06/2014

Technical Manual

MDT Switch Actuator

KNX RF+

RF – AKKxUP.01

RF-AKK1UP.01 - RF+ Switch Actuator 1-fold

RF-AKK2UP.01 - RF+ Switch Actuator 2-fold

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1 Content

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2 Overview

2.1 Overview devices

Following KNX RF+ Switch Actuators are available at the moment:

- **RF-AKK1UP.01** KNX RF+ Switch Actuator 1-fold
  - flush-mounted, nominal voltage: 230V AC, maximum load: 10A, Switching- and Staircase-function, Communication by new KNX RF+ protocol in system mode
- **RF-AKK2UP.01** KNX RF+ Switch Actuator 2-fold
  - flush-mounted, nominal voltage: 230V AC, maximum load: 10A, Switching- and Staircase-function, Communication by new KNX RF+ protocol in system mode

2.2 Exemplary circuit diagram

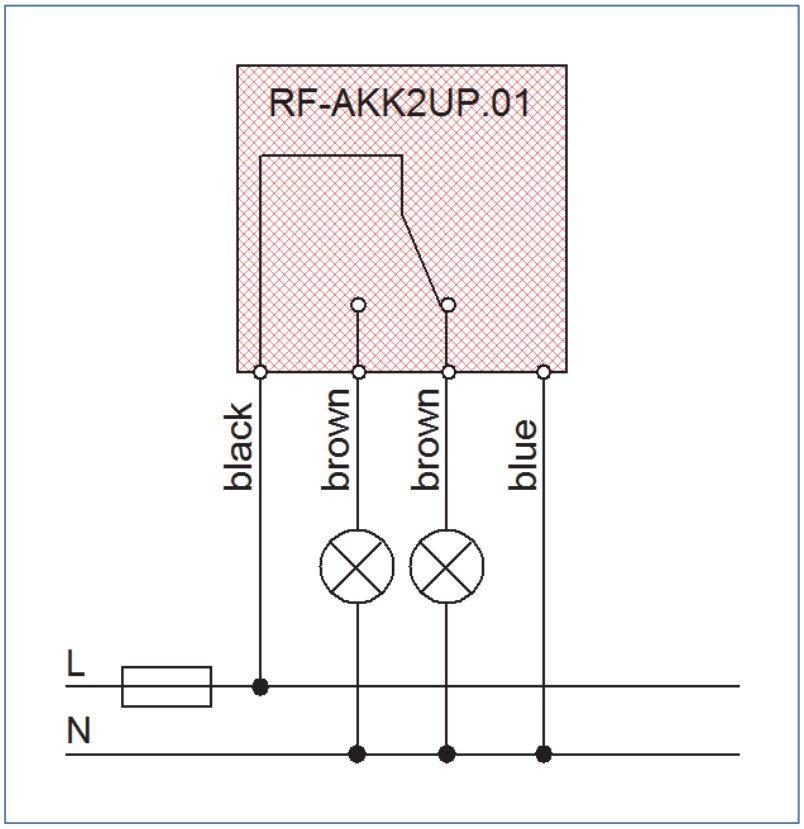

Figure 1: Exemplary circuit diagram RF-AKK1UP.01

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2.3 Usage & Area of applications

The switch actuator can switch almost all electrical devices. The outputs can operate as normal switching outputs or as output with staircase function. In both settings extensive options are available.
As well the RF-AKK1UP.01 as the RF-AKK2UP.01 are for flush-mounted fitting. The power supply can be got of the normal 230V – 50Hz main voltage. The devices communicate via the KNX RF+ protocol. So all requirements are met for cheap and easy refitting.
The switch actuator communicates via the KNX RF+ protocol. Detailed information for planning and working with radio lines via the KNX RF+ protiocoll can be downloaded at http://www.mdt.de/EN_Downloads_Manuals.html.

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2.4 Structure & Handling

The RF Switch actuator is designed for flush-mounted fitting. The contacting of the shutter-engine can be done via the terminal leads. The circuit-diagram can be seen at2.2 Exemplary circuit diagram. Furthermore the actuator contains of the standard elements programming button and programming LED.

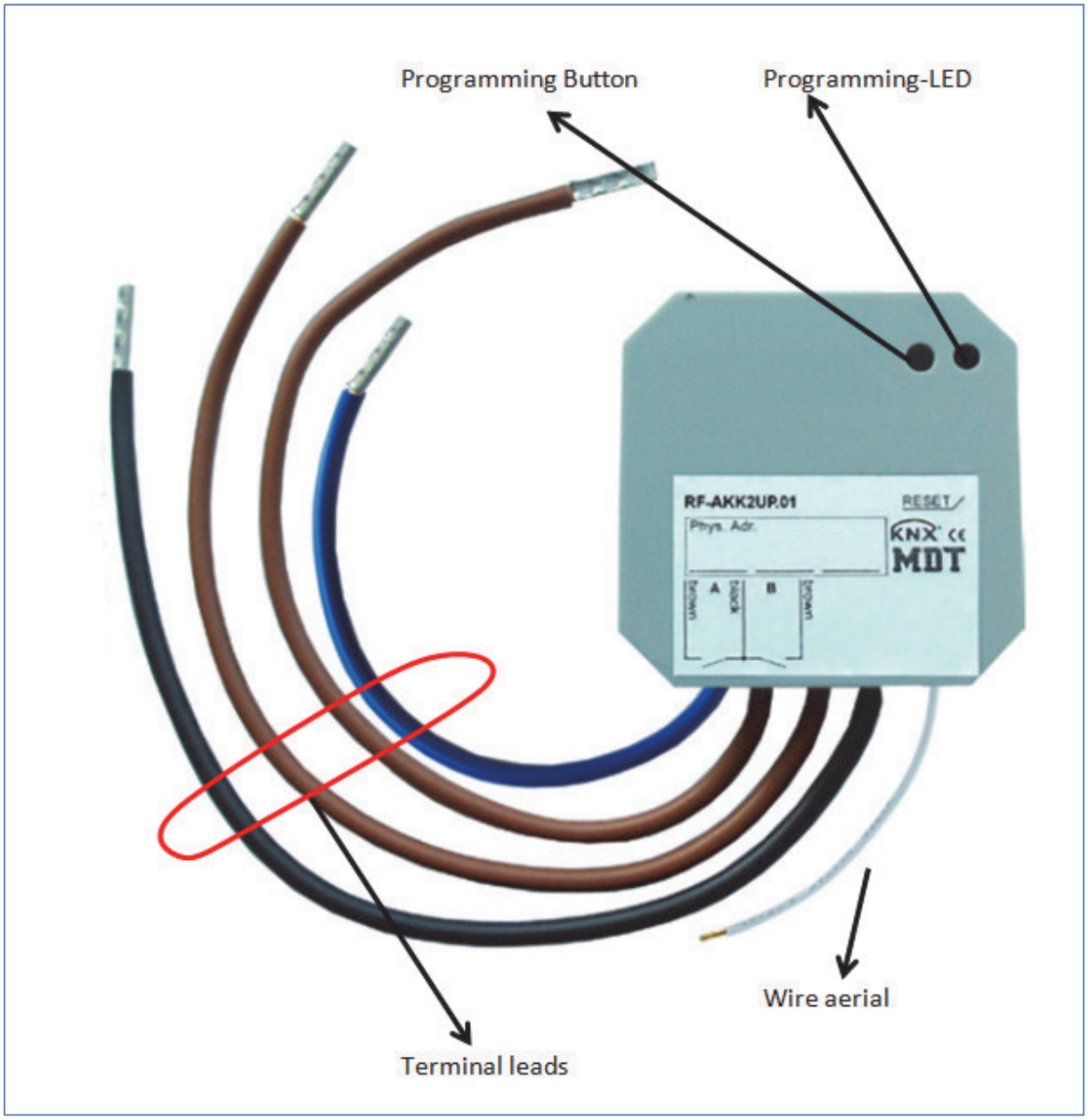

Figure 2: Overview hardware RF-AKK2UP.01

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2.5 Funktion

Every channel can be selected as one of these 3 states:

- **not active**
  The channel has no function. So there are no communication objects for this channel shown.
- **Switch**
  If the channel is chosen as switch, there will be different parameterization options for configuring the switching process.
- **Staircase**
  Now, the channel can become a staircase light function. This function causes an automatic switch off of the channel after an adjusted time.

