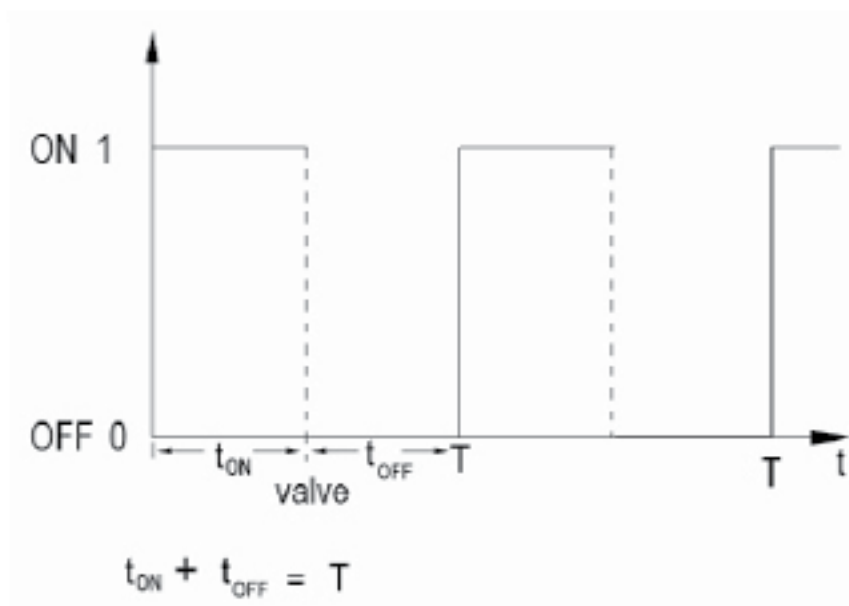
! Note: N=channel A, B, C...  
L=Logic connection  
R= result

### 10.5 PWM control

Control can be implemented with 1bit or 1byte.

▶ **1bit PWM(1-Start/0-Stop)** The PWM starts and switches ON if a "1" is received, and will be ended with the receipt of a "0".

▶ **1Byte(255-Start, 0-Stop, Intermediate values):** Switch moves to ON upon receiving the value "255" and to OFF upon receiving the value "0". The intermediate values (1-254) define the switching points within the PWM cycle.



▲ Figure 29: PWM control application

▼ 1Bit PWM control: Value = 0% (OFF)





10%	(26)
20%	(51)
30%	(77)
40%	(102)
50%	(128)
60%	(153)
70%	(179)
80%	(204)
90%	(230)
100%	(ON)

▼ 1Byte PWM control: Value = x (x:0...255), x=0 -> OFF

1..25	(0%)
26..50	(10%)
51..76	(20%)
77..101	(30%)
102..127	(40%)
128..152	(50%)
153..178	(60%)
179..203	(70%)
204..229	(80%)
230..254	(90%)
255	(ON)

## 11. Safety instructions

1. Please read these instructions carefully before starting to work with the product.
2. Keep the device out of the range of sources of disruption.
3. Please ensure to maintain the proper ambient temperature for the device
4. Avoid moisture, strong vibration and dust
5. Never allow liquid of any kind (from petrol to water) to come in contact with the device.
6. If any faults occur or for servicing you should contact preussen automation
7. Clean the device regularly. Do not use any alcohol, petrol or petroleum-based cleaners.
8. If the device nevertheless comes into contact with moisture or other liquids, dry it completely before using again.
9. Check the cables regularly and replace damaged cables in good time.

## 12. Warranty

### Limited warranty

#### General terms and conditions

Your statutory rights as a consumer are not affected by the contents of this Limited Product Warranty. The Limited Product Warranty described here is provided by preussen automation GmbH (hereinafter: "preussen"). This Limited Product Warranty is only valid if the purchase of the product can be proven. If demanded by preussen this warranty certificate must also be presented.

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**Geographical scope of the Limited Product Warranty** This Limited Product Warranty applies to hardware products sold by preussen dealers in European States in according with the Annex "Limited warranty of preussen in European States". Within the terms of this Limited Product Warranty from preussen, the phrase "European States" only relates to those states listed in the Annex. The Limited Product Warranty is universally applicable wherever preussen or its authorised service partners deliver warranty services within the terms of this Limited Warranty. The availability of services and the implementation time may however vary from country to country and may depend on registration requirements.

Under the Limited Product Warranty preussen warrants that the products listed below, when used normally, will not contain significant workmanship faults or material defects for the term of the Limited Warranty ("warranty term") as specified below. However this warranty requires that the product has been used and serviced in accordance with the user manual supplied to the customer at the time of purchase (or subsequently). preussen does not warrant that the products will function interruption or error-free or that all faults, errors, defects or non-conformities will be corrected. This warranty shall not apply to problems resulting from:

(a) unauthorised opening, modifications or attachments, (b) negligence, abuse or misuse, including failure to operate the product in accordance with specifications or interface requirements, (c) improper operation, (d) failure of goods or services not obtained from preussen or not covered by a warranty or maintenance agreement at the relevant time, (e) improper use or storage or (f) fire, water, acts of God or other catastrophic events. This warranty shall also rendered invalid for any particular product, the preussen serial number of which has been removed or defaced in any way. PREUSSEN IS NOT RESPONSIBLE FOR DAMAGE THAT OCCURS AS A RESULT OF A FAILURE TO FOLLOW THE INSTRUCTIONS FOR THE PREUSSEN HARDWARE PRODUCT.

