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# KNX Combi Switch Actuator SAH/S – Shutter Functions

Online Learning Session – Competence Center Europe – Smart Buildings

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# Agenda

Overview KNX Combi Switch Actuators and Applications

ETS Application Combi Switch Actuators with Function Shutter

Differences between Combi Switch Actuator SAH/S and Shutter Actuators JRA/S

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# KNX Combi Switch Actuator - Shutter Functions

Overview and Applications

# KNX Combi Switch Actuator - Shutter Functions

## Combi Switch Actuators

### Key Characteristics

- Compact, high-channel-density devices with selectable switching & shading functionality
- Data
  - 8 / 16 / 24 outputs
  - 6A / 10A / 16A – AC1
  - Compact form: 2 channels per module width
  - Manual operation (KNX voltage dependent)
  - Combi screw-head terminals
  - Single application, smart features
  - New housing
  - Combi switching & **shading**

### 6A (3 devices)



### 10A (3 devices)



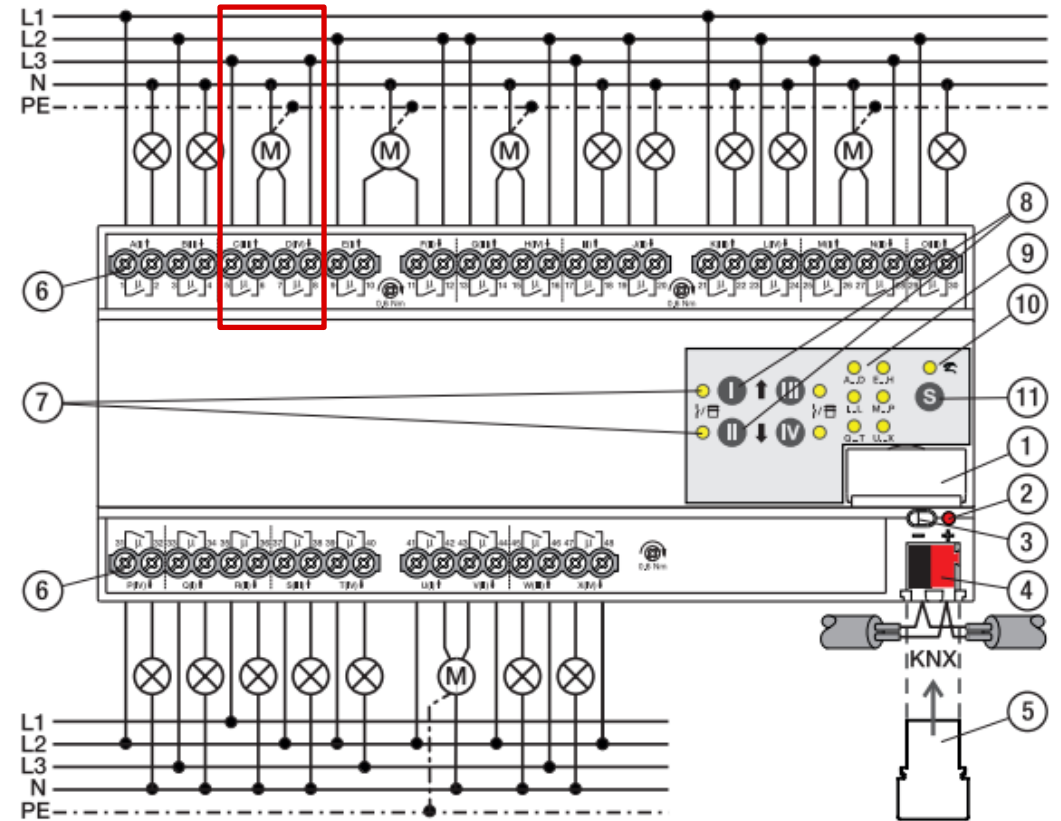
### 16A (3 devices)



# KNX Combi Switch Actuator - Shutter Functions

## Connection Diagram

1. Label Carriers
2. Programming LED
3. Programming Button
4. Bus Connection Terminal
5. Cover Cap
6. Load Circuit
7. Output Status LED (yellow)
8. Output Button
9. Group LED (yellow)
10. Manual Operation LED (yellow)
11. S-Button (manual operation/output selection/central off)