2.5.1 Overview functions

Group of functions	Functions
Group addresses	number of objects/connections= dynamic (freely assignable of the user)
Relay mode	normally closed/ normally opened
Switch functions	switching
	central switching function
Time functions	on-delay
	off-delay
Staircase light functions	time for staircase
	pre-warning (with adjustable warning and pre-warning time)
	manual off
	retriggerable on/off
Superordinate functions	blocking function
	logic functions (AND/ OR)
Scenes	scene function for up to 8 scenes per channel
Status functions	feedback function

Table 1: Overview functions

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2.6 Settings at the ETS-Software

Selection at the product database:

Manufacturer: MDT Technologies
Product family: Actuator
Product type: Switch Actuators
Medium Type: RF
Product name: addicted to the used type, e.g.: RF-AKK2UP.01
Order number: addicted to the used type, e.g.: RF-AKK2UP.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) Connect and download MDT RF+ Line coupler, RF-LK001.01
(4) Press the programming button at the device(red programming LED lights)
(5) 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)
(6) Loading of the application, with requested parameterization
(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 Summary and Usage

Nr.	Name	Object function	Data type	Direction	Info	Usage	Tip
General functions:							
16	Central function	Switch on/off	DPT 1.001	receive	Actuator reacts to Incoming-telegramm	Push buttons, Visu... for manual control	Communication object is always shown and enbales the **central on/off switching of all channels**, which have an enabled central function. Only available at RF-AKK2UP.01
Functions per channel:							
0	Channel A	Switch on/off	DPT 1.001	receive	Actuator reacts to Incoming-telegramm	Push buttons, Visu... for manual control	Communication object is shown at the **operating mode „switch“** and controls the **channel On/Off**, which is normally connected to all control keys. **(= Main function at switch)**
1	Channel A	Staircase	DPT 1.001	receive	Actuator reacts to Incoming-telegramm	Push buttons, Visu... for manual control	Communication object is shown at the **operating mode „switch“** and controls the **channel On/Off**, which is normally connected to all control keys. The channel switches off again after adjusted time is expired. **(= Main function at staircase)**

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3	Channel A	Block	DPT 1.003	receive	Actuator reacts to Incoming-telegramm	Push buttons, Visu... for manual control	Communication object is only shown after activation of the blocking object. **Object blocks the function of this channel**. **(= Additional function)**
4	Channel A	Scene	DPT 18.001	receive	Actuator reacts to Incoming-telegramm	Push buttons, Visu... for manual control	Communication onject appears **only after activating scenes**. For calling of saved scenes, which are saved in the actuator. **(= Additional function)**
5	Channel A	Status	DPT 1.001	sending	Actuator sends current state	For diplay on Visu, Tableau, and Display Connection to Push button object „Value for toggle“	Communication object operates as status indication and can be used for visualization… **Must be connected to the object “value for toggle” of the controlling push button for sending its current state to the push button.**
6	Channel A	Logic 1	DPT 1.002	receive	Actuator reacts to Incoming-telegramm	external switching, state object of other devices	Channel switches only On, if the logic function of activated objects and switching onbject (Nr. 85) is true. Only available for switching output.
7	Channel A	Logic 2	DPT 1.002	receive	Actuator reacts to Incoming-telegramm	external switching, state object of other devices	Channel switches only On, if the logic function of activated objects and switching onbject (Nr. 85) is true. Only available for switching output.
+8 next channel							

Table 2: Communication objects switching output

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3.2 Default settings of the communication objects

The following chart shows the default settings of the communication objects:

Default settings									
Nr.	**Name**	**Object Function**	**Length**	**Priority**	**C**	**R**	**W**	**T**	**U**
0	Channel A	switch on/off	1 Bit	Low	X		X		
1	Channel A	Staircase	1 Bit	Low	X		X		
2	Channel A	Block	1 Bit	Low	X		X		
4	Channel A	Scene	1 Byte	Low	X		X		
5	Channel A	Status	1 Bit	Low	X	X		X	
6	Channel A	Logic 1	1 Bit	Low	X		X		
7	Channel A	Logic 2	1 Bit	Low	X		X		
+8	**next channel**								
96 128	Central function	switch on/off	1 Bit	Low	X		X		

Table 3: Communication objects – default settings

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 switching output

4.1 Channel selection

Every channel can be selected as Switch or as Staircase function at the sub menu Channel Selection. According to this setting, further settings are shown:

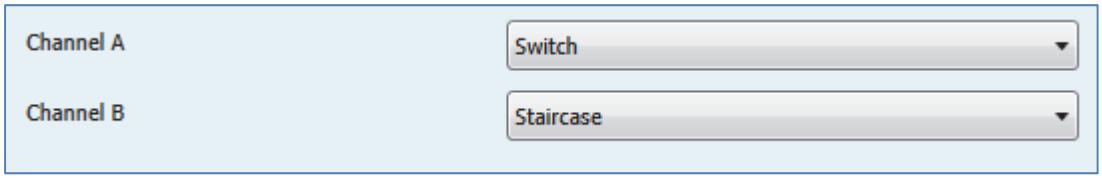

Figure 3: Channel Selection

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4.2 Identical parameter

The following parameters, which are described at the headings 5.2.x, are as well available at channels selected as switch as at channels selected as staircase.

4.2.1 Relay operating mode

The following illustration shows the setting options for this parameter:

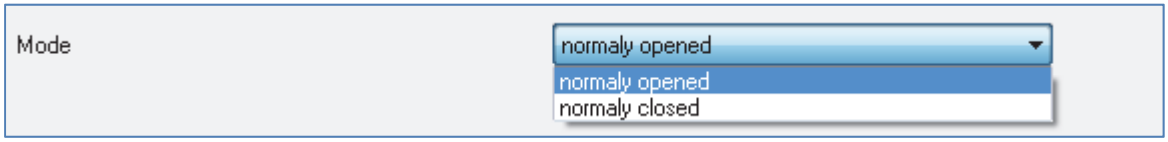


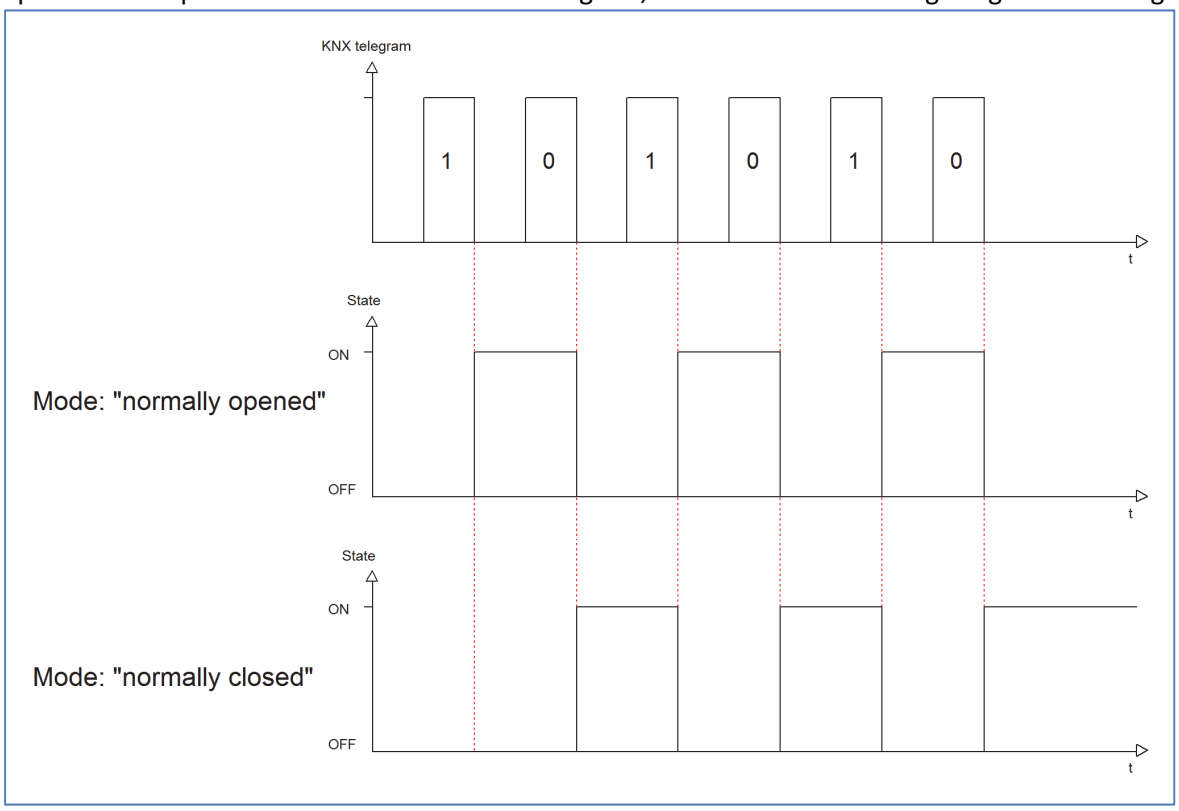
Figure 4: Operating mode

The following chart shows the dynamic range for this parameter:

ETS-text	Dynamic range **[default value]**	comment
Mode	▪ **normally opened** ▪ normally closed	Relay operating mode of the channel

