5/2013

Technical Manual

MDT Sun Sensor

SCN-SS1H.01

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DIN EN ISO 9001
TAW Cert
Zert.Nr.19050608

1 Content

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2 Overview

2.1 Overview

The manual refers to the following listed sun sensors (Order Code respectively printed in bold type):

- **SCN-SS1H.01** Sun sensor for indoor installation
    - Sun sensor with vacuum cup for indoor installation used for clouding applications; Hysteresis and time delay adjustable; with push button input, e.g. fpor shutter buttons ; power supply via bus

The following additional devices for weather detection are at our assortment and complete the package for weather detection:

- **SCN-WS2HW.01** Weather station for extensive weather detection and analysis
- **SCN-RS1R1.01** Rain detector

2.2. Usage & areas of use

The sun sensor has its areas of use at the clouding of facades and living rooms. The mounting of the sun sensor is very easy and can be made at every window. Via a vacuum cup, the sensor is connected to the reference window. The controlling unit is connected to the sensor via a 2m cable and enables flexibility for the assembly in flush-mounting boxes.
The sun sensor can call as well preset shutter/blind positions as scene numbers. Furthermore it is possible to adjust the position of the facade via the vacuum cup sensor. So the clouding position can be changed by the end userwithout having access to the ETS. This makes the clouding of facades more flexible and the usage is much easier and comprehensible.
For the parameterization of the threshold values, a plurality of parameters is available and enables adjusting the sun sensor to every application. Hysteresis as well as delays and sending behavior can be adjusted flexible.
Furthermore a push button is integrated in the control unit. By using this input, other functions like manual driving of the shutter or blocking the clouding can be performed. Also other applications like dimming, calling scenes or switching can be adjusted for the push button input.

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2.3 Circuit diagram

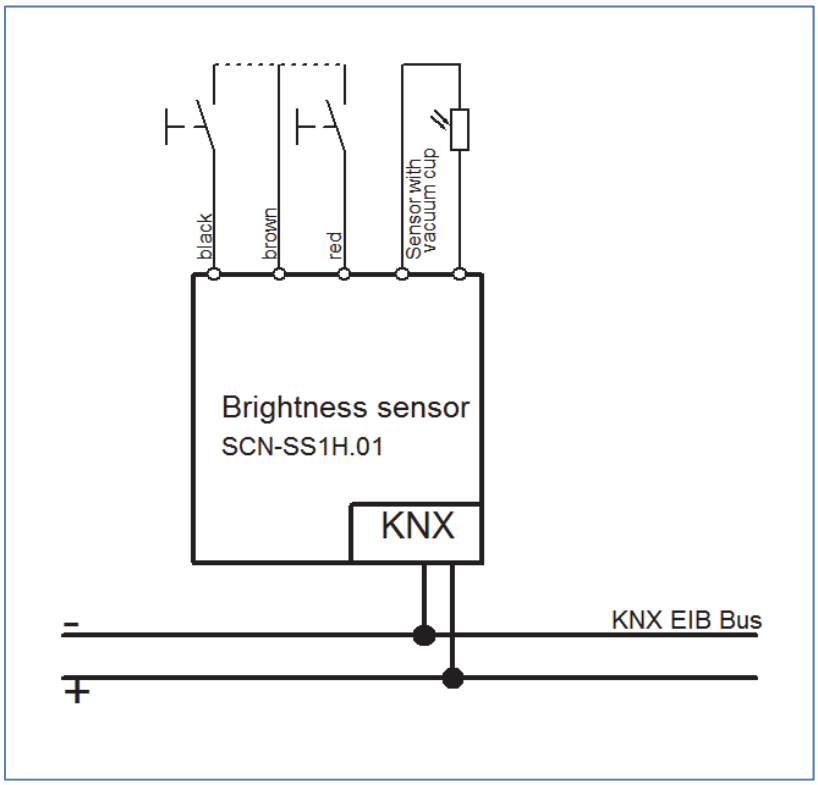

Illustration 1: Exemplary circuit diagram

2.4 Installation & Instructions of installation

The sensor should be installed at a window, which represents the solar radiation of the facade. The sun should not be prevented by outer objects, like tress or anything else. If necessary the position of the vacuum cup at the window must be adapted to the current situation.
If a complete façade shall be controlled with the sensor, it will be usefeul to install the sensor at the window with the heighest sun radiation.
The vacuum cup should be installed in the last third of the window to capture also the sun when it stands very high.
The control unit of the sensor can be installed in a flus-mounted cup.

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2.5 Functions

The functions of the sun sensor are dived into the general settings, the settings for the capture of brightnesswith the corresponding clouding settings and the settings for the push-button inputs.
The following menus can be shown and further parameterization can be done there:

- **General setting**
  The general settings are always shown. Changes, which are made in this menu, are valid for the whole device. Settings for the behavior at reset and other general settings can be done here.

- **Brightness**
  Thesun sensor can be parameterized at this menu. By activation of the threshold and the facadecontrol, the corresponding submenus can be shown and further settings can be done at these menus.

- **Setting of inputs**
  The both inputs can be adjusted as well as two single channels or as one grouped channel. The following parameterization depends to this preselection.

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2.5.1 Overview functions

General settings	general	• Startup time • Limitation of telegrams • Cyclic sens of an operating telegram • Behavior after download
Sun sensor	general	• Sending condition • Treshold actiavtable • Facade control activatable
	Treshold	• Treshold adjusatble • Recognization time adjustable • Behavior at exceedance and deviation • Cyclic send • Blocking object • Threshold adjustable via communication object
	Facade control	• Moving object adjustable • Reactions to tresholds • Cyclic send • Blocking object • Test function • Shutter position calculatable from position of vacuum cup
Settings of the input	Channels grouped	• Dimming function • Shutter function • Switching function • Blocking function
	Channels unique	• Switching function • Calling of scenes • Switch short/long • One button dimming function • One button shutter function • Blocking function

Chart 1: Overview functions

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2.6 Settings at the ETS-Software

Selection at the product database:

Manufacturer: MDT Technologies
Product family: Actuators
Product type: Weather detection
Medium Type: Twisted Pair (TP)
Product name: SCN-SS1H.01 Sun sensor
Order number: SCN-SS1H.01

2.7 Starting Up

After wiring the allocation of the physical address and the parameterization of every channel follow:

(1) Connect the interface with the bus, e.g. MDT USB interface
(2) set bus power up
(3) Activate the programming mode by pushing the programming button → red programming LED lights
(4) Loading of the physical address out of the ETS-Software by using the interface(red LED goes out, as well this process was completed successful)
(5) Loading of the application, with requested parameterization
(6) Switch the power supply on
(7) If the device is enabled you can test the requested functions(also possible by using the ETS-Software)

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3 Communication objects

3.1 Overview

The communication objects are divided by the available submenus of the parameterization. The first three objects are reserved for the evaluation of the measured brightness value and the threshold. The objects from 4 to 22 are for the facade control. The available objects depend on the adjusted operating mode.
At the end the objects for the push button input follow. These objects start with the number 23.
The following illustration shows exemplary the available communication objects:

Number	Name	Object Function	Len...	C	R	W	T	U	Data Type
0	Brightness	Measured value	2 Byte	C	R	W	T	-	2 byte float value DPT_Value_Lux
1	Brightness	Threshold value	1 bit	C	R	-	T	-	1 bit DPT_Switch
2	Brightness	Block object for threshold val	1 bit	C	-	W	T	-	1 bit DPT_Enable
3	Facade	Send reference blind stop	1 bit	C	R	-	T	-	1 bit DPT_Enable
4	Facade	Send reference blind Up/Down	1 bit	C	R	-	T	-	1 bit DPT_UpDown
5	Facade	Position of facade	1 Byte	C	R	-	T	-	8 bit unsigned value DPT_Scaling
6	Facade	Block object for facade	1 bit	C	-	W	-	-	1 bit DPT_Enable
10	Facade	Status of reference blind	1 Byte	C	-	W	-	-	8 bit unsigned value DPT_Scaling
13	Status	Only for internal functions	1 Byte	C	R	-	T	-	8 bit unsigned value DPT_Value_1_U...
14	Testing drive	Drive to sun protaction	1 bit	C	-	W	-	-	
23	Input 1	Shutter	1 bit	C	R	-	T	-	1 bit DPT_UpDown
24	Input 1	Slats/Stop	1 bit	C	R	-	T	-	1 bit DPT_Switch
25	Input 1	Value for change of direction	1 bit	C	-	W	T	U	1 bit DPT_UpDown

Illustration 2: Communication objects

3.2 Default settings of the communication objects

The following chart shows the default settings of the communication objects

Default setttings									
Nr.	**Channel/Input**	**Function**	**Length**	**Priority**	**C**	**R**	**W**	**T**	**U**
0	Brightness	Measured value	2 Byte	Low	X	X	X	X	
1	Brightness	Treshold value	1 Bit	Low	X	X		X	
2	Brightness	Block object for threshold val	1 Bit	Low	X		X	X	
3	Facade	Send reference blind stop	1 Bit	Low	X	X		X	
4	Facade	Send reference blind up/down	1 Bit	Low	X	X		X	
4	Facade	Send shutter position	1 Byte	Low	X	X		X	
4	Facade	Send position of blinds	1 Byte	Low	X	X		X	
4	Facade	Scene threshold	1 Byte	Low	X	X		X	
5	Facade	Send position of slats	1 Byte	Low	X	X		X	
5	Facade	Position of facade	1 Byte	Low	X	X		X	
6	Facade	Block object for facade	1 Bit	Low	X		X		
9	Facade	Teach-In Position	1 Bit	Low	X		X		

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10	Fassade	Status of blinds for Teach-In	1 Byte	Low	X		X		
10	Fassade	Status of reference blind	1 Byte	Low	X		X		
10	Fassade	Status shutter for Teach-In	1 Byte	Low	X		X		
11	Fassade	Status of slats for Teach-In	1 Byte	Low	X		X		
12	Operating	Status	1 Bit	Low	X	X		X	
13	Status	only for internal functions	1 Byte	Low	X	X		X	
14	Testfahrt	Drive to sun protection	2 Byte	Low	X		X		
23	Inputs 1/2	Dimming on/off	1 Bit	Low	X	X		X	
23	Inputs 1/2	Shutter up/down	1 Bit	Low	X	X		X	
23	Inputs 1/2	Swicth on/off	1 Bit	Low	X	X		X	
24	Inputs 1/2	Dimming	4 Bit	Low	X	X		X	
24	Inputs 1/2	Slats/Stop	1 Bit	Low	X	X		X	
27	Inputs 1/2	Blocking object	1 Bit	Low	X		X	X	
23	Input 1	Switch	1 Bit	Low	X	X		X	
23	Input 1	Send value	2 Bit	Low	X	X		X	
23	Input 1	Send value	1 Byte	Low	X	X		X	
23	Input 1	Push-button short	1 Bit	Low	X	X		X	
23	Input 1	Dimming on/off	1 Bit	Low	X	X		X	
23	Input 1	Shutter up/down	1 Bit	Low	X	X		X	
24	Input 1	Value for toogle	1 Bit	Low	X		X	X	X
24	Input 1	Dimming	4 Bit	Low	X	X		X	
24	Input 1	Slats/Stop	1 Bit	Low	X	X		X	
25	Input 1	Push-button long	1 Bit	Low	X	X		X	
25	Input 1	Scene	1 Byte	Low	X		X	X	
25	Input 1	Value for toogle	1 Bit	Low	X		X	X	X
25	Input 1	Value for change of direction	1 Bit	Low	X		X	X	X
26	Input 1	Value for toogle	1 Bit	Low	X		X	X	X
27	Input 1	Blocking object	1 Bit	Low	X	X		X	
+5 Input 2									

Chart 2: Default settings of the communication objects

You can see the default values for the communication objects from the upper chart. According to requirements the priority of the particular communication objects as well as the flags can be adjusted by the user. The flags allocates the function of the objects in the programming thereby stands C for communication, R for Read, W for write, T for transmit and U for update.