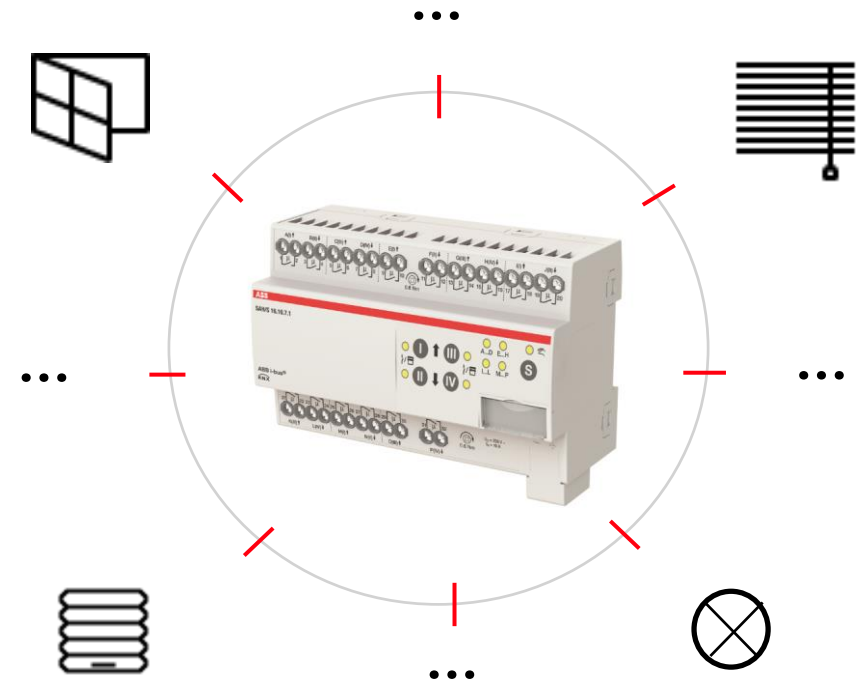
# KNX Combi Switch Actuator - Shutter Functions

## Overview Applications

### Blinds: Up/down and step/stop

Combi Switch Actuators are ideal for the control of drives in the area of sun protection:

- Control with slat adjustment
  - Blinds
  - Exterior blinds
  - Slat blinds
  - Panel curtains
  - ...



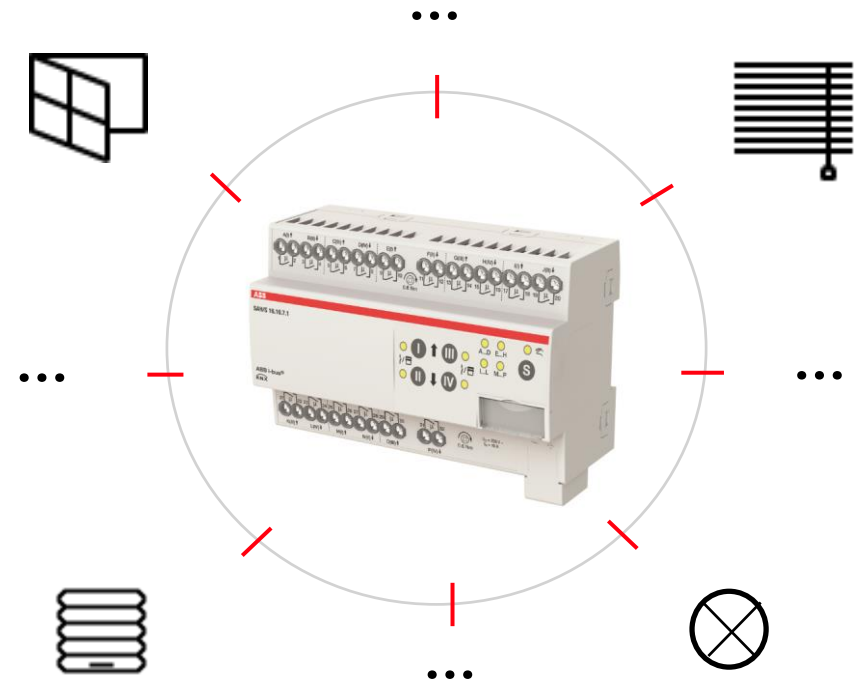
# KNX Combi Switch Actuator - Shutter Functions