Table 4: Operating mode

The following diagram shows the behavior of the relay operating mode normally closed and normally opened. The input for the channels is a KNX-telegram, which sends alternating 0-signals and 1-signals:



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4.2.2 Central function

The following illustration shows the setting options at the ETS-Software:

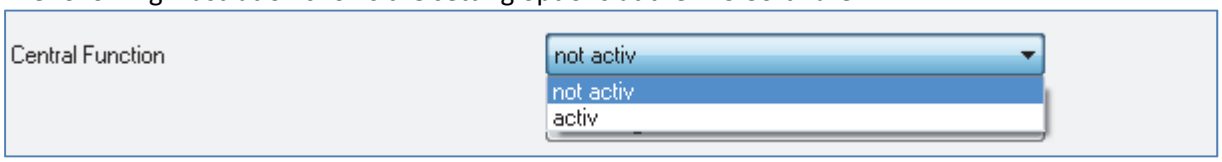

Figure 5: Central function

The following chart shows the dynamic range for this parameter:

ETS-text	Dynamic range **[default value]**	comment
Central function	▪ **not active** ▪ active	switches the central function on/off for this channel

Table 5: Central function

The central function can be switched on/off for every channel. For switching on this function, you have to choose the option “active”. By calling the central communication object, all channels with an activated central function are switched on with their current parameterization. So switch-on delays or staircase functions are still kept.
The central function can make programming much more easier and your project can become more clear.

The following chart shows the associated communication object:

Number	**Name**	**Length**	**Usage**
16	Central function	1 Bit	central switching of the channels number depends to the number of channels

Table 6: Communication object central function

4.2.3 Behavior at block/unblock

The following illustration shows the setting options at the ETS-Software:

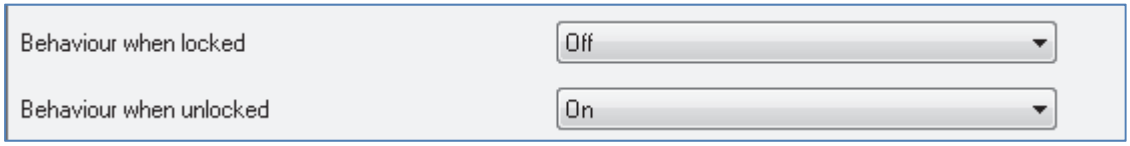

Figure 6: Blocking function

The following chart shows the dynamic range for this parameter:

ETS-text	Dynamic range **[default value]**	comment
Behavior when locked Behavior when unlocked	▪ On ▪ Off ▪ **no change**	Behavior to a blocking/unblocking process

Table 7: Behavior at block/unblock

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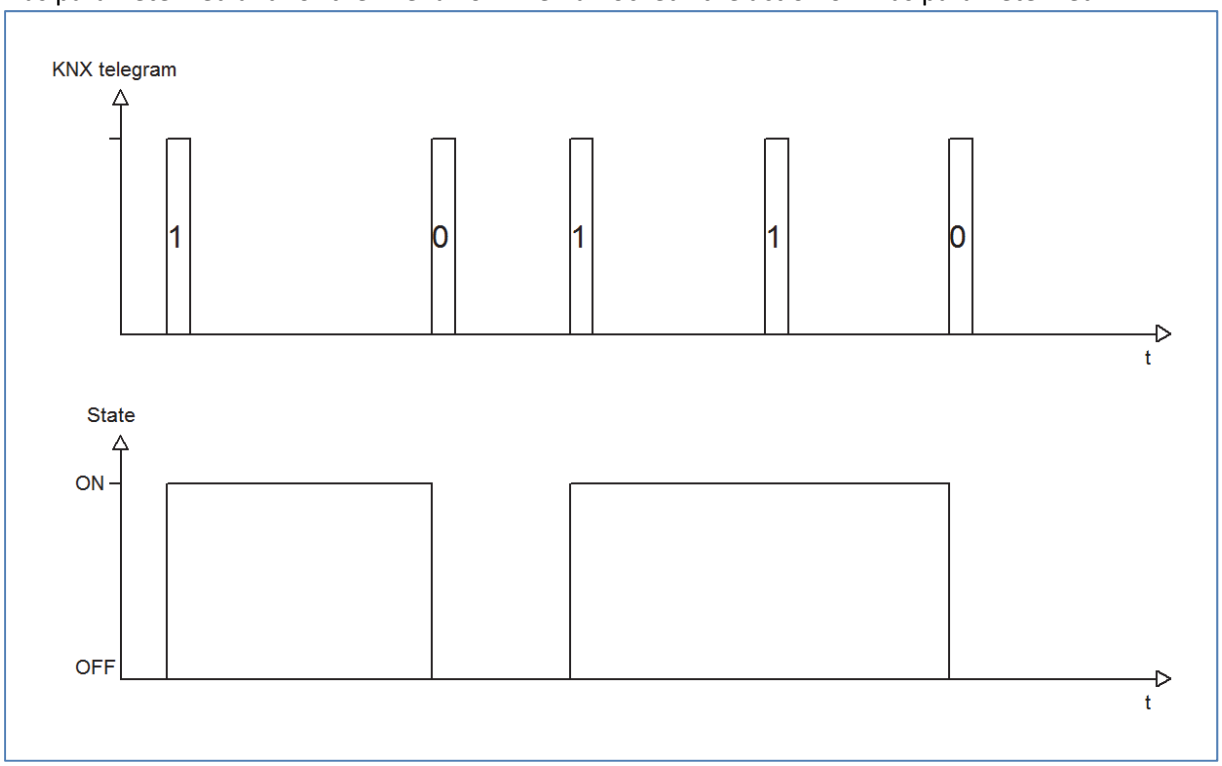
The blocking function gets active, when the corresponding communication object becomes a logical “1”. By sending a logical “0”, the blocking function can be deactivated again.
The parameter “Behavior when locked” defines an action for the output at activating the blocking process. There are the setting on, off and no change available. The same settings are also available for the “Behavior when unlocked”. This action is called when the blocking function is deactivated again.

The following chart shows the corresponding communication object:

Number	Name	Length	Usage
3	Block	1 Bit	blocks the channel

Table 8: Communication object blocking function

The following diagram describes the blocking process. For the “Behavior when locked”, the action on was parameterized and for the “Behavior when unlocked” the action off was parameterized:



The KNX telegram shows which values are send to the blocking object. By sending a logical “1”, the blocking function is activated and the channel is switched on. The blocking function is deactivated again by sending a logical “0”. So the channel is switched off.

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4.3 Switching output

The following parameters, which are described at the headings 4.3.x, are only available at channels selected as switch.

4.3.1 Overview

By choosing a channel as switch, a sub menu, called Channel A Switching, appears for this channel at the left drop down menu.
The sub menu is shown at the following illustration:

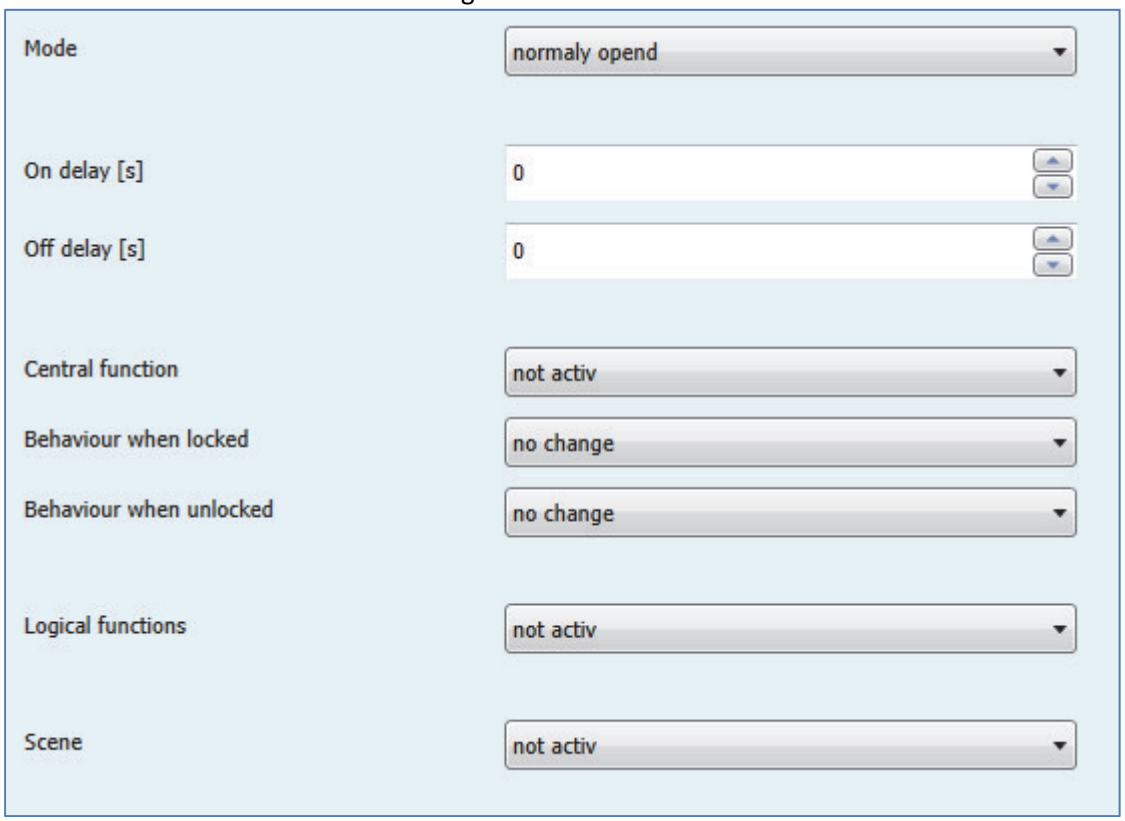

Figure 7: Switching output

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The chart shows the possible settings for switching outputs:

ETS-text	Dynamic range **[default value]**	comment
Mode	▪ **normally opened** ▪ normally closed	Operation mode of the channel
On-Delay	0…30000 sec **[0=no delay]**	Switch on delay of the channel in seconds
Off-Delay	0…30000 sec **[0=no delay]**	Switch off delay of the channel in seconds
Central function	▪ **not active** ▪ active	Activates the central function for this channel
Behavior when locked	▪ Off ▪ On ▪ **no change**	Action for activating the blocking process
Behavior when unlocked	▪ Off ▪ On ▪ **no change**	Action for deactivating the blocking process
Logic function	▪ **not active** ▪ with one object ▪ with two objects	Activation of the logic function with one or two objects
Logic operation	▪ **And** ▪ Or	Selection of the logic function only available, when the logic function was activated
Scene	▪ **not active** ▪ active	Activation of the scene function by activation this parameter a new sub menu appears (have a look at 4.4.4)

Table 9: Switching output

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4.3.2 On-/Off-delay

The following illustration shows the setting options at the ETS-Software:

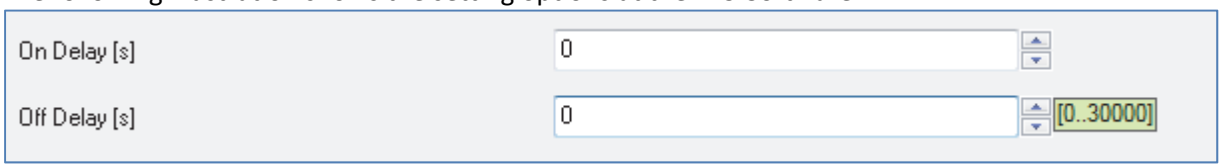
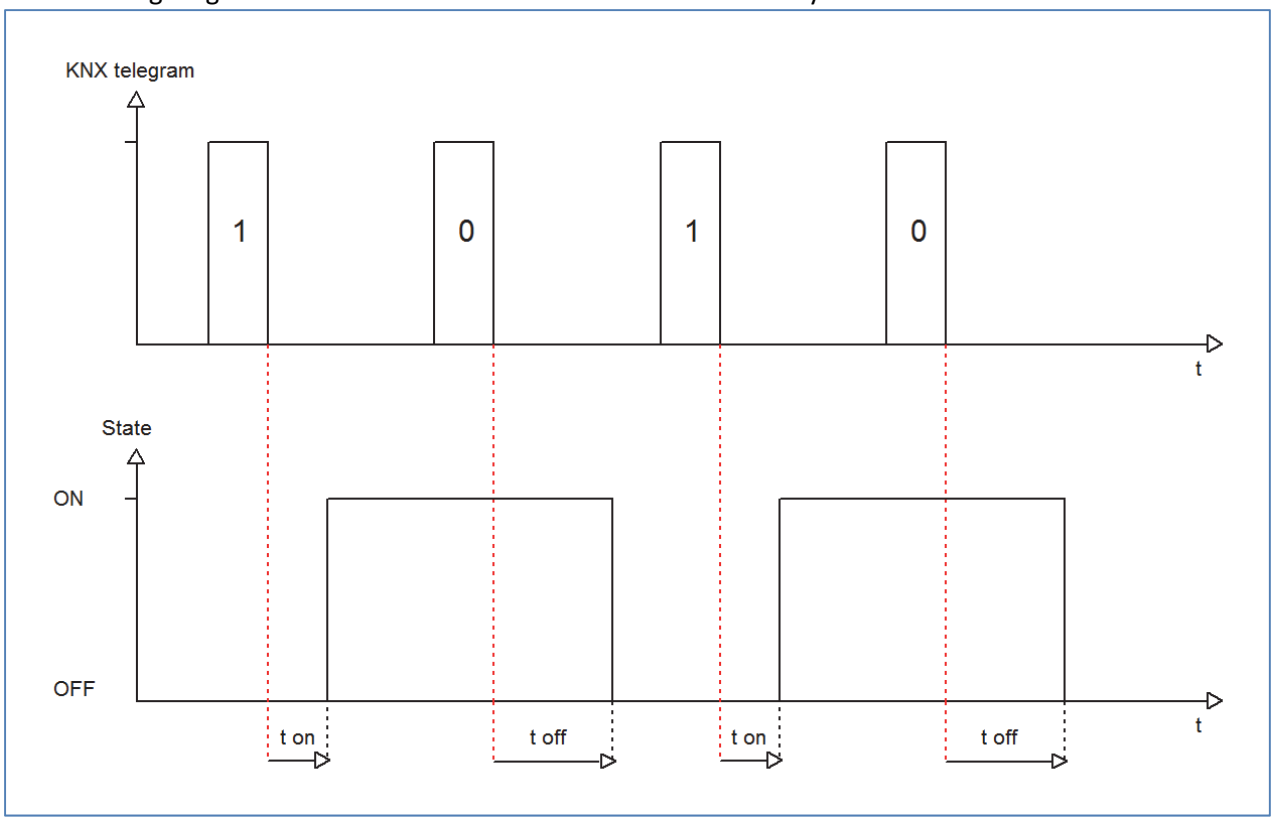


Figure 8: On/Off delay

The on-delay causes a delayed switch of the channel. At sending an on-signal to the channel, first the adjusted on delay time expires and afterwards the channel will be switched on.
The off delay works on the same principle. At sending an off-signal, first the adjusted off delay time expires and afterwards the channel will be switched off.
Both functions work as well alone as combined. By adjusting “0 seconds” for a delay the function is switched off.
The following diagram describes the combination of on and off delay:



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4.3.3 Logical functions

The following illustration shows the setting options at the ETS-Software:

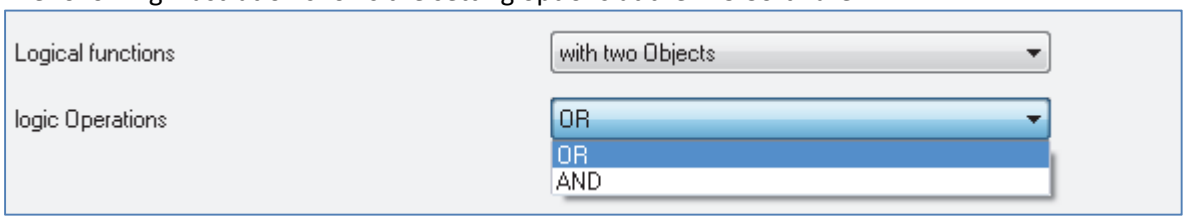

Figure 9: Logical functions

The logic function can be activated with one or two objects. The objects are the inputs of the logic block. Furthermore you can choose between an AND-function and an OR-function. The following figure shows an overview of the basic logic function with two objects:

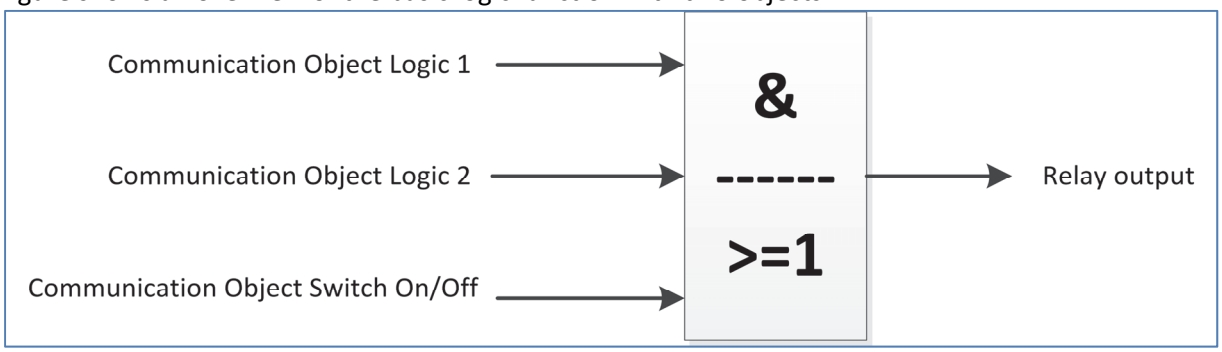

Figure 10: Overview Logic function

The logic function consists of the activated input objects and the switching object for each channel. The output of the logic is the respective relay output of the channel, so the physical switching of the channel.
The following chart shows the relevant communication objects:

Number	Name	Length	Usage
6	Logic 1	1 Bit	Logic object 1, is the first input for the logic block
7	Logic 2	1 Bit	Logic object 2, is the second input for the logic block

Table 10: Communication objects logic

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The following table illustrates the two logic functions:

AND-Connection

Switch On/Off	Logic 1	Logic 2	Channel switched?
0	0	0	Nein
0	0	1	Nein
0	1	0	Nein
0	1	1	Nein
1	0	0	Nein
1	0	1	Nein
1	1	0	Nein
1	1	1	Ja

OR-Connection

Switch On/Off	Logic 1	Logic 2	Channel switched?
0	0	0	Nein
0	0	1	Ja
0	1	0	Ja
0	1	1	Ja
1	0	0	Ja
1	0	1	Ja
1	1	0	Ja
1	1	1	Ja

Table 11: Logic function

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4.3.4 Scene function

When functions of different groups (e.g. light, heating and shutter) shall be changed simultaneously with only one keystroke, it is practical to use the scene function. By calling a scene, you can switch the lights to a specific value, drive the shutter to an absolute position, switch the heating to the day mode and switch the power supply of the sockets on. The telegrams of these functions can have as well different formats as different values with different meaning (e.g. “0” for switch the lights off and open the shutters). If there were no scene function, you would have to send a single telegram for every actuator to get the same function.
The scene function of the switch actuator enables you to connect the channels of the switch actuator to a scene control. For that, you have to assign the value to the appropriated space (scene A..H). It is possible to program up to 8 scenes per switching output. When you activate the scene function at the switching output, a new sub menu for the scenes appears at the left drop down menu. There are settings to activate single scenes, set values and scene numbers and switch the memory function on/off at this sub menu.
Scenes are activated by receiving their scene numbers at the communication object for the scenes. If the memory function of the scenes is activated, the current value of the channel will be saved at the called scene number.
The communication objects of the scenes have always the length of 1 byte.

The following illustration shows the setting options at the ETS-Software for activating the scene function:

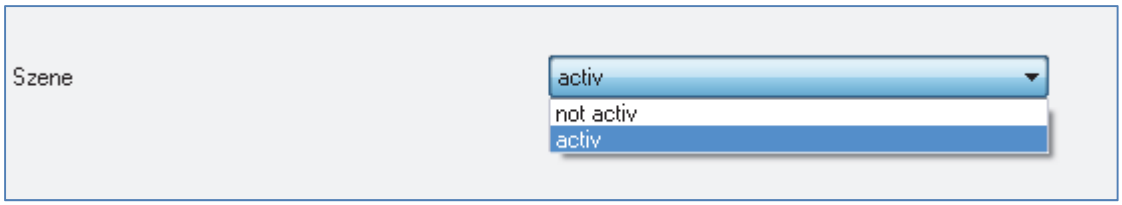

Figure 11: Scene function

The following chart shows the relevant communication object:

Number	Name	Length	Usage
4	Scene	1 Byte	Call of the scene

Table 12: Communication object scene

For calling a certain scene, you have to send the value for the scene to the communication object. The value of the scene number is always one number less than the adjusted scene number. For calling scene 1, you have to send a “0”. So the scene numbers have the numbers from 1 to 64, but the values for the scenes only from 0 to 63.
If you want to call scenes by a binary input or another KNX device, you have to set the same number at the calling device as at the receiving device. The calling device, e.g. a binary input, sends automatically the right value for calling the scene.

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There are up to 8 storage options for scenes at every channel.
These 8 storage options can get any of the possible 64 scene numbers.

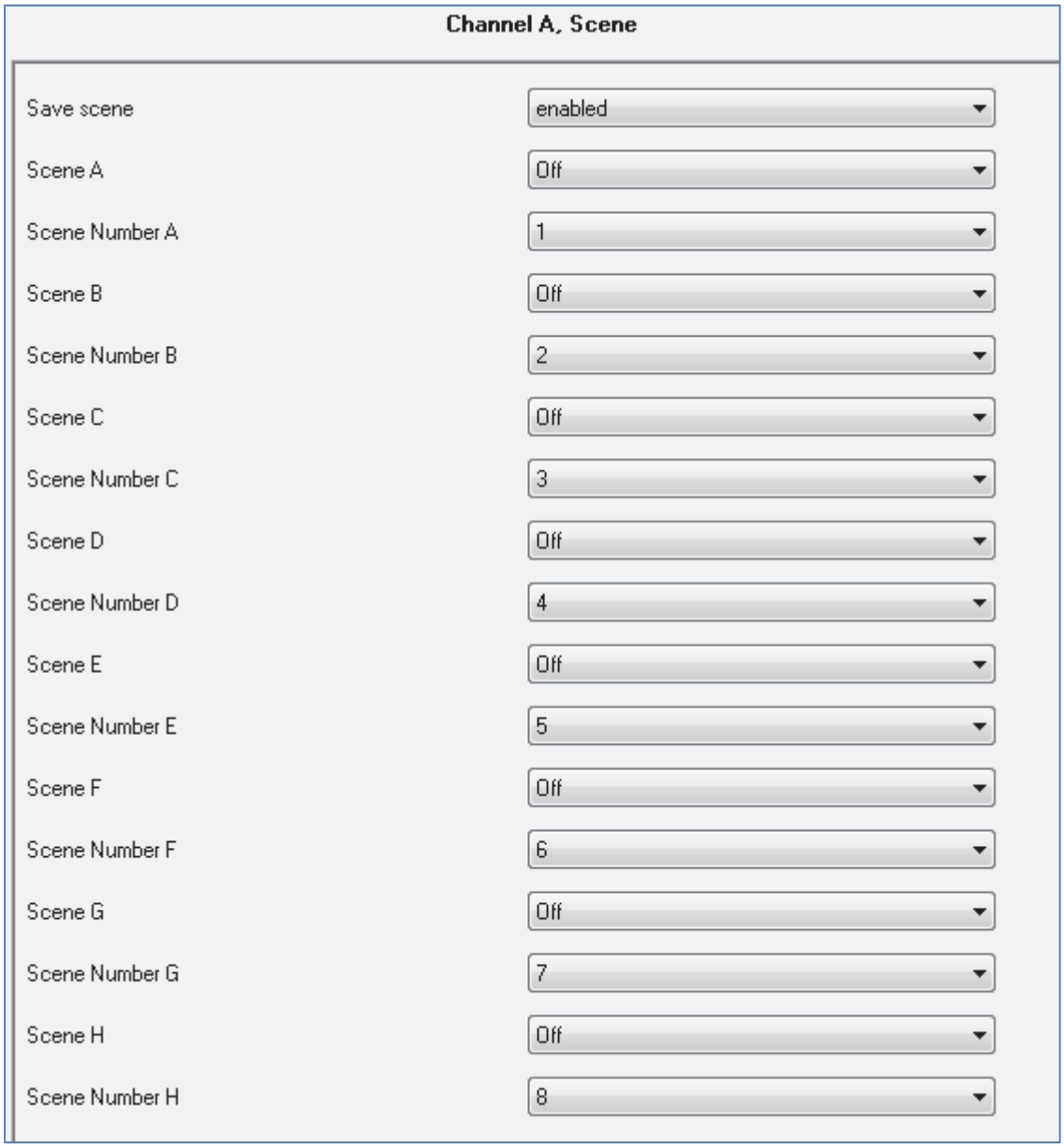

Figure 12: Sub function scene

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The chart shows the possible settings for scenes, which are identical for all channels. The settings are available at the sub menu for the scenes:

ETS-text	Dynamic range **[default value]**	comment
Save scene	▪ **disabled** ▪ enabled	Learning of scenarios; enable/disable memory function
Scene A	▪ **Off** ▪ On	Activation of the scene A
Scene number A	1-64 [1]	Scene number; Calling value = 1 less than the adjusted scene number
Scene B	▪ **Off** ▪ On	Activation of the scene B
Scene number B	1-64 [1]	Scene number; Calling value = 1 less than the adjusted scene number
Scene C	▪ **Off** ▪ On	Activation of the scene C
Scene number C	1-64 [1]	Scene number; Calling value = 1 less than the adjusted scene number
Scene D	▪ **Off** ▪ On	Activation of the scene D
Scene number D	1-64 [1]	Scene number; Calling value = 1 less than the adjusted scene number
Scene E	▪ **Off** ▪ On	Activation of the scene E
Scene number E	1-64 [1]	Scene number; Calling value = 1 less than the adjusted scene number
Scene F	▪ **Off** ▪ On	Activation of the scene F
Scene number F	1-64 [1]	Scene number; Calling value = 1 less than the adjusted scene number
Scene G	▪ **Off** ▪ On	Activation of the scene G
Scene number G	1-64 [1]	Scene number; Calling value = 1 less than the adjusted scene number
Scene H	▪ **Off** ▪ On	Activation of the scene H
Scene number H	1-64 [1]	Scene number; Calling value = 1 less than the adjusted scene number