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4 Reference ETS-Parameter

4.1 General

The following cahrt shows the submenu for the general settings:

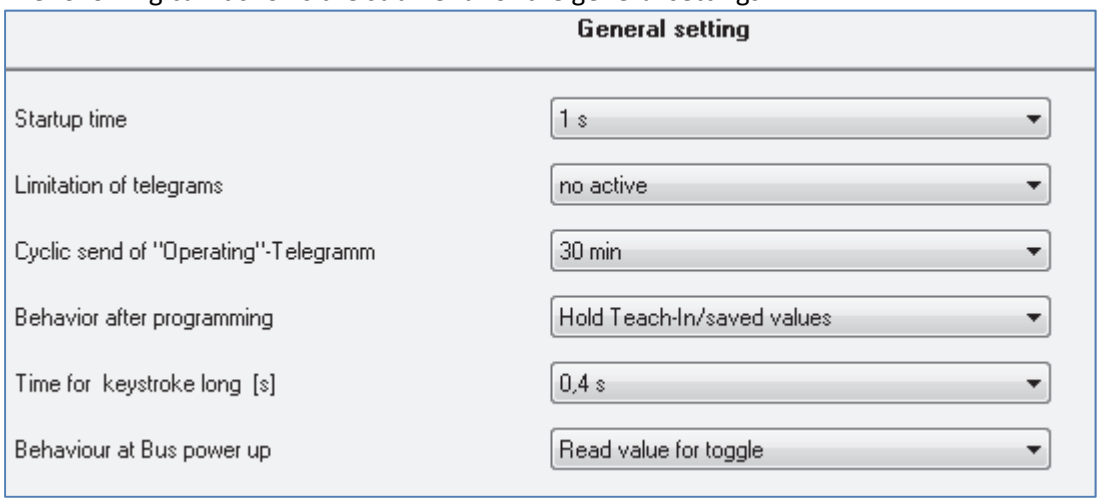

Illustration 3: General settings

The following chart shows the available settings for this submenu:

ETS-Text	Dynamic range **[default value]**	Comment
Startup time	1..60 s **[1]**	Time between a bus power up and functional restart of the device
Limitation of telegrams	• **not active** • active	activates/deactivates the limitation of telegrams
max. quantity in 10 seconds	1-255 **[15]**	maximum quantity of telegrams per 10 seconds (appears if the limitation of telegrams is active)
Cyclic send of “Operating”-Telegram	**no send**, 10 min, 30 min, 1h, 3h, 6h, 12h, 24h	shows an object for the cyclic observation of the device
Behavior after programming	• **Hold Teach-In/saved values** • Load parameter settings	defines the behaviour after preogramming
Time for keystroke long [s]	0,1s – 30s **[0,4s]**	Time from which a long keystroke is recognized
Behavior at bus power up	▪ **No read value for toggle** ▪ Read value for toggle	activates the reading of the value for toggle at bus power up

Chart 3: General settings

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The function “Cyclic send of operating telegram” shows a telegram, which observes the function of the sun sensor. By using a Homeserver or a visualization, it can be evaluated if the device answers still at the bus. In complex systems the error detection can be simplified and becomes much faster by using this object.
The function “Behavior after programming” can define if the values, which were read in external, the Teach-In values, shall be holded after programming. Alternative the values, adjusted in the ETS, can be loaded.
The setting for the long keystroke and the parameter “behavior at bus power up” effect to the push button inputs. By adjusting the time for a long keystroke, the threshold can be defined from which a a long keystroke is recognized. The “behavior at bus power up” defines if the communication objects “value for toogle” shall be read at every bus power return. By reading these values, the push button knows the current state of the actuator and can toggle its value. If the push button input does not read these values, the push button will alsway sent an “on-signal” after a bus power return.

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4.2 Sensor configuration

The following chart shows the settings for the general sensor configuration:

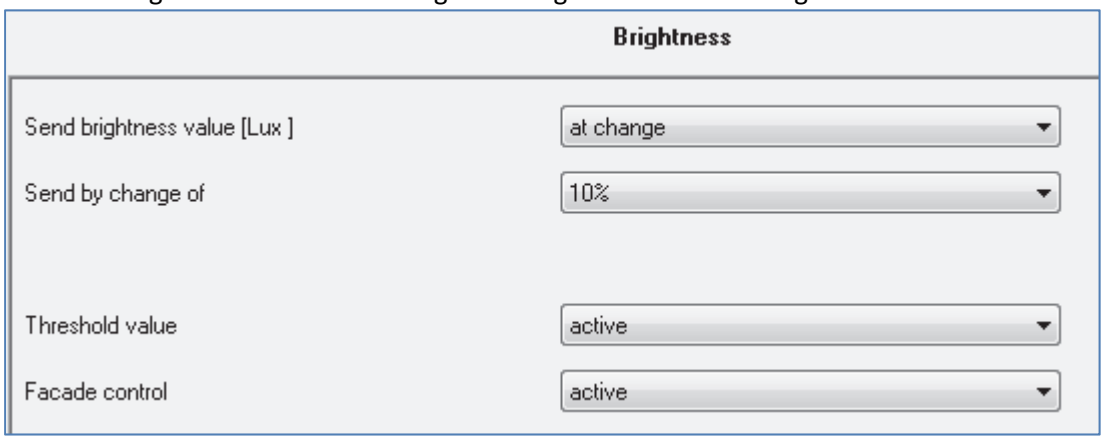

Illustration 4: Sensor configuration

The following chart shows the dynamic range for the sensor configuration:

ETS-Text	Dynamic range **[default value]**	Comment
Send brightness values [Lux]	• never • on demand • **at change** • cyclic • at change and cyclic	defines the sending condition for the brightness values
Send by change of	• **10%** • 20% • 30%	If the brightness value shall be sent at change, the rate of change can be defined at thisparameter.
Time for cyclic sending	10 sec, 20 sec, 30 sec, 1 min, 2 min, **5 min**, 10 min, 20 min, 30 min, 45 min, 60 min	If the brightness value shall be sent cyclic, the time for cyclic sending can be defined at this parameter.
Treshold value	• **not active** • active	activates the threshold value
Facade control	• **not active** • active	activates the facade control

Chart 4: Sensor configuration

For parameterizing the sun sensor the threshold and the facade must be activated at the submenu brightness. Two additional submenus are shown at which the further parameterization can be done. At the menus for the brightness, the sending condition can be defined.

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For parameterizing the brightness values, it is useful to know some popular brightness values. These are shown at the cart below.
Attention should be paid to that the measured values depend to the place of installation:

Surfaces illuminated by	Approximated illuminance
Bright day of sun	100.000 lx
Clouded summer day	20.000 lx
In the shadow at a summer day	10.000 lx
Clouded winter day	3.500 lx
Office/Room building lights	500 lx
Overhead lightning	100 lx
Street lightning	10 lx
Full moon night	0,25 lx
Starlit night (new moon)	0,001 lx
Clouded night without moon and other extraneous lights	0,00013 lx

Chart 5: Intensity of illumination

The following chart shows the relevant communication object for the measured brightness value:

Number	Name	Function	Length	Usage
0	Brightness	Measured value	2 Byte	Display of the measured value

Chart 6: Communication object brightness value

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4.3 Schwellwert

The following illustration shows the submenu for the threshold:

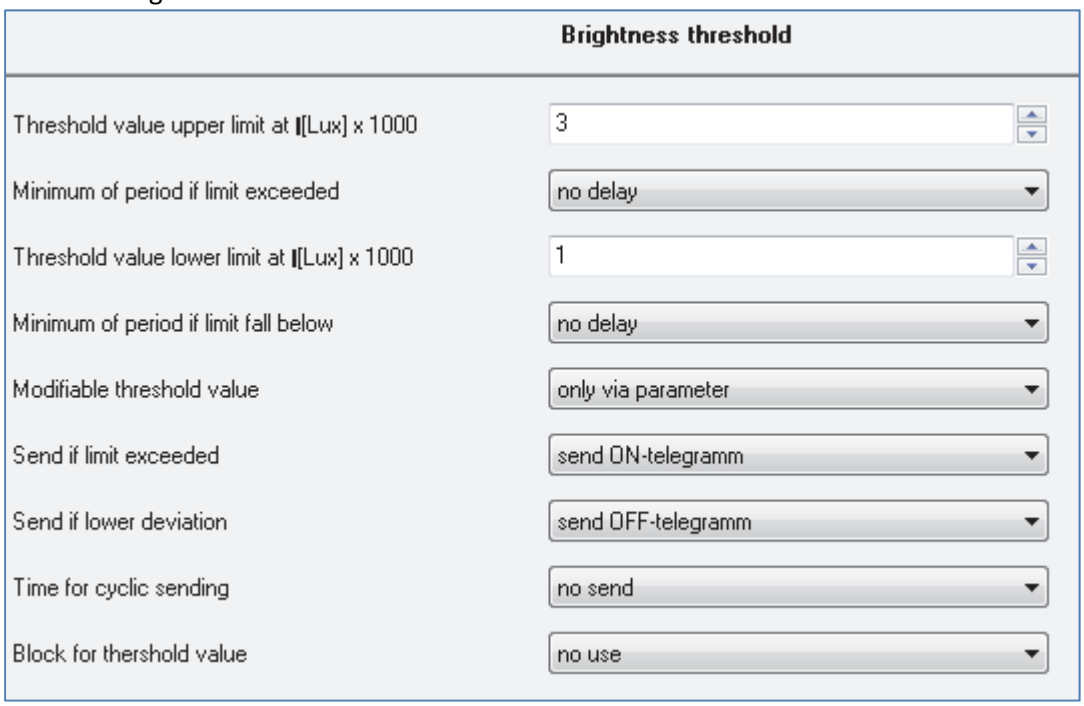

Illustration 5: Submenu treshold

The following chart shows the available settings at the submenu threshold:

ETS-Text	Dynamic range **[default value]**	Comment
Treshold value upper limit at …[Lux] x1000	1-99 **[35]**	defines the upper limit for the threshold value
Minimum of period if limit exceeded	no delay, 10 sec, 30 sec, 1 min, 2 min, **5 min**, 10 min, 20 min, 30 min, 45 min, 60 min	Minimum period of time for which an exceedance must be measured
Treshold value lower limit at …[Lux] x1000	1-99 **[30]**	defines the lower limit for the threshold value
Minimum of period if limit fall below	no delay, 10 sec, 30 sec, 1 min, 2 min, **5 min**, 10 min, 20 min, 30 min, 45 min, 60 min	Minimum period of time for which an undercut must be measured
Modifable threshold value	• **only via parameter** • via objects and parameter	Defines whether the threshold value can be modified only via parameter or via object and parameter
Send if limit exceeded	• no send • **send ON-telegram** • send OFF-telegram	Action for the exceedance of the threshold value

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Send if lower deviation	• no send • send ON-telegram • **send OFF-telegram**	Action for the undercut of the threshold value
Time for cyclic sending	**no send**, 10 sec, 20 sec, 30 sec, 1 min, 2 min, 5 min, 10 min, 20 min, 30 min, 45 min, 60 min	defines whetrher the threshold value shall be sent cyclic or not
Block object for threshold value	• **no use** • verwenden	defines whther the block object has effect to the first threshold value or not

Chart 7: Submenu threshold value

The trshold value defines the lux value for which the sun sensor shall perform an action. An upper and a lower deviation defined. So it is possible to define a hysteresis. This provides that the clouding position is called to often. Additional a time value can be defined for the exceedance and the undercut. This time vaue defines the minimum period for which the exceeadance/undercut must be measured. Furthermore the polarity of the communication object for the threshold value can be defined by the parameters “Send if limt exceed/Send if lower deviation”. The object can also send ist value cyclic.
For blocking the activation of the threshold, a blocking object can be activated. This object blocks the treshold by a logical 1 and unblocks the treshold by a logical 0.

The following chart shows the communication objects for the treshol value:

Number	Name	Function	Length	Usage
1	Brightness	Treshold value	1 Bit	indicates if threshold value is active
2	Brightness East	Block object for threshold value	1 Bit	blocks the threshold values

Chart 8: Communication objects threshold value

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4.4 Facade control

The facade control is divided into 2 fundamental functions. At the one hand the call of preset positions, when the trshold is exceeded or undercut. This is performed by the setting “1Byte scene number” or “1 Byte absolute position” for the parameter “Data type for moving object”.
The other mode is activated by the setting “1 Byte absolute position height of sun sensor”. At this mode, the height of the vacuum cup defines the position of the controlled facade.

The following settings are available for the parameter “Data type for moving object” and adjust the operating mode of the sun sensor:

- **1 Byte scene number**
  As well for the exceedance as for the undercut of the threshold, preset scene numbers can be called. These scenes call the parameterized functions at the actuators.
  - **Operating mode 1**

- **1 Byte absolute position**
  As well
  As well for the exceedance as for the undercut of the threshold, preset absolute positions can be called. So the sun sensors sends an absolute position command, when the clouding is called.
  - **Operating mode 1**

- **1 Byte absolute position height of sun sensor**
  These setting divides from the both which are described before. No preset position will be called if the threshold is exceeded. Now the position is adjusted by the height of the vacuum cup. This operating mode has the advantage, that the end-user can change the clouding position easily by changing the height of the vacuum cup.
  - **Operating mode 2**

The following segments describe the operating modes in detail.

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4.4.1 Operating mode 1

The operating mode 1 calls preset scene numbers or absolute positions. It is activated by the setting "1 Byte scene number" or "1 Byte absolute position" for the parameter "Data type for moving object".