## Overview Applications

### Shutter: Up/down (open/close) and stop

Combi Switch Actuators are ideal also for the control of drives of following components:

- Control without slat adjustment
  - Roller shutters
  - Roller blinds
  - Screens
  - Vertical blinds
  - Awnings
  - Pleated curtains
  - Skylights
  - Pool cover
  - Windows
  - ...



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# KNX Combi Switch Actuator - Shutter Functions

ETS Application



# KNX Combi Switch Actuator - Shutter Functions

## ETS Application Combi Switch Actuator

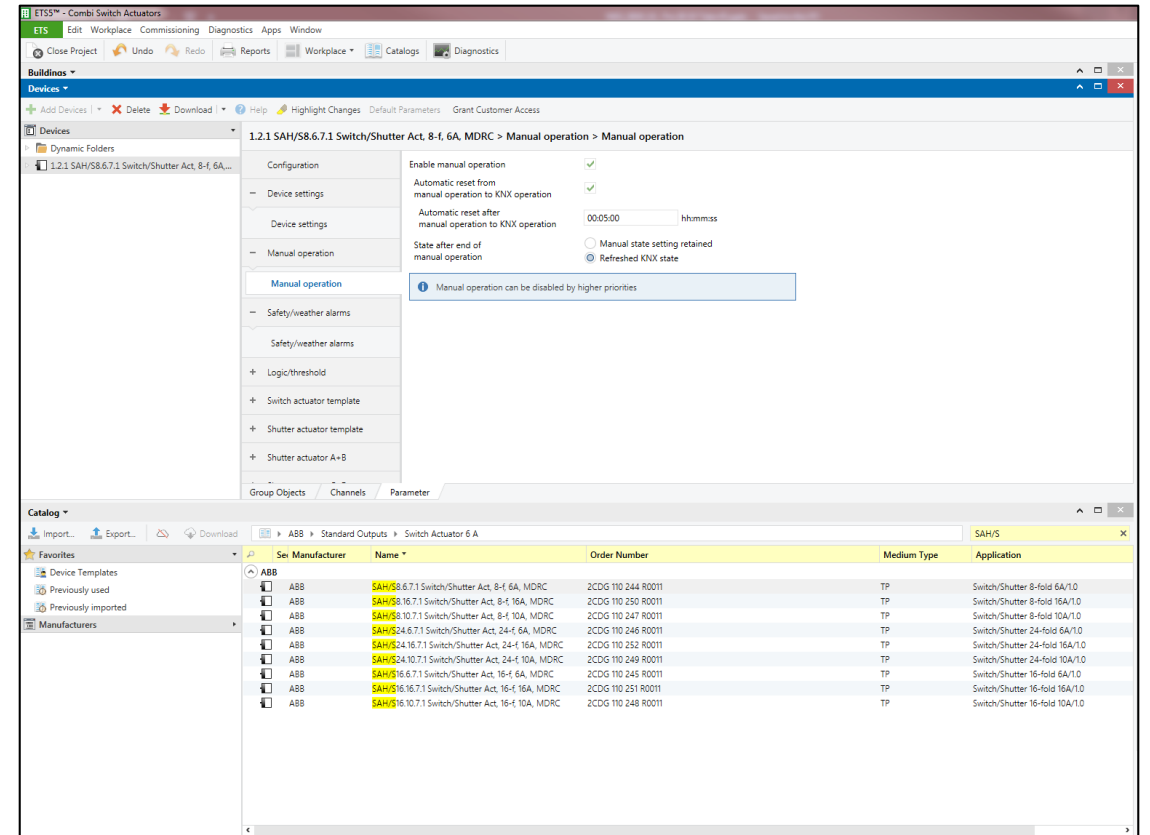
### Overview

ETS Application with comprehensive functions but satisfying user experience

- Templates for switch- and shutter functions
- Freely programmable logic independent of the output channels (AND, OR, Exclusive OR, GATE) and threshold functions
- Full functionality of shutter outputs (Safety/Weather alarm, automatic sun protection, scenes, blocking, forced operation), but no travel time detection
- Switch outputs with time functions (Staircase, Delay, Flashing), safety, forced operation, blocking, 16 scenes (1 byte)
- Central objects (switching, shutter functions, scenes)
- Colored hints simplify work
- ETS5 is required