Table 13: Parameter 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

Table 14: Calling and saving scenes

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4.4.4.1 Scene programming example

When the scene function is activated for one channel, a new sub menu for the scene of this channel appears. Up to 8 scenes can be adjusted at this sub menu. Every scene gets one scene number, which enables the calling of the scene. You can adjust one specific state for every scene. So you can switch the channel off, with the setting “Off” or switch the channel on with the setting “On”. When the scene is called, the adjusted parameterization of the channel is kept (e.g. on delay, off delay, …).
To note at the scene programming is that if you want to call 2 or more channels with the same scene number, you have to set the both communication objects for the scenes to the same group address. By sending the calling value, both scenes are called. Your programming can become much clearer if you divide your group addresses by scene numbers. If now one channel shall react to 8 scenes, you will have to connect the communication object for the scenes to 8 group addresses.
The following illustrations shall make the division clearly:

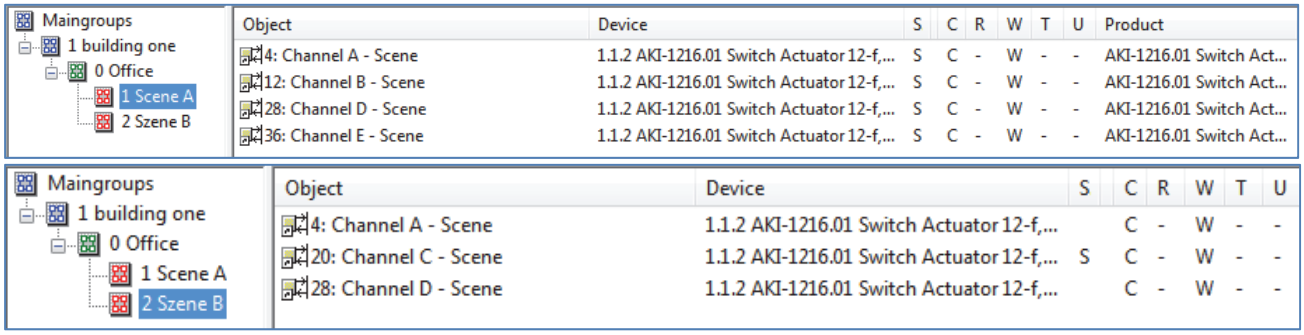

Figure 13: Programming of scenes

The channels A and D shall react to the call of scene A and scene B. So they are connected to both group addresses.

Furthermore you can save scenes at the according scene numbers. For that you have to activate the memory function at a channel of the switch actuator. Now you can call scenes by a binary input with a short keystroke and save scenes by a long keystroke. The adjusted value for the scene is overwritten by the current state of the actuator, when you save the scenes. At the next call of the scene, the scene will be called with the new value.

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4.4 Staircase

The following parameters, which are described at the headings 4.4.x, are only available at channels selected as staircase.

4.4.1 Overview

By choosing a channel as staircase, a sub menu, called Channel A Staircase, appears for this channel at the left drop down menu.
The sub menu is shown at the following illustration:

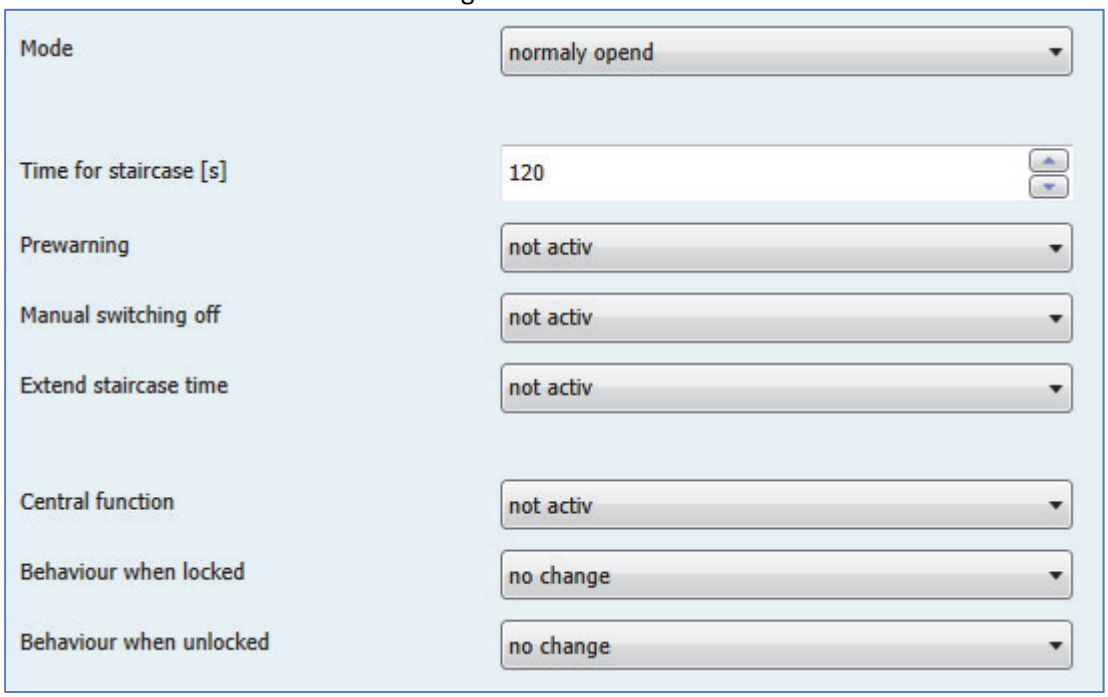

Figure 14: Staircase

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The chart shows all possible settings for staircase outputs:

ETS-text	Dynamic range **[default value]**	comment
Mode	▪ **normally opened** ▪ normally closed	Operation mode of the channel
Time for staircase [s]	0…65535 sec [120 sec]	Duration of the switching process
Prewarning	▪ **not active** ▪ active	Activates the prewarning function
Warning time [s]	0…65535 sec [120 sec]	Duration of the warning; Only available when warning is activated
Prewarning time [s]	0…65535 sec [120 sec]	Adjustment, how long the light shall be switched on after the warning; Whole duration of the warning process is the sum of the 3 times: Staircase time, warning and prewarning Only available when warning is activated
Manual switching off	▪ **not active** ▪ active	Activation of the manual turn off of the staircase
Extend staircase time	▪ **not active** ▪ active	Activation of the extension of the staircase
Central function	▪ **not active** ▪ active	Activates the central function for this channel
Behavior when locked	▪ Off ▪ On ▪ **no change**	Action for activating the blocking process
Behavior when unlocked	▪ Off ▪ On ▪ **no change**	Action for deactivating the blocking process

Table 15: Parameter staircase

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4.4.2 Staircase time

The following illustration shows the setting options at the ETS-Software:

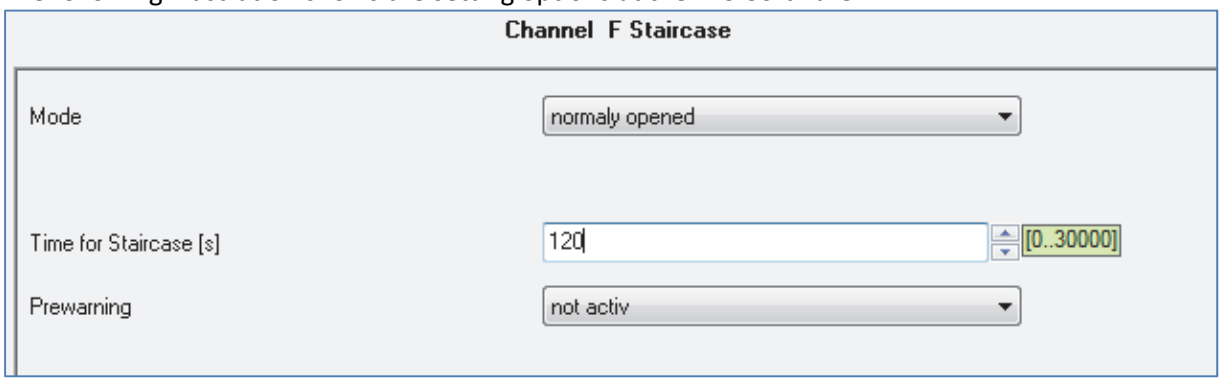

Figure 15: Staircase time

The staircase function is activated by choosing a channel as staircase. This function enables an automatic turn off of the channel after an adjusted time, called “time for staircase”. The time for staircase can be parameterized freely. By sending an “on-signal” at the communication object, the channel is switched on and the time runs out. After the time is ran out, the channel is switched off automatically. There are a lot of further functions to adjust the staircase function. These functions are described at the following segments.