The following illustration shows this operating mode for the calling of scenes:

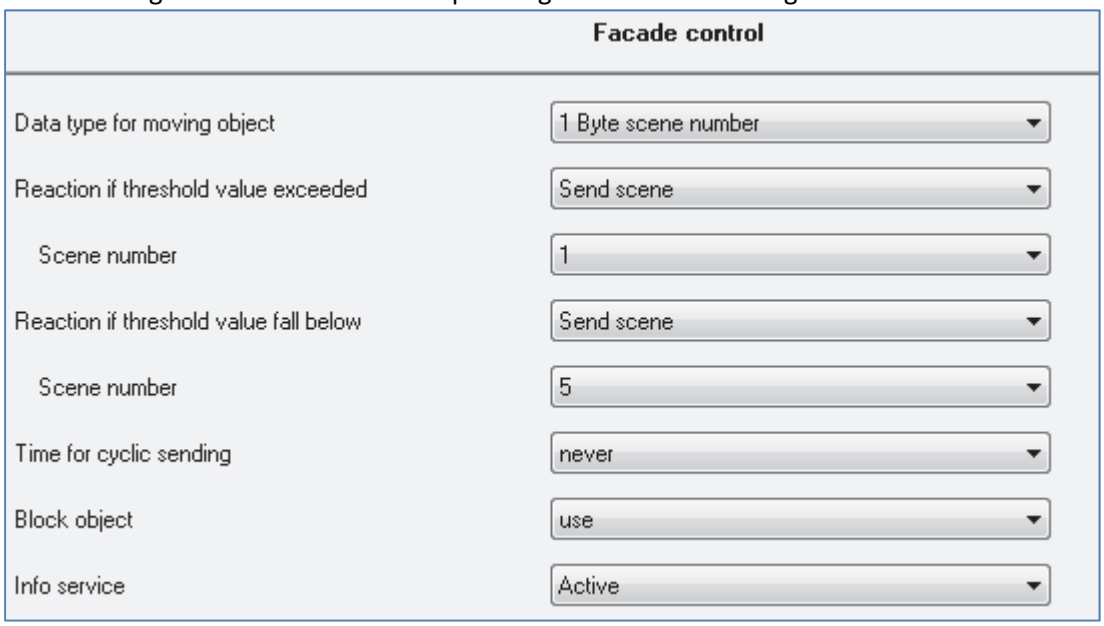

Illustration 6: 1 Byte Scene number

The following chart shows the dynamic range for this parameter:

ETS-Text	Dynamic range **[default value]**	Comment
Data type for moving object	**1 Byte scene number**	chosses Setting for the datatype of the moving object
Reaction if threshold value exceeded	• **no reaction** • Send scene	Setting for the reaction by exceeding the threshold value
Scene number	1-64 **[1]**	Selection of the called scene when the threshold is exceeded
Reaction if threshold value fall below	• **no reaction** • Send scene	Setting for the reaction by undercut of the trshold value
Scene number	1-64 **[1]**	Selection of the called scene when the threshold is undercut
Time for cycling sending	**never**, 1 min, 5 min, 10 min, 30 min, 60min, 90 min, 120 min	Activation of the cyclic sending for the scene number
Bock object	• **no use** • use	Activation of a blocking object for the facade control
Info service	• **not active** • active	activates the test function

Chart 9: 1 Byte scene number

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The following illustration shows the operating mode for the call of absolute positions:

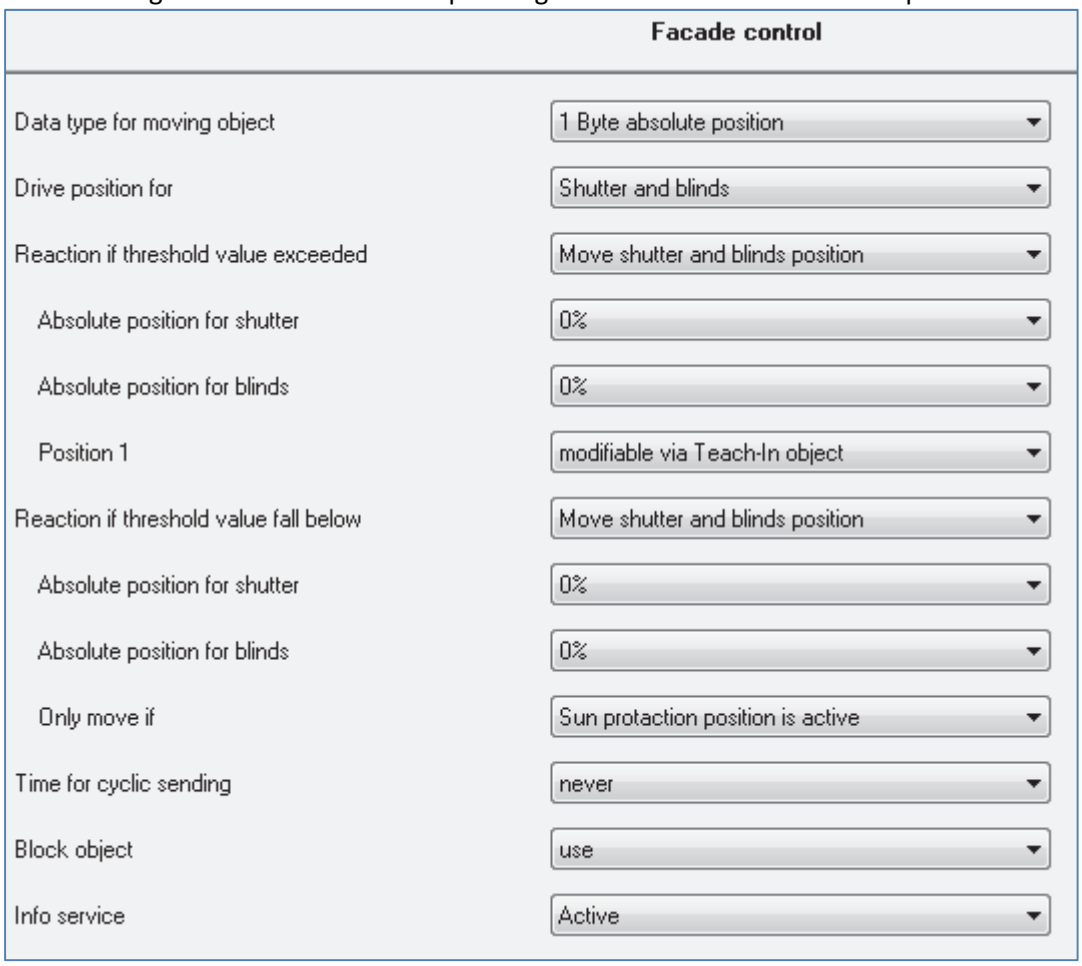

Illustration 7: 1 Byte absolute positions

Die nachfolgende Tabelle zeigt die Einstellmöglichkeiten für diese Betriebsart:

ETS-Text	Dynamic range **[default value]**	Comment
Data type for moving object	**1 Byte absolute position**	chosses Setting for the datatype of the moving object
Drive position for	• **Blinds** • Shutter and slats	Setting, if absolute positions for blinds or for shutter and slats shall be sent
Reaction if threshold value exceeded	• **no reaction** • Move the blind position • Move shutter and slat position	Setting if an action shall be performed when the treshold is exceeded
Absolute position for blinds	0-100% **[0%]**	Setting of the absolute position
Absolute position for shutter	0-100% **[0%]**	Setting of the absolute position

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Absolute position of slats	0-100% **[0%]**	Setting of the absolute position
Position 1	• Teach-In will not be used • **modifiable via Teach-In object**	The current position of the shutter actuator can be saved as new absolute position into the sun sensor via the Teach-In object
Reaction, if threshold value fall below	• **no reaction** • Move the blind position • Move shutter and slat position	Setting if an action shall be performed when the treshold is undercut
Absolute position for blinds	0-100% **[0%]**	Setting of the absolute position
Absolute position for shutter	0-100% **[0%]**	Setting of the absolute position
Absolute position of slats	0-100% **[0%]**	Setting of the absolute position
Only move if	• always drive • **Sun protection is active**	Adjusts when an action shall be performed at an undercut
Time for cyclic sending	**never**, 1 min, 5 min, 10 min, 30 min, 60min, 90 min, 120 min	Activation of the cyclic sending for the absolute positions
Block object	• **nicht verwenden** • verwenden	Activation of a blocking object for the facade control
Info service	• **nicht aktiv** • aktiv	activates the test function

Chart 10: 1 Byte absolute position

The following chart shows the relevant communication objects for the facade control:

Number	Name	Function	Length	Usage
4	Facade	Send position of blinds	1 Byte	Call of the parameterized blind position
4	Facade	Scene treshold	1 Byte	Call of the adjusted scene
4	Facade	Send shutter position	1 Byte	Call of the parameterized shutter position
5	Facade	Send position of slats	1 Byte	Call of the parameterized slat position

Chart 11: Communication objekts operating mode 1

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The further parameterization options depend to the adjusted settings for the data type. According the data type is choosen as calling of scenes or as absolute positions, the further parameterization options are shown.
These are explained in detail at the following segments:

- **Teach-In function**
  only availbale for absolute positions
  The Teach-In function allows to read the current value of the shutter actuator back to the facade control. Three objects at the blind function and four objects at the shutter function are available for this function.
  These objects are shown at the following chart:

Number	Name	Function	Length	Usage
9	Facade	Teach-In position	1 Bit	Activation of the Teach-In function
10	Facade	Status blinds for Teach-In	1 Byte	Read back object for the Teach-In function
10	Facade	Status shutter for Teach-In	1 Byte	Read back object for the Teach-In function
11	Facade	Status slats for Teach-In	1 Byte	Read back object for the Teach-In function

Chart 12: Communication objects Teach-In

The 1 bit object, Teach-In position , is used for the activation of the Teach-In function and the depending state object is used for reading the current position back. The state object must be connected with the state object of the shutter actuator to read the current position.
The following illustration shows an exemplary programming of the Teach-In function for the shutter and slats:

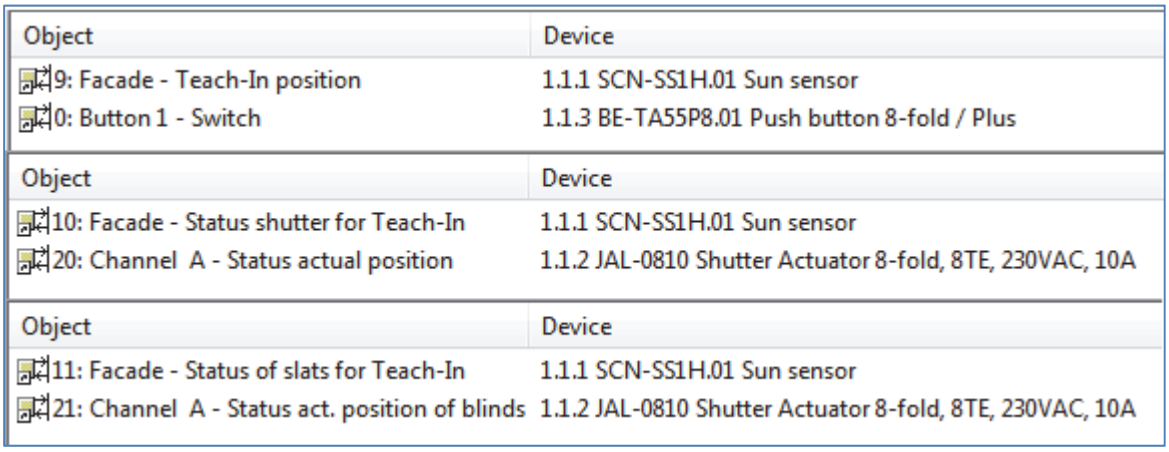

Illustration 8: Teach-In function

The illustration shows the split of the three Teach-In objects into three different group addresses. The state objects for the Teach-In function are connected with the state objects of the shutter actuator. At this example, the 1 Bit activation object , Teach-In position, is connected to a push button, but it is also possible to activate Teach-In function via display. As soon as the push button sends a logical “1”, the current position of the shutter and slats are read back and the value is saved as new position for the facade control. At the next activation of the threshold, this function is called.

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At the general settings can be adjusted whether the Teach-In values shall be kept or being overwritten by the parameterized values.

- **Only move if**
  only availbale for absolute positions
  Sub function of the parameter "Reaction if threshold value fall below"
  This parameter adjusts whether the position for the undercut of the threshold value shall be called always or only if the sun position is still active.
  Using this setting allows that no absolute position at the repeal of the shadowing is called if the shutter/blinds are driven before manually. For enabling this function, the state objects of the shutter/blinds from the sun sensor must be connected to the ones of the controlling shutter/blind. So the sun sensor compares the adjusted values to the current ones and drives only if these are the same.

- **Block object**
  By the setting if a block object shall be used, the block object for the facade control can be shown. This object blocks the facade control by calling via a logical "1".

- **Info service**
  By activation the info service an object for a test drive is shown. Activation this object allows driving to the sun protection position manually. This function can be used for testing after programming.

The following chart shows the relevant communication objects:

Number	Name	Function	Length	Usage
6	Facade	Block object for facade	1 Bit	Blocks the facade control
14	Testing drive	Drive to sun protection	1 Bit	drives to the sun protection position

Chart 13: Communication objects operating mode 1

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4.4.2 Operating mode 2

At the operating mode 2, the vaccum cup of the sun sensor defines the height of the sun protection position. A big advantage of this function is that the height of the sun protection position can be modified easily and makes it clearer for the end-user.

For detecting the height, at first the reference blind is driven. This reference blind moves until the sun sensor is darkened. This position is saved internally as sun protection position for the whole facade. Now the reference blind drives in small setps up until the nrightness sensor is completely free again. The saved position is sent when the adjustment process was completed.