More details about application in general with switching functions

→ session [KNX Combi Switch Actuator – ETS Application](#)



# KNX Combi Switch Actuator - Shutter Functions

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## Device Settings (per device)

- Central Group Objects
  - To be used to switch several device outputs at the same time
  - Advantage: Less group address assignments, especially for multi channel devices
  - Available for switching, shutter control and scene
  - In the parameter block of each channel it can be decided whether the channel shall be part of the central function

1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Device settings > Device settings

Configuration	Sending and switching delay after bus voltage recovery	00:00:02	hh:mm:ss
- Device settings	State after sending and switching delay has elapsed	<input checked="" type="radio"/> Last value received	<input type="radio"/> Ignore received values
<b>Device settings</b>	Enable group object "Request status values"	<input type="checkbox"/>	
+ Manual operation	Enable Central switch group object	<input checked="" type="checkbox"/>	
+ Safety/weather alarms	Enable Central blind group objects	<input checked="" type="checkbox"/>	
- Logic/threshold	Enable Central scene group object	<input checked="" type="checkbox"/>	
Logic/threshold 1	Enable group object "In operation"	No	

3	Switch	Central: Switch	1 bit
4	Move blind/shutter up-down	Central: Shutter	1 bit
5	Slat adjustment/stop up-down	Central: Shutter	1 bit
6	Move to position height	Central: Shutter	1 byte
7	Move to position slat	Central: Shutter	1 byte
8	Scenes 1...64	Central: Scene	1 byte

# KNX Combi Switch Actuators SAH/S

ETS

## Shutter Actuator Template (per device)

- Templates allow to parametrize a certain number of functions to be assigned to individual channels
  - Available for switch or shutter outputs
  - Split into different parts (parameter pages)
  - For Shutter: Basic settings, Drive, Blind/shutter, Safety/weather, Automatic sun protection, Status messages, Scene assignment
  - For each output and parameter page the templates can be used or individual adjustment can be done
- Advantage: Save of time and work during parametrization as typically channels need the same adjustments

1.2.4 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator template > Basic settings

Configuration

Output reacts to central blind group objects

Output reacts to No Logic/threshold function

Enable the function Logic/threshold on the Logic/Threshold page.

Reaction on bus voltage failure Stop

Reaction after bus voltage recovery Stop

Reaction after ETS download Stop

Shutter actuator template

- Basic settings
- Drive
- Blind/shutter
- Safety/weather
- Automatic sun protection
- Status messages
- Scene assignment

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Functions (per channel)

- Selection of actuator type (switching or shutter)
- Please note: Default parametrization is shutter! Why?
  - Inverse default parametrization (switching) can destroy a motor as the two related output can be closed at the same time!
- With selection shutter the second output of a pair (e.g. A/B or C/D) belongs automatically to the shutter channel
  - Selection with (slat/stop) or without slat adjustment (only stop)
  - Enable scene, priority/safety functions and automatic sun protection

1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Functions

Configuration

Application  Shutter actuator  Switch actuator

+ Device settings

Operating type  Blind/shutter control with slat adjustment  Blind/shutter control without slat adjustment

+ Manual operation

+ Safety/weather alarms

*To control venetian or vertical blinds and other shading systems with slats*

+ Logic/threshold

Enable function Scene

+ Switch actuator template

Enable function Priority and safety operation/weather alarms

+ Shutter actuator template

Enable function Automatic sun protection

- Shutter actuator A+B

Functions

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Basic settings (per channel)