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The Limited Product Warranty commences on the date that the product is purchased from preussen. The dated purchase or delivery note constitutes proof of this date. You may be required to provide proof of purchase as a condition of receiving warranty service. You are entitled to warranty service according to the terms and conditions of this document if a repair to your preussen hardware product is required within the Limited Product Warranty period. This Limited Product Warranty extends only to the original end user who purchased this preussen hardware product. It is not assignable.

**Product type warranty period** (If a "product type" is cancelled during the following warranty period, the warranty period will continue for no longer than two (2) years following the date of cancellation.)

- Devices in the Stage Automation, Facility Automation & Network series Two (2) years
- All other products (exclusively external power supply components, internal fans and accessories) Two (2) years
- External power supply components, internal fans and accessories One (1) year

**Limited warranty obligations** If the event that a fault in the product arises, preussen's sole obligation to the original purchaser is to repair or replace the defective preussen hardware product free of charge. This is conditional on it being returned to an authorised preussen Service Centre within the Limited Warranty period. The repair or replacement will be performed by preussen at an authorised preussen. All parts or hardware products replaced by way of Limited Product Warranty will become the property of preussen. The replacement part or product will be covered by the remaining Limited Warranty Period of the replaced part or product. The replacement product need not necessarily be new nor be wholly or partly identical to the defective product. preussen may replace the defective product or any part thereof with any reconditioned product equivalent in all material respects to the defective product, or superior to it.

#### Annex

preussen automation Limited Warranty for European States

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### 13. Declaration of Conformity

pursuant to the Directives 89/336 EEC and 92/31 EEC

Name of manufacturer: preussen automation GmbH  
Address of manufacturer: Am Grundwassersee 1, 82402 Seeshaupt

declares that the product

Name of product: SwitchME KNX  
Type: KNX Switch Actuator

satisfies the following standards

Safety: EN60669-2-1, EN60669-1  
EMC: EN50090-2-2

Florian Felsch  
Seeshaupt, 10.07.2011

### 14. Contact

preussen automation GmbH  
Am Grundwassersee 1  
82402 Seeshaupt  
Germany

service@preussen-automation.eu

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## 16. Technical data sheet

Ausführung   Type	SwitchME 4 KNX	SwitchME 8 KNX	SwitchME 12 KNX
Bestellnr.   Order code	4260220541080	4260220541097	420220541103
Stromversorgung   power supply			
Bus Betriebsspannung   bus operating voltage	21-30 V DC		
KNX Stromverbrauch   electrical consumption	15 mA		
Anschlüsse   connections			
Kanäle   channels	4	8	12
Einspeisung   input	24V DC (KNX Busspannung)   24V DC (KNX BUS power)		
KNX Anschluss   KNX connection	KNX-Busklemme (rot/grau) 0,8 mm <sup>2</sup>   KNX bus clamp (red/grey) 0.8 mm <sup>2</sup>		
Zuleitung und Ausgänge   supply and outputs	für Leitung bis 2,5 mm <sup>2</sup>   for cable up to 2.5 mm <sup>2</sup>		
Ausgänge   outputs	bistabile Relais mit potenzialfreien Kontakten (230V, 50/60Hz)   bistable relay with isolated contacts (230V, 50/60Hz)		
Elektrische Sicherheit   electrical safety			
Schutzklasse   protection class	IP 20 EN 60529		
Relais Lebensdauer   relay service life	mehr als 1.000.000 Schaltzyklen   more than 1,000,000 switching cycles		
Absicherung   fusing	16 A		
Leuchtstofflampenlast   fluorescent lighting load	16A/ 250 V (150 µF)		
Maximale Schaltleistung   maximum switch load			
Ohmsche Last   resistive load	16 A		
Maximale Lampenlast   maximum lamp load			
Lampen   lamps			
Glühlampen   incandescent lamp load	3500 W		
NV-Halogenlampen   low-voltage halogen lamps			
induktiver Transformator   inductive transformer	1800 W		
elektronischer Transformator   electronic transformer	2000 W		
Halogenlampe 230V   halogen lamp 230 V	3500 W		
Quecksilberdampf Lampe   mercury-vapour lamp			
unkompensiert   uncompensated luminaire	2800 W		
parallel kompensiert   parallel compensated	2800 W		
Leuchtstofflampe T5 / T8   fluorescent lamp T5 / T8			
unkompensiert   uncompensated luminaire	3500 W		
parallel kompensiert   parallel compensated	2000 W		
DUO Lampe   DUO lamp	2000 W		
Dulux Lampe   dulux lamp			
unkompensiert   uncompensated luminaire	1500 W		
parallel kompensiert   parallel compensated	1500 W		
Physische Eigenschaften   physical characteristics			
Gehäuse Material   housing material	Kunststoff schwarz   plastic black		
Maße   dimensions	72 x 90 x 64 mm	144 x 90 x 64 mm	216 x 90 x 64 mm
Produkt Gewicht   product weight	257 g	480 g	700 g
Teilungseinheiten   sub-units	4 fold	8 fold	12 fold
Verpackungsgröße   packing size	95 x 75 x 80 mm	170 x 105 x 120 mm	145 x 105 x 120 mm
Transportgewicht   shipping weight	300 g	580 g	825 g
Montage   assembly	Hutschiene   35mm rail mounting DIN EN 60715		
Betriebstemperatur   operating temperature	-5°C ~ +45°C		
Lagertemperatur   storage temperature	-25°C ~ +55°C		

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