The following illustration shows the parameter for this operating mode:

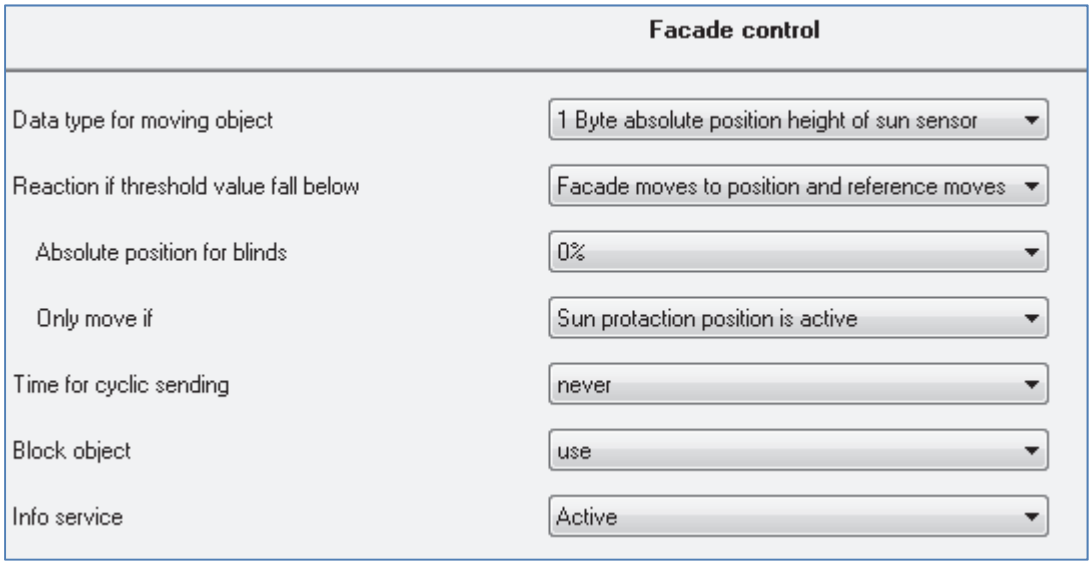

Illustration 9: Operating mode 2

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The following chart shows the dynamic range of this parameter:

ETS-Text	Dynamic range **[default value]**	Comment
Data type for moving object	**1 Byte absolute position height of sun sensors**	adjusted setting for the data type of the moving object
Reaction if threshold value fall below	• **no reaction** • Facade moves to position and reference moves up	Setting if a reaction at the undercut of the threshold shall be performed
Absolute position for blinds	0-100% **[0%]**	Adjustment of the absolute position
Only move if	• always drive • **Sun protection is active**	Adjusts when an action shall be performed at an undercut
Time for cyclic sending	**never**, 1 min, 5 min, 10 min, 30 min, 60min, 90 min, 120 min	Activation of the cyclic sending for the absolute positions
Block object	• **no use** • use	Activation of a blocking object for the facade control
Info service	• **not active** • active	activates the test function

Chart 14: Dynamic range operating mode 2

- **Only move if**
  Sub function of the parameter "Reaction if threshold value fall below"
  This parameter adjusts whether the position for the undercut of the threshold value shall be called always or only if the sun position is still active.
  Using this setting allows that no absolute position at the repeal of the shadowing is called if the shutter/blinds are driven before manually. For enabling this function, the state objects of the shutter/blinds from the sun sensor must be connected to the ones of the controlling shutter/blind. So the sun sensor compares the adjusted values to the current ones and drives only if these are the same.

- **Block object**
  By the setting if a block object shall be used, the block object for the facade control can be shown. This object blocks the facade control by calling via a logical "1".

- **Info service**
  By activation the info service an object for a test drive is shown. Activation this object allows driving to the sun protection position manually. This function can be used for testing after programming.

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The following chart shows the relevant communication objects for this operating mode:

Number	Name	Function	Length	Usage
3	Facade	Send reference blind stop	1 Bit	Controlling of the reference blind
4	Facade	Send reference blind up/down	1 Bit	Ansteuerung der Referenzrolllade
5	Facade	Position of facade	1 Byte	sendet absolute Position an Fassade
6	Facade	Block object for facade	1 Bit	sperrt die Fassadensteuerung
10	Facade	Status of reference blind	1 Byte	liest die Position der Referenzrolllade
	Status			
14	Testing drive	Drive to sun protection	1 Bit	fährt manuell die Sonnenschutzposition an

Chart 15: Communication objekts operating mode 2

4.4.2.1 Programming/Start-up operating mode 2

For driving the facade to the position of the vacuum cup, the communication objects must be connected right.
This shows the following example:

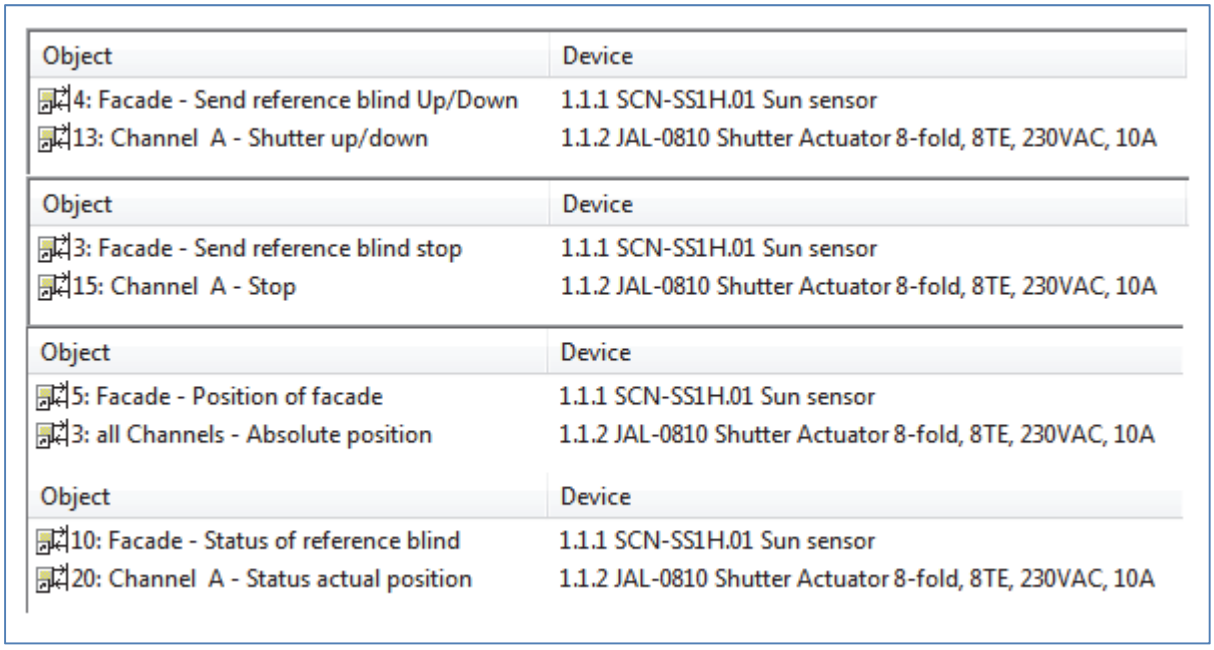

Illustration 10: Start-up operating mode 2

The illustration shows the linking of the 4 objects, which must be connected to start-up operating mode 2.
The channel A is the reference at this example. The facade is controlled by the central function. The first two group addresses are for controlling the reference blind. If the threshold is exceede for the adjusted time, the sun sensor sends an “Up-command” via the object “Send reference blind Up/Down”.

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As soon as the blind exceeds the position of the sun sensor, a blackout is measured and the sun sensor sends a “stop-command” via the object “Send reference blind stop”. At this moment, the sensor reads the current position of the reference blinds back via the object “Status of reference blind”. The reference blinds is moved up in small steps until the vacuum cup is free again. When this process is completed, the sun sensor sends the absolute position, which was read back at the moment of the blackout and sends it to the facade via the object “Position of facade”.
At an active sun protection, the facade is at the height of the sun sensor. The reference blind is a little bit higher so that the solar radiation can be measured.

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4.5 Setting of inputs

4.5.Inputs grouped

The chart shows the setting options for grouped channels:

ETS-text	Dynamic range **[default value]**	comment
Input A/B	▪ **Dimming** ▪ Shutter ▪ Switch	Operating mode of the channel
Dimming function A/B	▪ **Brighter/Darker** ▪ Darker/Brighter	Defines which channel should dim up and which should dim down
Shutter function A/B	▪ **Up/Down** ▪ Down/Up	Defines which channel should drive the shutter a down and which up
Switch function A/B	▪ **On/Off** ▪ Off/On	Defines which channel should switch off and which on
Blocking Object	▪ **Inactive** ▪ Active	The blocking object can be displayed for every pair of channels

Chart 16: Parameter Channels grouped

By choosing channels as grouped, two channels become one common function. The grouped function is called dual surface, dual surface dimming, and dual surface shutter. In contrast to the single surface functions, one action can be performed independent form the other one. One input performs always one function. The assignment for the inputs can be made individually, so it is possible to configure which input should for example drive the shutters up and which down.

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4.5.1.1 Dimmen

The dual surface dimming function (channels grouped) is for controlling dimming actuators by start-stop dimming commands.
The following parameters are visible, when a pair of channels is chosen as dimming-function:

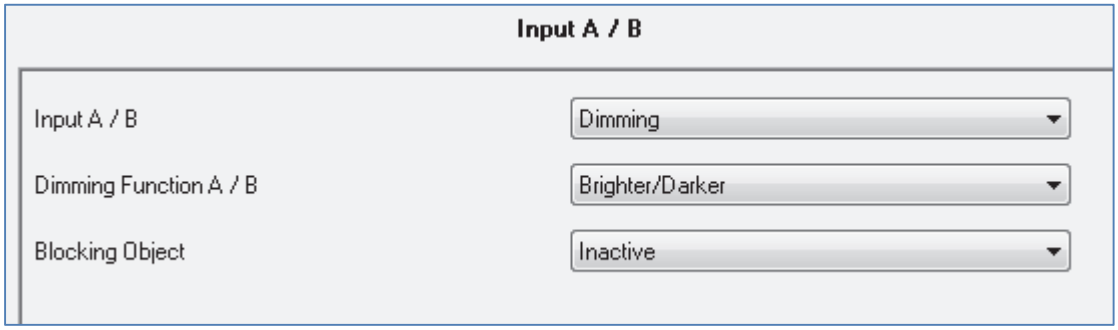

Illustration 11: Parameter dual surface dimming

Number	Name	Length	Usage
23	Dimming on/off	1 Bit	Switching function of the dimming process; action for a short keystroke
24	Dimming	4 Bit	Dimming function; action for a long keystroke
27	Block object	1 Bit	blocks the inputs

Chart 17: Communication objects dual surface dimming

When a pair of channels is parameterized as dimming function, two objects are shown. One object reacts to a short keystroke, the switching object “Dimming on/off”, and the other object reacts to a long keystroke, the dimming object “dimming”.
It is possible to parameterize this function as brighter/darker or as darker/brighter. The first function belongs always to the first input. If you switch this parameter, the function will be switched automatically.
By choosing the dimming function (channel A/B) as brighter/darker, the function reacts in this way: A short keystroke at input A switches the lights on. The lights are switched off by a short keystroke at input B. A long keystroke dims the lights step by step until releasing the long keystroke. The lights are dimmed brighter at input A and darker at input B. The universal interface starts always with the last brightness level, before switching off.
The step size is set fixed to 100% at the dual surface dimming. It is a start-stop dimming. that means the lights are dimmed as long as you hold the button. After releasing the button a stop value is sent, which stops the dimming process. So you can dim the lights with only one keystroke from 0% to 100% or from 100% to 0%, by pushing the button long enough.

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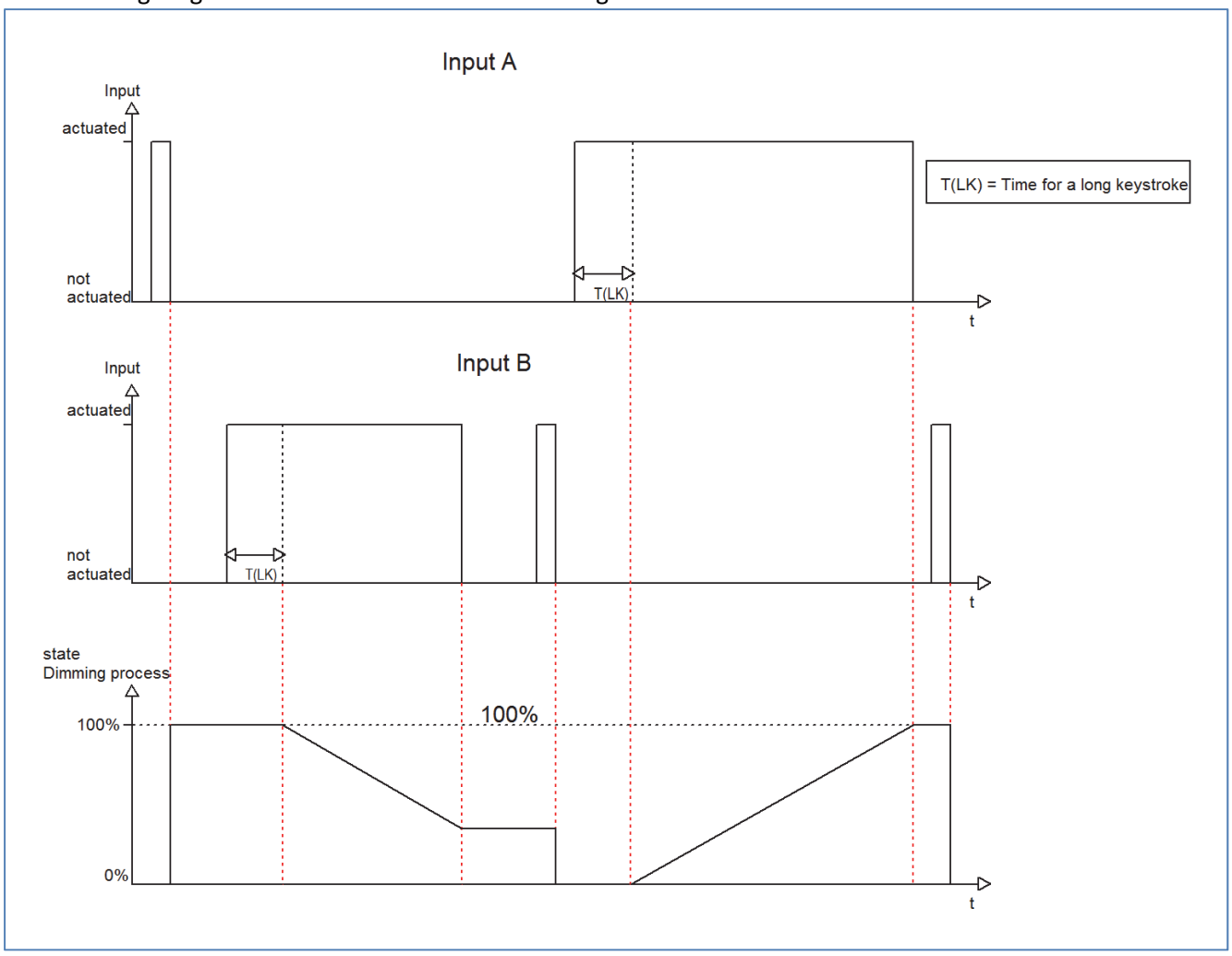
The chart shows the correlations between the dimming- and the switching-object:

	Function Brighter/Darker			Function Darker/Brighter	
Input	Input A	Input B		Input A	Input B
Dimming function	Brighter	Darker		Darker	Brighter
Switching function	On	Off		Off	On

Chart 18: Dimming function

The following diagram shows the dual surface dimming function:



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4.5.1.2 Shutter

The dual surface shutter-function triggers shutter actuators, which can drive shutter and blinds.
The following parameters are shown, when a pair of channel is adjusted as shutter function:

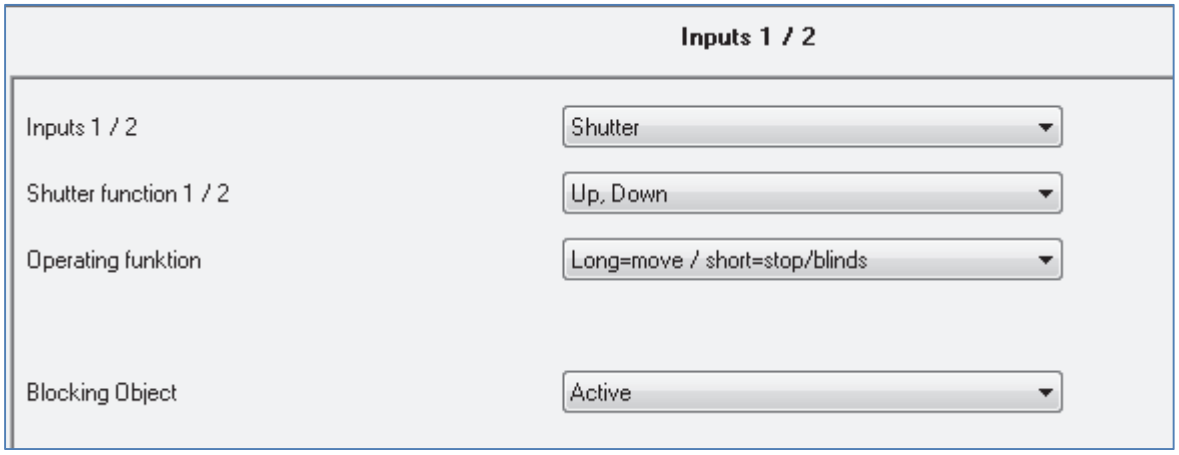

Illustration 12: Dual surface shutter function

Number	Name	Length	Usage
23	Shutter Down/Up	1 Bit	Driving function for the shutters, action for a long keystroke
24	Stop/Blinds Open/Close	1 Bit	Stop/Adjustment of the blinds, action for a short keystroke
27	Block object	1 Bit	blocks the inputs

Chart 19: Communication objects dual surface shutter function

If you choose a pair of channels as shutter function, two communication objects will appear for this pair of channel. On the one hand the stop/blind adjustment object called “Stop/Blinds Open/Close”, which responds to a short keystroke and on the other hand the driving object called “Shutter Down/Up”, which responds to a long keystroke.
The driving object is for moving the shutters up and down. The stop-/blind adjustment object is for the adjustment of the blinds and additional it stops a running movement of the shutter.
Every shutter actuator controls with a 0-signal the up-movement and with a 1-signal the down movement. So the push button sends these signals to the corresponding driving commands.
It is additional possible to switch the functions for a long and a short keystroke. So it can be chosen whether he shutter/blinds shall be driven via a long or a short keystroke. The Stop-/Blind adjustment object is adjusted by the other operating concept.

The Chart shows the correlations between the Stop-/Blind adjustment object and the driving object for the individual channels:

	Function Down/Up			Function Up/Down	
Button	Button A	Button B		Button A	Button B
Stop-/Blind adjustment object	Down	Up		Up	Down
Driving object	Stop/close blinds	Stop/open blinds		Stop/open blinds	Stop/close blinds

Chart 20: shutter function

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4.5.1.3 Schalten

The values for on and off can be assigned freely at the switching function for the grouped channels. If you adjust a pair of channel as switch, the following parameters will be shown:

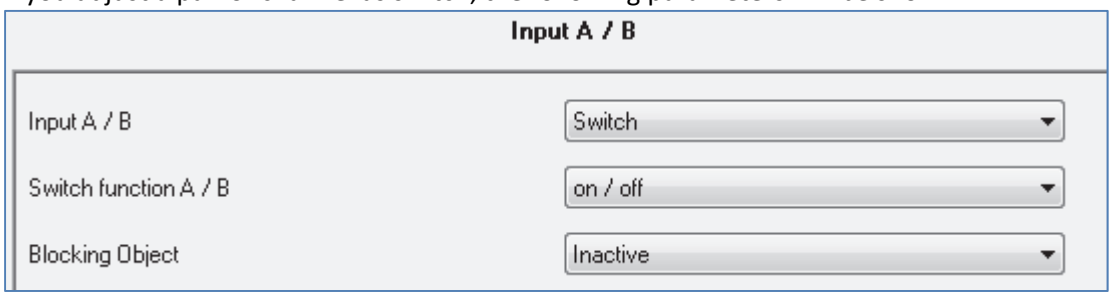

Illustration 13: dual surface switching function

Simple functions, like an alternating circuit, can be programmed easily by using the grouped switch function. The 1 bit communication object sends in dependence of the parameterization a 0- or a 1-signal for the first input and the inverted signal for the second channel. So you can chose which channel should switch off and which should switch on.

The following chart shows the corresponding communication object:

Number	Name	Length	Usage
23	Switch On/Off	1 Bit	Switching object for the dual surface switching function
27	Block object	1 Bit	blocks the inputs

Chart 21: Communication object dual surface switching function

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4.5.2 Parameter inputs unique

If the inputs are choosen as “inputs unique “, every input can be assigned one of the following 6 operating modes:

- Inactive
- Switch
- Scene
- Switch short/long
- One button dimming
- One button shutter

After assignment of the operating mode, the further parameterization can be done if the cahnnel is not chosen as inactive, which deactivates the channel.

4.5.2.1 Switch

For a switching output different sub functions are available, which also have additional parameterization options. The sub functions and the further parameterization options are described at the foolowing segments.

- **Switch rising edge**

The following settings are available, when the sub function rising edge is chosen:

ETS-Text	Dynamic range **[Defaultwert]**	Comment
Value for rising edge	• **On** • Off	Switches on/off at a rising edge

Chart 22: Parameter switch rsisng edge

The sub function “Switch rising edge” sends the adjusted signal (On=1 or Off=0) at a rising edge.

The following chart shows the relevant communication object:

Number	**Name**	**Length**	**Usage**
23	Switch	1 Bit	Switching function; no differation between short/long button

Chart 23: Communication objects switch rising edge

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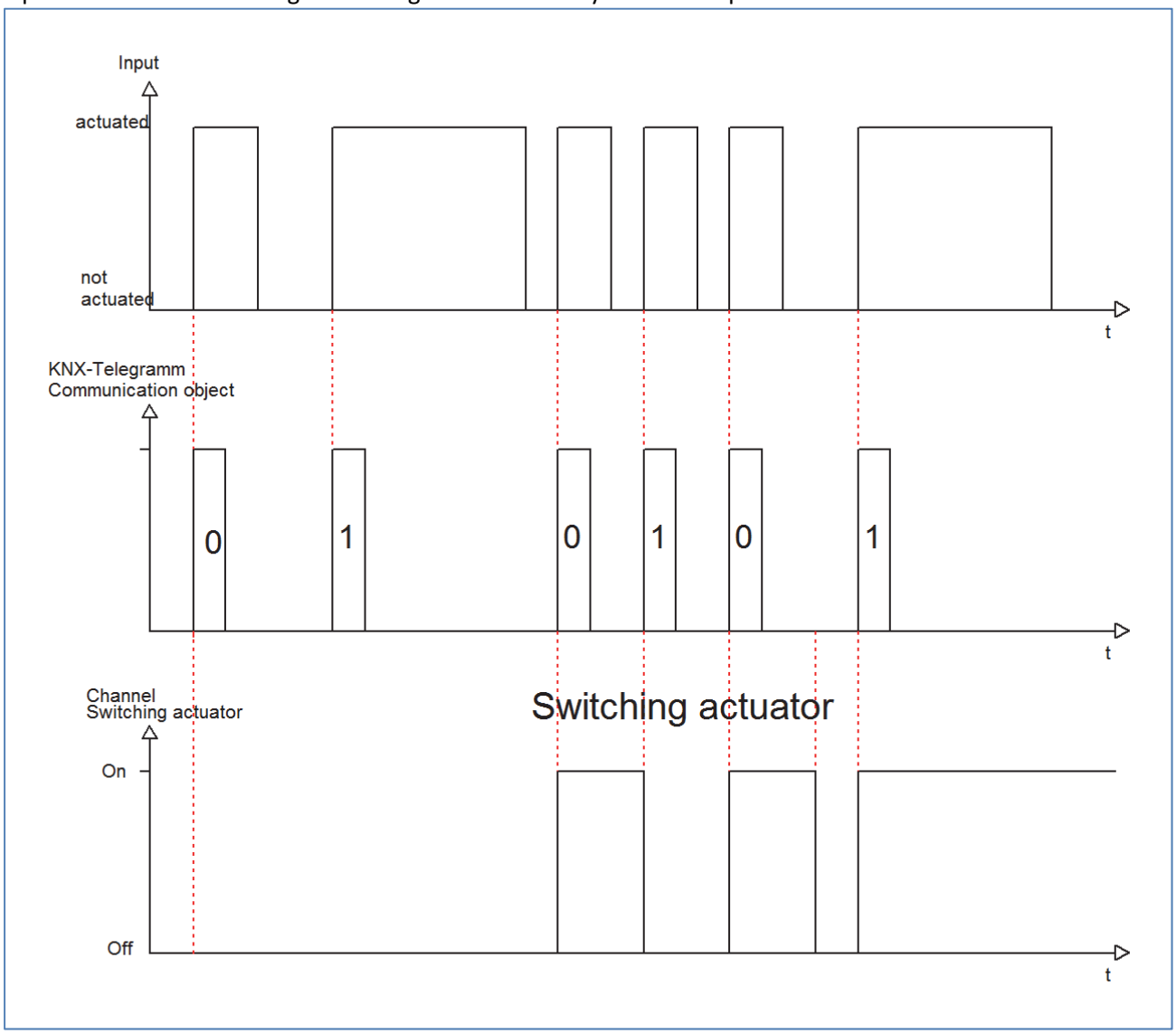
- **Toggle rising edge**

The sub-function “toggle rising edge“ toggles at a rising edge. That means, the current value of the communication object is inverted at every switching process. By using this function an edge based alternating circuit can be realized.
The following diagram describes this sub-function. As soon as the state changes from 1 to 0, the input sends the inverted signal. The signal is send always as a short pulse:



The following chart shows the relevant communication object:

Nummer	Name	Größe	Verwendung
23	Switch	1 Bit	Switching function; no differation between short/long button
24	Value for toggle	1 Bit	status object, indicates the switching state of the channel

Chart 24: Communication objects toggle rising edge

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To be sure that the sun sensor toggles at every switching process, you have to connect the status object of the sun sensor “Value for toggle” with the status object of the actuator. When the inputs should work without an actuator, the object has to be connected to the switching object “switch”. The connection is important, because the input cannot invert the signal, when it does not know its current state.