The following chart shows the relevant communication object:

Number	Name	Length	Usage
1	Staircase	1 Bit	Calling of the staircase function

Table 16: Communication object staircase

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4.4.3 Prewarning und Warning

The following illustration shows the setting options at the ETS-Software:

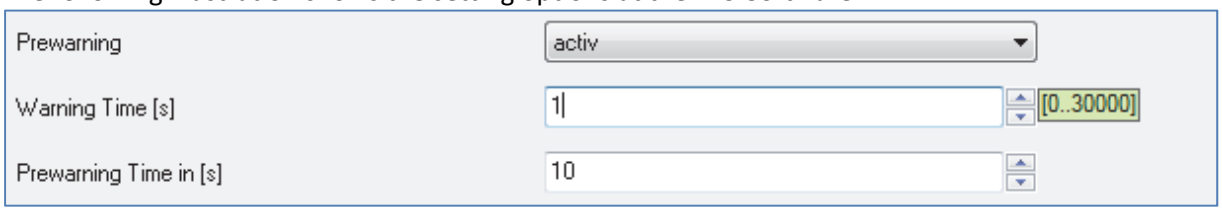
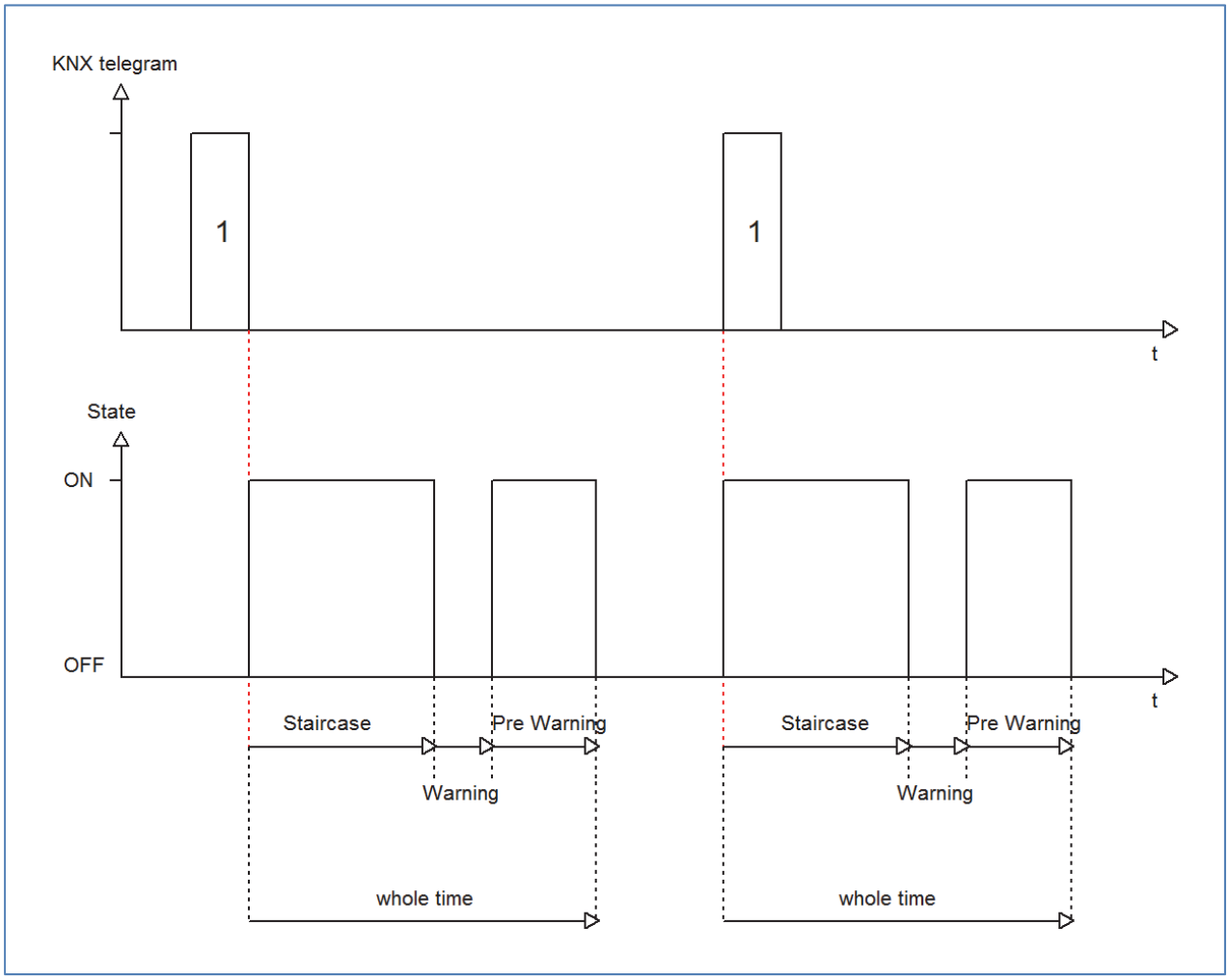


Figure 16: Warning timer & prewarning time

The warning function can be activated by adjusting the parameter “Prewarning” as active. Now, you can adjust warning time and prewarning time.
The warning function is for warning that the staircase time ran almost out and the lights are switched off soon. This warning happens trough a short turn off the lights. The duration of the turn off is indicated by the warning time. A value of 1-3s is advisable for this parameter. When the warning time runs out, the lights will be switched on again for the adjusted prewarning time. Now you have the opportunities to extend the staircase time, when this parameter was activated, or leave the staircase. A dynamic programming is advisable for this time. So you can adapt this time to spatial conditions (next switch, length of the staircase, etc.).
The whole duration of the switching process is the sum of the 3 times. The following diagram shall make this clear:



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4.4.4 Manual switch off

The following illustration shows the setting options at the ETS-Software:

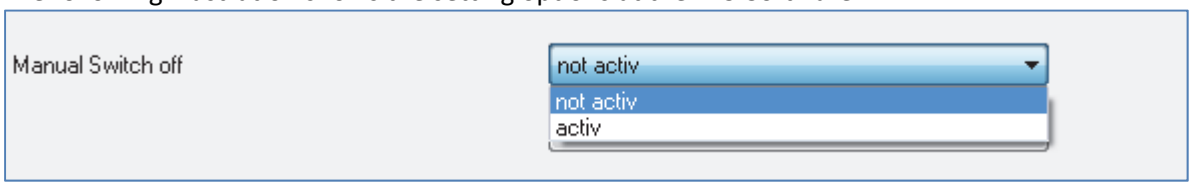


Figure 17: Manual switch off

By activation this function, you can switch the channel off before the staircase time runs out. For switching off the channel, you have to send a logical “0” to the communication object for switching the staircase function (have a look atTable 16: Communication object staircase). When this function is not activated, the channel switches only off after the staircase time runs out.

4.4.5 Extend staircase time

The following illustration shows the setting options at the ETS-Software:

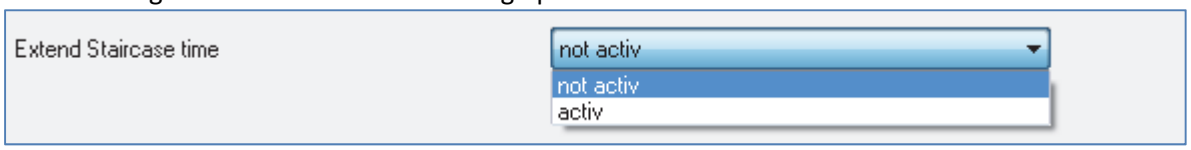
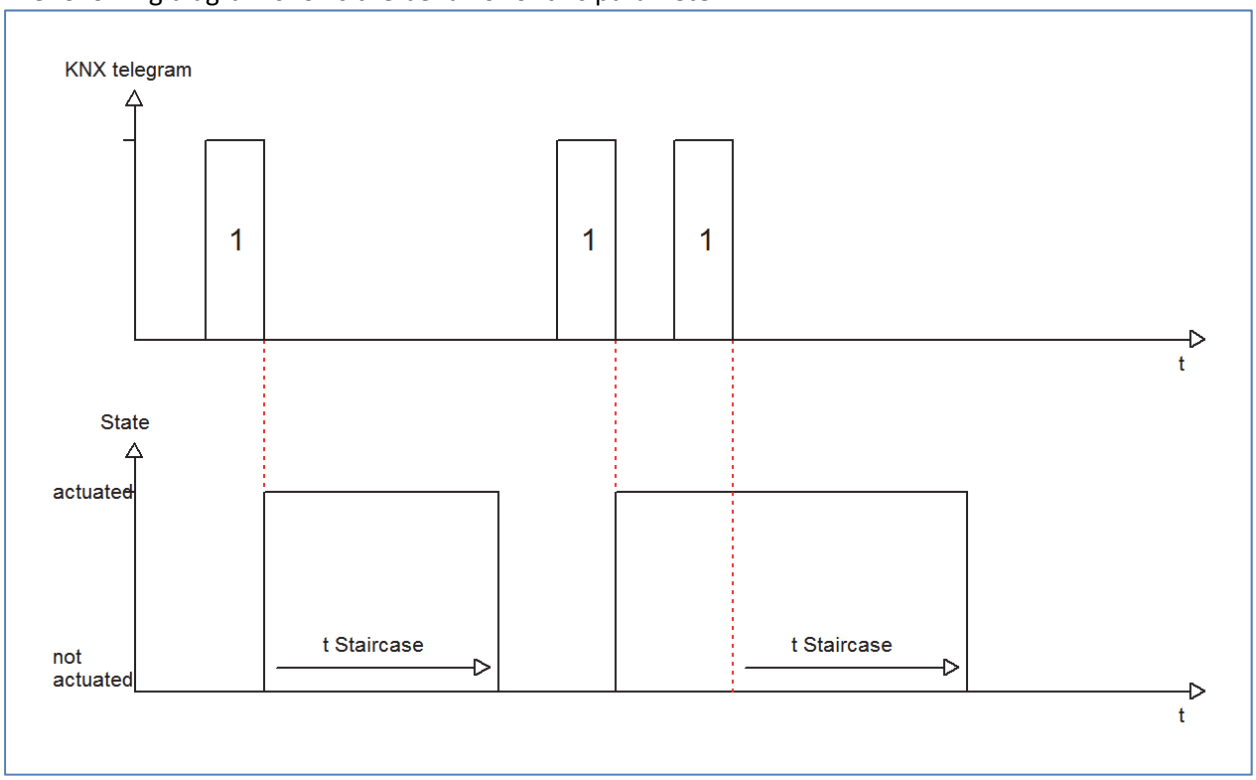


Figure 18: Extend staircase time

By activating this function, the staircase time is retriggerable. That means, when the staircase time runs already out to 2/3, you can restart the time by sending a new on-signal to the communication object of the staircase function (have a look atTable 16: Communication object staircase).
The following diagram shows the behavior of this parameter:



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5 Index

5.1 Register of illustrations

5.2 List of tables

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6 Anhang

6.1 Gesetzliche Bestimmungen

Die oben beschriebenen Geräte dürfen nicht in Verbindung mit Geräten benutzt werden, welche direkt oder indirekt menschlichen-, gesundheits- oder lebenssichernden Zwecken dienen. Ferner dürfen die beschriebenen Geräte nicht benutzt werden, wenn durch ihre Verwendung Gefahren für Menschen, Tiere oder Sachwerte entstehen können.
Lassen Sie das Verpackungsmaterial nicht achtlos liegen, Plastikfolien/-tüten etc. können für Kinder zu einem gefährlichen Spielzeug werden.

6.2 Entsorgungsroutine

Werfen Sie die Altgeräte nicht in den Hausmüll. Das Gerät enthält elektrische Bauteile, welche als Elektronikschrott entsorgt werden müssen. Das Gehäuse besteht aus wiederverwertbarem Kunststoff.

6.3 Montage

Lebensgefahr durch elektrischen Strom:
Alle Tätigkeiten am Gerät dürfen nur durch Elektrofachkräfte erfolgen. Die länderspezifischen Vorschriften, sowie die gültigen EIB-Richtlinien sind zu beachten.

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KNX RF+ Switch Actuator

MDT KNX RF+ Switch Actuator 1/2-fold, Flush mounted

Version		
RF-AKK1UP.01	KNX RF+ Switch Actuator 1-fold	Flush mounted, 230VAC, 10A
RF-AKK2UP.01	KNX RF+ Switch Actuator 2-fach	Flush mounted, 230VAC, 10A

The MDT KNX RF+ Switch Actuator receives KNX/EIB telegrams and switchs up to 2 independent electrical loads. Each output uses a monostable relay. The outputs are parameterized individually via ETS. The device provides extensive functions like logical operation, status response, block functions, central function, delay functions and staircase lighting function. Additionally the device provides several time and scene control.

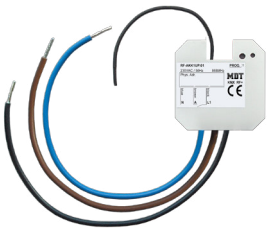
The MDT KNX RF+ Switch Actuator is operating in bidirectional KNX RF+ system mode and is perfectly suited for using in conventionel installations without placing KNX bus cables. The connections to the KNX+ bus is realized via the MDT KNX RF+ Line Coupler.

If the mains voltage fails, all outputs were switched off. After mains voltage recovery the relay position will be restored.

The MDT KNX RF+ Switch Actuator is available as flush mounted installation device for fixed installation in dry rooms.

For project design and commissioning of the MDT KNX RF+ Switch Actuator it is recommended to use the ETS.
Please download the application software at www.mdt.de/downloads.html

RF-AKK1UP.01



RF-AKK2UP.01

- Production in Germany, certified according to ISO 9001
- **New KNX RF+ protocol in system mode**
- Commissioning with ETS 5
- NO and NC contact operation
- Time functions (switch-on/switch-off delay, staircase light function)
- Status response (active/passive) for each channel
- Logical linking of binary data
- 8 scenes per channel
- Central switching functions and block functions
- Adjustable behavior in case of bus voltage failure or return
- Flush mounted in socket
- Connection via MDT KNX RF+ Line Coupler
- To upgrade your installation without placing KNX bus cables
- Power supply 230VAC
- Dimensions (W x H x D): 41mm x 41mm x 22mm)
- 3 years warranty

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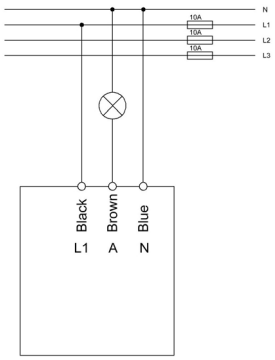
Stand: 0716

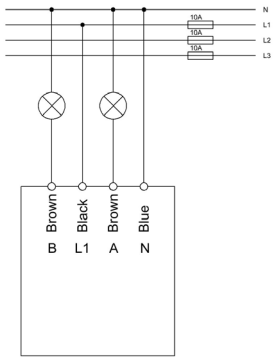
KNX RF+ Switch Actuator

Technical Data	RF-AKK1UP.01	RF-AKK2UP.01
Number of outputs	1	2
Transmitter frequency	868,3MHz (For operating inside the EU)	868,3MHz (For operating inside the EU)
Range	150m	150m
Output level	10dBm	10dBm
Sensitivity	>-105dBm	>-105dBm
Compatibility	KNX RF S-Mode (with ETS5 support)	KNX RF S-Mode (with ETS5 support)
Output switching ratings		
Ohmic load	10A	10A
Capacitive load	14uF	14uF
Voltage	230VAC	230VAC
Maximum inrush current	80A/150µs 40A/600µs	80A/150µs 40A/600µs
Maximum load		
Incandescent lamps	1900W	1900W
Halogen lamps 230V	800W	800W
Halogen lamps, electronic transformer	500W	500W
Fluorescent lamps, not compensated	500W	500W
Fluorescent lamps, parallel comp.	90W	90W
Max. number of electronic transformers	2	2
Output life expectancy (mechanical)	1.000.000	1.000.000
Fuse protection	10A	10A
Available application software	ETS 5	ETS 5
Power supply	230VAC/50Hz	230VAC/50Hz
Power consumption mains 230VAC typ.	< 0,3W	< 0,3W
Operation temperature range	0 to + 45°C	0 to + 45°C
Enclosure	IP 20	IP 20
Dimensions (W x H x D)	41mm x 41mm x 24mm	41mm x 41mm x 24mm

Examplary circuit diagram RF-AKK1UP.01



Examplary circuit diagram RF-AKK2UP.01



EU Declaration of Confirmity Switch Actuator RF+

Hereby, MDT technologies GmbH declares that the radio equipment type radio RF-AKKxUP.01 is in compliance with directive 2014/53/EU. The full text of the EU declaration of confirmity is available at the following internet address: www.mdt.de/download/MDT_CE_RFAKK.pdf

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DIN EN ISO 9001
TAW Cert
Zert.Nr.1905606