- **Send status**

By using the sub-function „Send status“ the input sends always the parameterized signal for the corresponding edge. The following window is shown for the sub-function “Send status”:

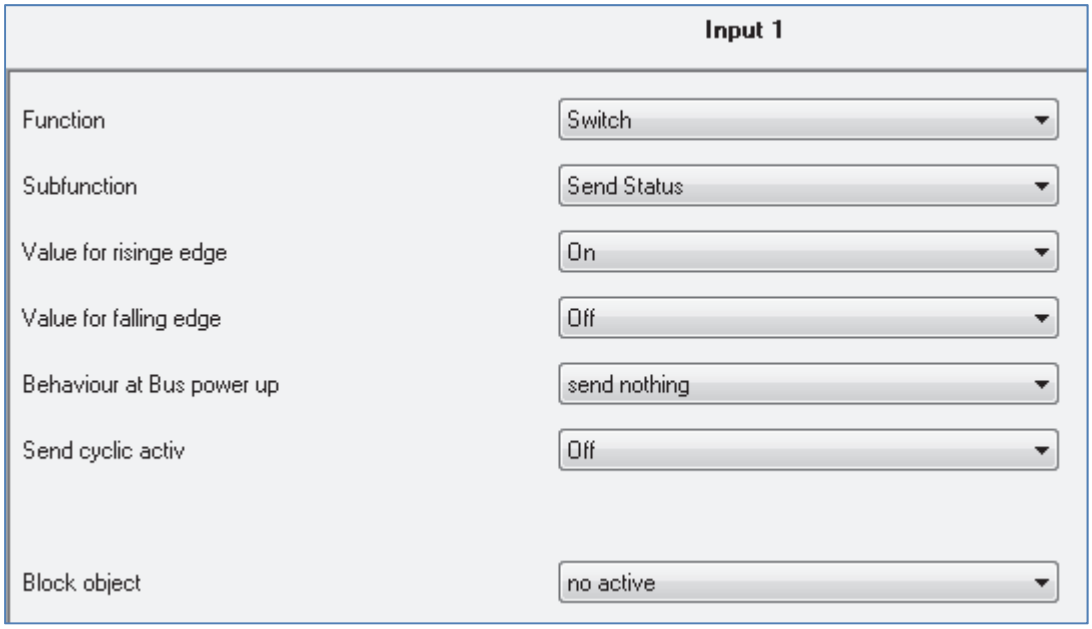

Illustration 14: Sub function send status

Folgende Einstellungen sind verfügbar:

ETS-text	Dynamic range **[default value]**	comment
Value for rising edge	• **On** • Off	switches on/off at a rising edge
Value for falling edge	• On • **Off**	switches on/off at a falling edge
Send cyclic	• **Off** • On	switches the cyclic sending on/off
Time interval for send cyclic	1-3000s [1]	Time between two sending processes
Behavior at bus power up	• **send nothing** • send status	defines the behavior at a bus power up

Chart 25: Send status

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The following chart shows the relevant communication object:

Number	Name	Length	Usage
23	Switch	1 Bit	Schaltfunktion; keine Unterscheidung kurze/lange Taste

Chart 26: Communication object send status

The parameter “Value for rising edge“ defines whether the channel should send an 1-signal (value: On) or a 0-signal (value: Off). If you want for example switch a channel of a switch actuator, you will have to choose different values for the rising and the falling edge. Otherwise the input sends the same signal twice, for example an On-signal.
The cyclic sending causes that the state of the input is sent periodically in certain parameterize able intervals. Then the input sends the parameterized value for the corresponding edge.
A common application for this parameter is for example the observation of windows, which are equipped with window-contacts. So a display can for example show whether all windows are closed or not. Furthermore an alarm device can operate with this function.

- **Send value rising edge**

At the sub function “Send value rising edge” two more sub functions are available, 1 Byte value and 2 Bit (forced setting), are available. The following chart shows the sub-menu for this parameter:

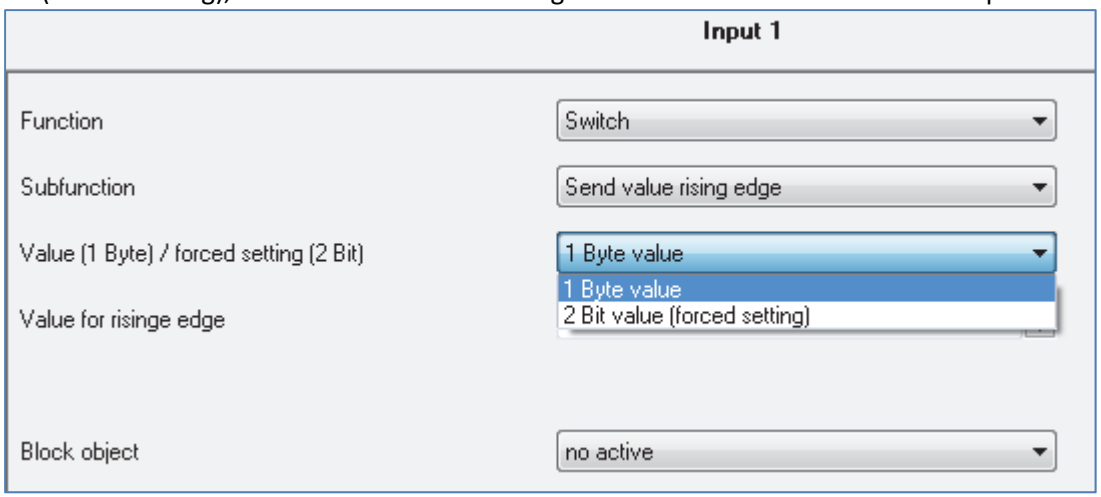

Illustration 15: Send value rising edge

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After activating the sub function „Send value“, you have to choose which values should be sent. The setting options are shown at the chart:

ETS-text	Dynamic range **[default value]**	comment
Value (1 Byte)/ forced setting(2 Bit)	• **1 Byte Value** • 2 Bit Value(forced setting)	Choice between 1 Byte- and 2 Bit-Value

Chart 27: Parameter send value

If you have activated the setting “1 Byte”, the following settings are possible:

ETS-text	Dynamic range [default value]	comment
Value for rising/falling edge	0-255 [0]	Assignment, which value should be send for the falling/rising edge

Chart 28: Parameter send value, 1 Byte object

The 1 Byte communication object can send any value in its dynamic range at both edges. The dynamic range is thereby from 0-255. Depending on parameterization the input sends the adjusted values for the rising or the falling edge or for both edges.
The following chart shows the according communication object:

Number	**Name**	**Length**	**Usage**
23	Send value	1 Byte	sends the parameterized value

Chart 29: Communication object Parameter Send value-1 Byte object

The setting option 2 Bit value (forced setting) has the following options to parameterize this function:

ETS-text	Dynamic range **[default value]**	comment
Send forced setting at rising/falling edge	▪ **Forced setting not active** ▪ Forced setting off ▪ Forced setting on	Assignment, which forced setting should be send at which edge

Chart 30: Dynamic range send value-forced setting

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The forced setting object allows for example to control the automatic brightness control of presence detectors.
The forced setting object can send 3 different states:

- **Forced setting not active (control=0; value=0)**
  The forced setting object has no influence on the receiver. For example at a presence detector, the automatic function (motion detector operation) would be switched on.
- **Forced setting off (control=1; value=0)**
  The forced setting object switches the receiver unconditionally off. For example a presence detector, would be switched permanent off. Detected motions have no influence on the output.
- **Forced setting on (control=1, value=1)**
  The forced setting object switches the receiver unconditionally on. For example a presence detector, would be switched permanent on. Detected motions have no influence on the output.

The according communication object is shown at the chart:

Number	Name	Length	Usage
23	Send forced setting	2 Bit	sends the adjusted forced setting

Chart 31: Communication object Send value-forced setting

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4.5.2.2 Scene

The scene function calls scenes, which are saved in actuators. Scene numbers in the universal interface and the actuators must be identical. It is possible to save scenes by a long keystroke if the saving function was activated.

The following illustration shows the setting options for this parameter:

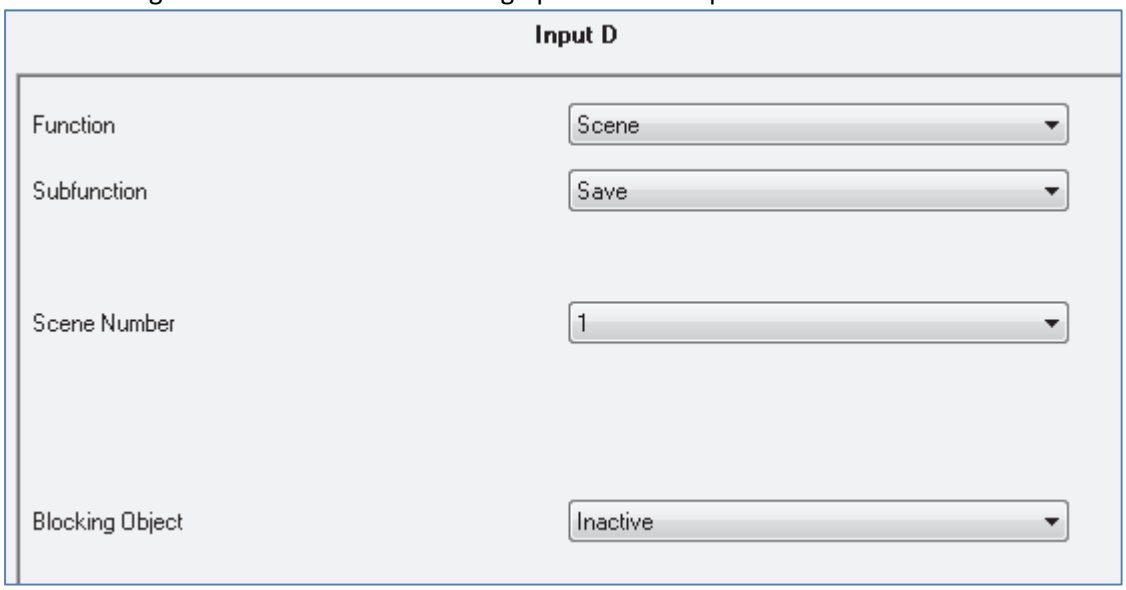

Illustration 16: Parameter Scene

The following chart shows the dynamic range of this parameter:

Sub-function	Dynamic range **[default value]**	comment
Saving function	▪ No save ▪ **Save**	Saving function is selected ba a long keystroke
Scene number	1-64 [1]	Scene number must be identical with the one in the actuators
Blocking object	▪ **Inactive** ▪ Active	have a look at 4.3.1 blocking object

Chart 32: sub-function scene

The chart shows the communication objects for this parameter:

Number	**Name**	**Length**	**Usage**
25	Scene	1 Byte	calls the depending scene

Chart 33: Communication object Parameter scene

The scene function calls scenes, which were stored in actuators. Scenes contain of parameterized states of several actuators, which can be called with only one keystroke by using the scene function. Additional to the call of scenes, scenes can be saved at the call of a universal interface by a long keystroke. When the saving function was activated, a long keystroke at the universal interface saves the current state of the actuators to the depending scene.

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For calling a scene or saving a new value for the scene, you have to send the accordingly code to the relevant communication object for the scene:

Scene	Retrieve		Save	
	Hex.	Dez.	Hex.	Dez.
1	0x00	0	0x80	128
2	0x01	1	0x81	129
3	0x02	2	0x82	130
4	0x03	3	0x83	131
5	0x04	4	0x84	132
6	0x05	5	0x85	133
7	0x06	6	0x86	134
8	0x07	7	0x87	135
9	0x08	8	0x88	136
10	0x09	9	0x89	137
11	0x0A	10	0x8A	138
12	0x0B	11	0x8B	139
13	0x0C	12	0x8C	140
14	0x0D	13	0x8D	141
15	0x0E	14	0x8E	142
16	0x0F	15	0x8F	143
17	0x10	16	0x90	144
18	0x11	17	0x91	145
19	0x12	18	0x92	146
20	0x13	19	0x93	147
21	0x14	20	0x94	148
22	0x15	21	0x95	149
23	0x16	22	0x96	150
24	0x17	23	0x97	151
25	0x18	24	0x98	152
26	0x19	25	0x99	153
27	0x1A	26	0x9A	154
28	0x1B	27	0x9B	155
29	0x1C	28	0x9C	156
30	0x1D	29	0x9D	157
31	0x1E	30	0x9E	158
32	0x1F	31	0x9F	159

Chart 34: Calling and saving scenes

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4.5.2.3 Schalten kurz/lang

The parameter switch short/long can assign the input different switching processes for a long and a short keystroke.
The following illustration shows the sub-functions for this parameter:

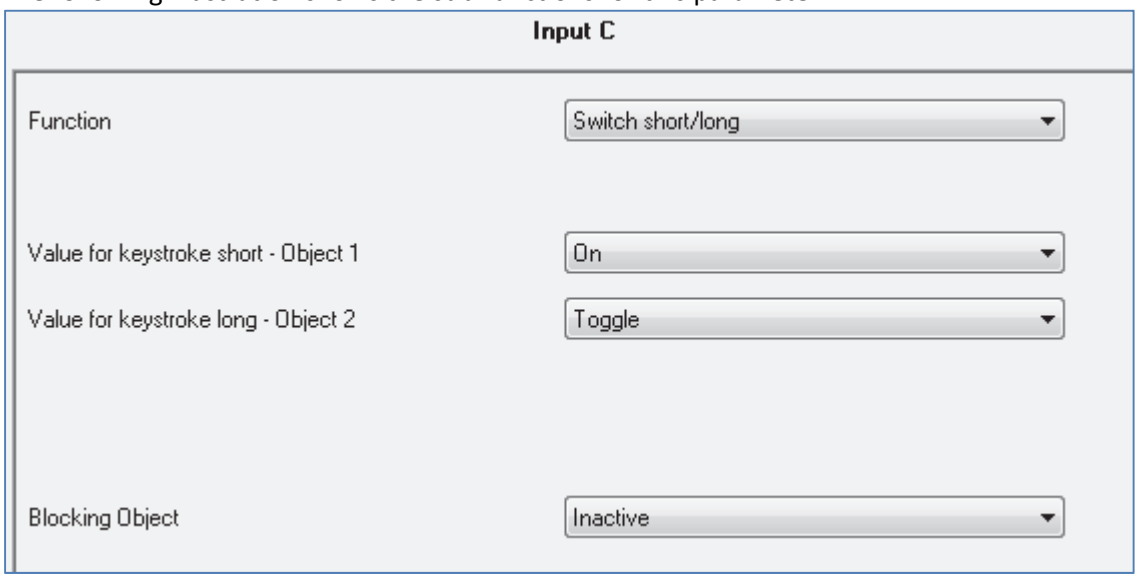

Illustration 17: Parameter switch short/long

The sub-functions for this parameter are shown in the chart below:

Sub-function	Dynamic range [default value]	comment
Value for keystroke short - Object 1	▪ On ▪ **Off** ▪ Toggle ▪ Send value ▪ Nothing	Action for a short keystroke
Value for keystroke long - Object 2	▪ On ▪ Off ▪ Toggle ▪ Send value ▪ **Nothing**	Action for a long keystroke
Blocking object	▪ **Inactive** ▪ Active	have a look at 4.3.1 blocking object

Chart 35: Sub-functions parameter switch short/long

The chart shows the associated communication objects:

Number	**Name**	**Length**	**Usage**
23	push-button short	1 Bit	Switching function short keystroke
25	push-button long	1 Bit	Switching function long keystroke

Chart 36: Communication object parameter switch short/long

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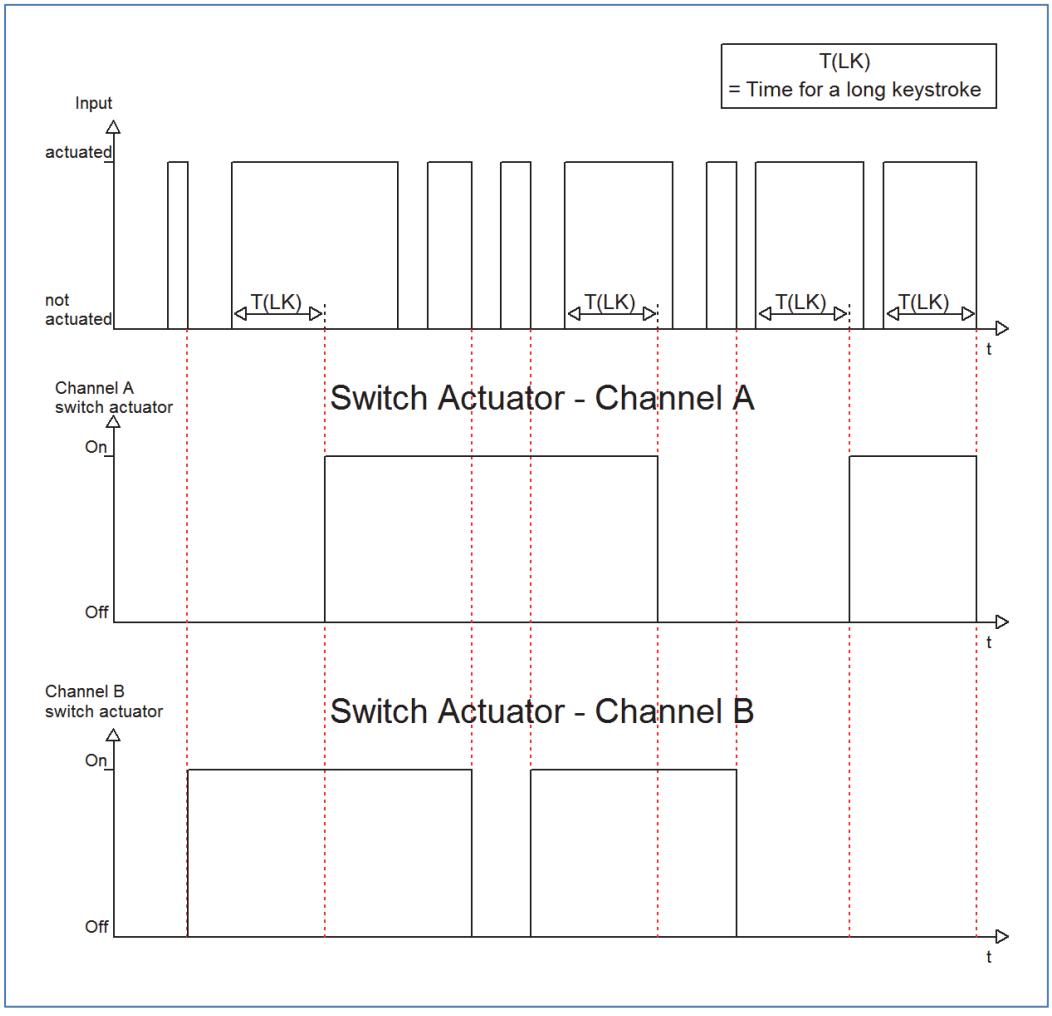
The parameter “switch short/long” can control for example two channels of an actuator by using only one input. Furthermore you can switch a channel with a long keystroke on and with a short keystroke off. For both objects, a function can be set individually. Therefore the sub-functions on, off, toggle and nothing are available. Two communication objects are displayed, which can be connected in any way. By activating the sub-function “toggle” an additional communication object appears, called “value for toggling”. This object is a status object for the input and must be connected to the status-object of the actuator (have a look at: 4.5.1 Toggle)

The following diagram shows the behavior of this parameter. Both objects (push-button and push-button long) were set to toggle. The object for the long keystroke is connected to channel A of the switch actuator and the object for the short keystroke is connected to channel B:



In this example the binary input toggles Channel B with a short keystroke. The Channel A does not react to a short keystroke. This one reacts only at a long keystroke with toggling.

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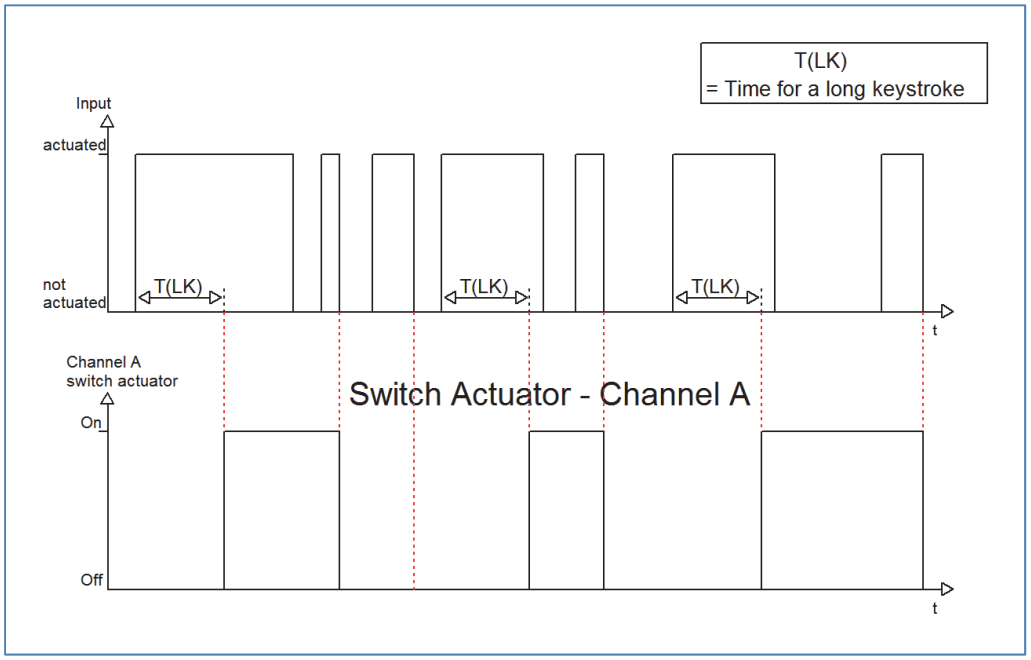
The following diagram shows a further application example for this parameter. In this example, the object for a long keystroke switches the channel A of a switch actuator on. A short keystroke switches the channel off. The three communication objects were connected in only one group address:



If the sub function “Send value” is selected, the following additional settings appear:

Sub-function	Dynamic range [default value]	comment
Value for keystroke short/long	Send value	chosen sub-function: Send value
Send value	▪ **1 Byte-Value [0...255]** ▪ Scene number	Selection of the value, which shall be sent
1 Byte-Value [0…255]	0-255 [0]	Selection of the byte value, which shall be sent if byte value is chosen
Scene number	1-64 [1]	Selection of the scene number, which shall be sent if scene number is chosen

Chart 37: Sub function Send value at switch short/long

Any value can be sent for the sub function „Send value“ at a short/long keystroke. As well scenes can be called as any byte value can be sent. So it is for example possible to call different scenes for a long and a short keystroke or sending absolute height/brightness commands.

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4.5.2.4 Ein Taster Dimmen

The dimming function for the unique channels, often called one surface dimming, performs the dimming process only by one channel.

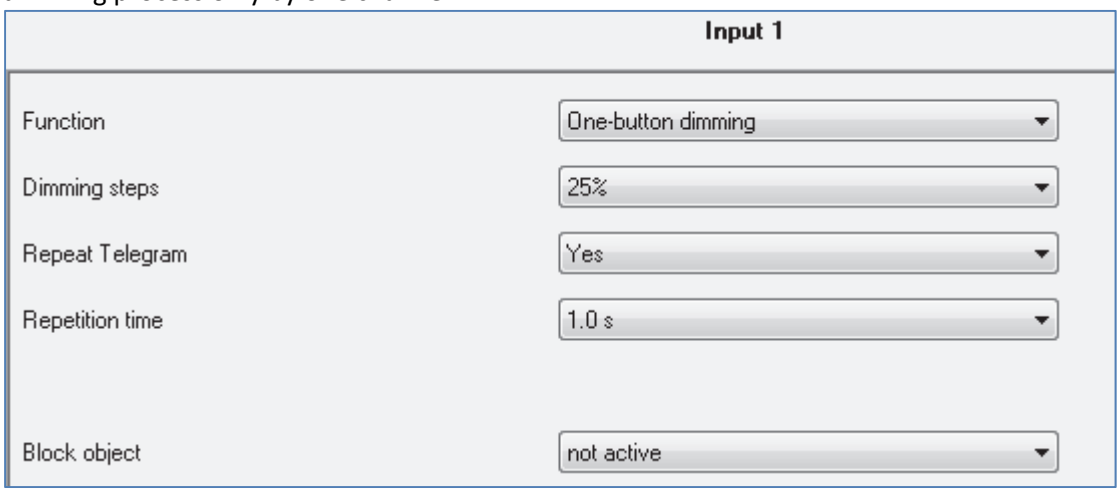

Illustration 18: Parameter one surface dimming

The possible settings for this parameter are shown in the chart below:

Sub-function	Dynamic range **[default value]**	comment
Dimming steps	▪ **100%** ▪ 50% ▪ 25% ▪ 12,5% ▪ 3% ▪ 1,5%	The dimming steps specify how much should be dimmed by one dimming process.
Repeat telegrams	▪ **No** ▪ Yes	switches the repeating of the dimming telegram on/off
Repetition time	▪ 0,3s ▪ 0,5s ▪ 0,7s ▪ **1,0s** ▪ 1,3s ▪ 1,5s ▪ 2,0s ▪ 5,0s	This parameter is only shown, when the repetition of telegrams was activated.
Blocking object	▪ **Inactive** ▪ Active	have a look at 4.3.1 blocking object

Chart 38: Sub-functions one-surface dimming

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The chart shows the communication objects for this parameter:

Number	Name	Length	Usage
23	Dimming on/off	1 Bit	Switching function for the dimming process; action for the short keystroke
24	Dimming	4 Bit	dimming function; action for a long keystroke
25	Value for toggle	1 Bit	status object, must be connected with the status function of the actuator for getting feedback of the current switching process

Chart 39: Communication objects one-surface dimming

The one-surface dimming performs the dimming process by using only one button. So it is possible to dim the lights by using only one button.
A long keystroke addresses the communication object “Dimming”, which is for the dimming process. The short keystroke addresses the communication object “Dimming on/off”, which is for the switching process.
Because of having only one button for performing the dimming process, the direction of the dimming process changes after every dimming process. That means, if you dimmed darker once before, the next time the lights will be dimmed brighter and the other way around.
The values for the dimming steps indicate how much the lights should be dimmed by along keystroke. It is here a start-stop dimming, which means you send as long a brighter or darker telegram as you push the button. As soon as you release the button, a stop telegram is sent, which stops the dimming process. So you can dim from 0% to 100% or from 100% to 0% if the dimming step is set to 100% by pushing the button long enough.
At a value of, for example 12,5%, 8 dimming processes are necessary to dim the lights by 100%.
When the telegram repetition is deactivated, you cannot dim the lights more than the value, which you have selected for the dimming steps, because the direction of dimming changes after every dimming process. You can additional adjust how long the binary input should wait between the single dimming steps by the repetition time.

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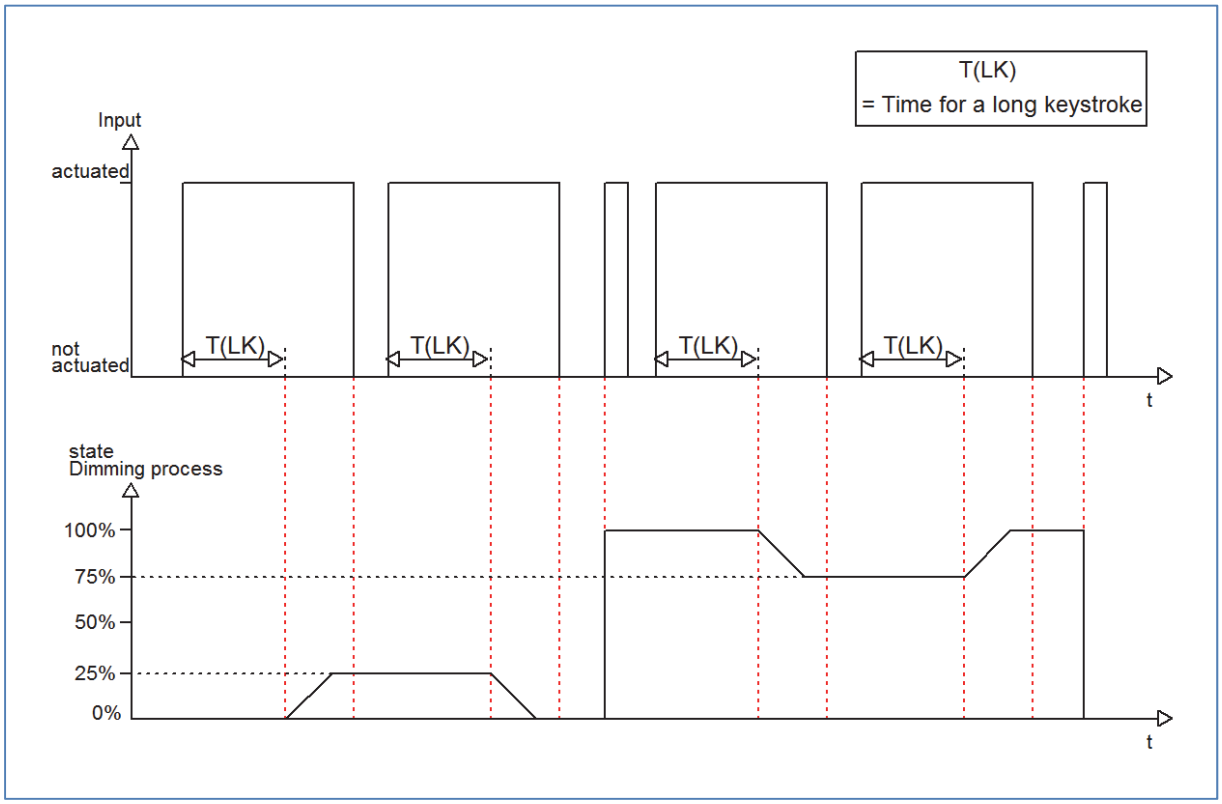
The diagram shows the one-button dimming without repetition with an adjusted dimming step of 25%:



The lights can only be dimmed between the limits of 0% to 25% and 100% to 75%. This setting is, for example, useful if the lights should only be dimmed in a fixed range.

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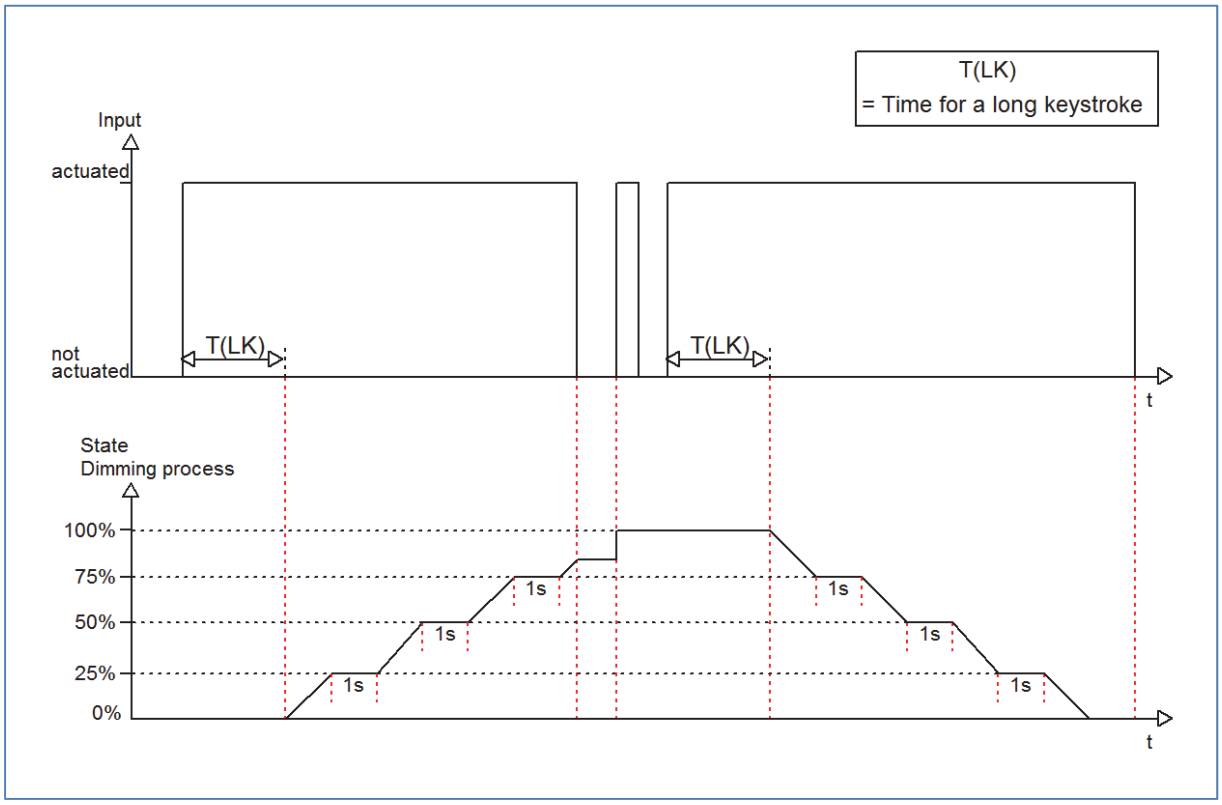
Consequently, you have to activate the repetition of telegrams if you want to dim the lights over the adjusted dimming step. By activating the repetition of telegrams, a new window is shown to adjust the repetition time. The repetition time indicates in which time intervals the brighter/darker telegram should be repeated. As long as the dimming function is activated by a long keystroke, the binary input sends the accordingly telegram.
The following diagram shows this function with an adjusted dimming step of 25% and a repetition time of 1s:



Now it is also possible to dim the lights by 100%, by using a dimming step less than 100%. The telegram is repeated as long as the maximum or the minimum is reached. Between the repetitions the universal interface waits the repetition time.

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4.5.2.5 One button shutter

The shutter function for the unique channels, often called one-surface shutter, performs the shutter-function by using only one channel.

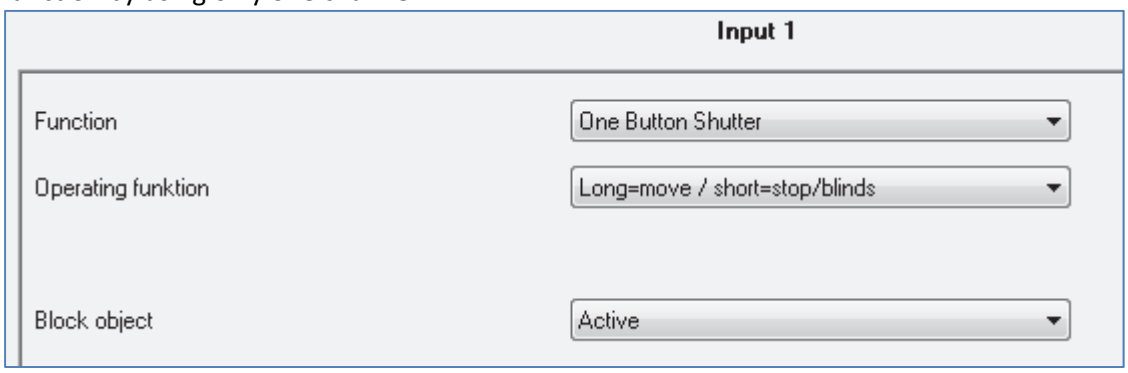

Illustration19: Parameter one-surface shutter

The following chart shows the available sub functions for this parameter:

Subfunction	Dynamic range **[default value]**	comment
Operating function	• **Long=Move/ short= stop/blinds** • Short=Move/ long= stop/blinds	Adjsutment if at a long or short keystroke shall be moved up/down or blinds adjusted

Chart 40: One-surface shutter

The chart shows the communication objects for this parameter:

Number	**Name**	**Length**	**Usage**
23	Shutter	1 Bit	Driving function of the shutter, action for a long keystroke
24	Blinds/Stop	1 Bit	Stop/ Adjustment of blinds; action for a short keystroke
25	Value for change of direction	1 Bit	Shows the last driving command

Chart 41: Communication objects one-surface shutter

The one-surface dimming is performed by using only one channel. The communication object "Shutter" is addressed by a long keystroke and performs the up- and down-movement of the shutter. The direction of movement depends to the last direction of movement. If the shutter were driven up at the last time, they will be driven down at the next time. So the direction of movement changes after every movement.
The communication object "Blinds/Stop" is addressed by a short keystroke. Addressing this object stops a running movement of the shutter. Furthermore it will adjust the blinds if a shutter function is selected for this channel. The direction of the adjustment changes also here after every movement in the same way like the up/down moving of the shutter.
From hardware version 2.6 (have a look at the print oft eh side of the device: R:X.X), it is possible to switch the functions for the short and the long keystroke. So it can be chosen whether a short or a long keystroke shall drive the shutter/blinds. The Stop-/ Adjustment object gets the other operating concept.
The object "Value for change of direction" serves as state object. It must be connected to the direction object of the actuator. So the interface sends always the complementary value as before.

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5 Index

5.1 Register of illustrations

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5.2 List of tables

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6 Attachment

6.1 Statutory requirements

The above-described devices must not be used with devices, which serve directly or indirectly the purpose of human, health- or lifesaving. Further the devices must not be used if their usage can occur danger for humans, animals or material assets.
Do not let the packaging lying around careless, plastic foil/ -bags etc. can be a dangerous toy for kids.

6.2 Routine disposal

Do not throw the waste equipment in the household rubbish. The device contains electrical devices, which must be disposed as electronic scrap. The casing contains of recyclable synthetic material.

6.3 Assemblage

Risk for life of electrical power!
All activities on the device should only be done by an electrical specialist. The county specific regulations and the applicable EIB-directives have to be observed.

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MDT Brightness/Weather

MDT Brightness-/Weather devices

Version		
SCN-WS3HW.01	Weather Station Home	Outdoor installation on wall or pole, flush mounted control unit
SCN-SS1H.01	Sun Sensor	Indoor installation with vacuum cup, flush mounted control unit
SCN-RS1R.01	Rain Sensor	Outdoor installation, Surface mounted

MDT technologies offers three Brightness / Weather devices:

Wetter Station Home:

- 3 channels for sun protection to control blind/shutter
- Sun protection up to 3 facades
- Offers wide functions to control facades (2 switching treshold, teach in function)
- Central shutter control for Up/Down via brightness value (with time delay)
- Brightness value for east, south, west, twilight
- Wind speed value, alarm if wind speed exceeds limit, temperature value
- Suited to control facades at home
- Installation on wall or pole, 5m connection cable
- No additional power supply required
- Integrated bus coupling unit
- 3 years warranty

Sun Sensor:

- Brightness sensor with vacuum for window installation
- 2 inputs to connect push button for blind control
- Hysteresis and time delay programmable
- 2m connection cable
- Flush mounted control unit
- Operation mode 1: Installation on window without blinds
- Operation mode 2: Installation on window with blinds
- No additional power supply required
- Integrated bus coupling unit in control unit
- 3 years warranty

Rain Sensor:

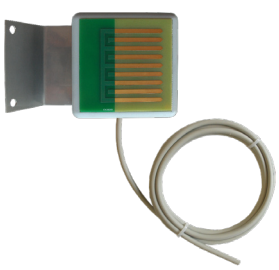
- Integrated, automatically heating
- Heating operation by choke free output STV-640 or external 24VDC power supply
- Current consumption of heating is <100mA
- 5m bus connection cable
- Stainless fastening angle included in delivery
- Dimensions (W x H x D): 67mm x 67mm x 29mm
- Integrated bus coupling unit
- 3 years warranty

For project design and commissioning of the Brightness/Weather devices it is recommended to use the ETS3f/ETS4 or later. Please download the application software at www.mdt.de/Downloads.html

SCN-SS1H.01

SCN-WS3HW.01

SCN-RS1R.01



- Production in Germany, certified according to ISO 9001
- Modern design
- Fully compatible to all KNX/EIB devices
- Integrated bus coupling unit
- 3 years warranty

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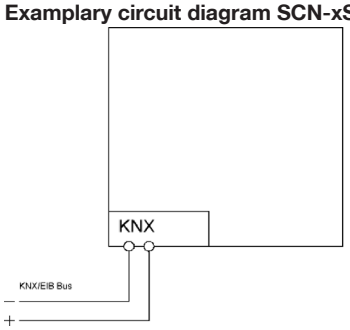
Stand: 1012

MDT Brightness/Weather

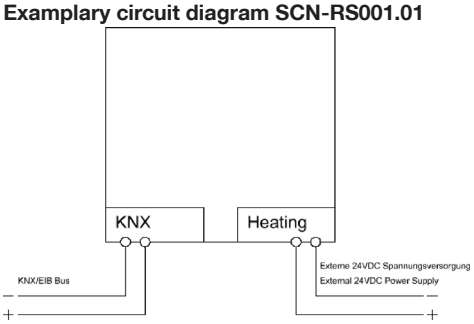
Technical Data	SCN-SS1H.01	SCN-WS3HW.01	SCN-RS1R.01
Measured data	Brightness	Brightness, Wind, Twilight, Temperature	Rain
Permitted wire gauge			
KNX busconnection	0,8mm Ø, solid core	0,8mm Ø, solid core	0,8mm Ø, solid core
Power supply	KNX Bus	KNX Bus	KNX Bus
Power consumption via KNX bus typ.	< 0,3W	< 0,3W	< 0,3W*
Operation temperature range	0 to + 45°C	-20 to + 70°C	0 to + 45°C
Enclosure	IP 20	IP 44	IP 45
Dimensions control unit (W x H x D)	41mm x 41mm x 12mm	--	67mm x 67mm x 29mm

* Without heating. Heating operation by choke free output STV 640 or external 24VDC power supply. Current consumption of heating is <100mA

Examplary circuit diagram SCN-xSxxx.01



Examplary circuit diagram SCN-RS001.01



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