- Available for individual configuration or template
- Reaction to central object to create individual ‘central’ function
- Reaction on logic/threshold function
  - No Logic/threshold function, Logic/threshold 1...24
  - Though logic is independent of any output, it can be directly assigned
  - For more details of logic in Combi Switch Actuator see Online Session [KNX Combi Switch Actuator – ETS Application](#)
- Reaction on bus voltage failure and recovery or after ETS download
  - No reaction, open, down, stop, individual position (height and slat) , activation of automatic sun position

1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Basic settings

Configuration

Parameter setting  Apply from template  Individual

+ Device settings

Output reacts to central blind group objects

+ Manual operation

Output reacts to No Logic/threshold function

+ Safety/weather alarms

Enable the function Logic/threshold on the Logic/Threshold page.

+ Logic/threshold

+ Switch actuator template

Reaction on bus voltage failure Open

+ Shutter actuator template

Reaction after bus voltage recovery Individual position

- Shutter actuator A+B

Position height (0% = top; 100% = bottom) 50 %

Position slat (0% = open; 100% = closed) 30 %

Functions

Reaction after ETS download Activation of automatic sun protection

Basic settings

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Drive (per channel)

- Available for individual configuration or template
- Travel time separate for up and down, needed for good positioning
  - Please note: no automatic travel time detection via current measurement available like JRA/S x.y.5.1
- Disconnect output power after end position + x% overflow
  - Additional safety with power turn off in case of malfunction of end switch
- Object “Trigger Reference Movement”
  - Runs drive to end position (value 1 = lower end position, value 0 upper end position)
  - Improvement of positioning when driving the hanging not to end positions during normal operation
  - Position after reference movement adjustable

1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Drive

Configuration	Parameter setting	<input type="radio"/> Apply from template <input checked="" type="radio"/> Individual
+ Device settings	Travel time up	00:10:00 hh:mm:ss
+ Manual operation	Travel time down	00:10:00 hh:mm:ss
+ Safety/weather alarms	Disconnect output from power after	End position + 10% overflow
+ Logic/threshold	Enable group object "Trigger reference movement"	<input checked="" type="checkbox"/>
+ Switch actuator template	Position after reference movement	<input checked="" type="radio"/> No reaction, remain in reference position <input type="radio"/> Move to position before reference movement
+ Shutter actuator template	Reversing time	500 ms
- Shutter actuator A+B	<div><p><b>i</b> Pay attention to technical data for the drive! At bus voltage failure the reversing time is always 1 second.</p></div>	
Functions	Delay time for drive	<input type="radio"/> Default <input checked="" type="radio"/> Custom
Basic settings	Start-up delay	100 ms
<b>Drive</b>	Coasting delay	0 ms
Blind/shutter	Minimum run time for drive	50 ms
Safety/weather		

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Drive (per channel)

- Available for individual configuration or template
- Reversing time: Time the drive stops when the direction of the hanging will be reversed, to avoid too strong mechanical and electrical load
  - Please note: important value to protect the drive, see manual or recommendation of drive manufacturer
- Delay time of drive
  - Some drives attain their full power only after a start-up delay of a few milliseconds or continue moving for a few milliseconds after switch-off (coasting delay). It may be necessary to compensate delay times during start-up and coasting of the drive, e.g. to position the blinds/shutters exactly.
- Minimum run time for drive
  - Too short minimum run time can damage the connected drive. Pay attention to technical data for the connected drive

1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Drive

Configuration	Parameter setting	<input type="radio"/> Apply from template <input checked="" type="radio"/> Individual
+ Device settings	Travel time up	00:10:00 hh:mm:ss
+ Manual operation	Travel time down	00:10:00 hh:mm:ss
+ Safety/weather alarms	Disconnect output from power after	End position + 10% overflow
+ Logic/threshold	Enable group object "Trigger reference movement"	<input checked="" type="checkbox"/>
+ Switch actuator template	Position after reference movement	<input checked="" type="radio"/> No reaction, remain in reference position <input type="radio"/> Move to position before reference movement
+ Shutter actuator template	Reversing time	500 ms
- Shutter actuator A+B	<b>Pay attention to technical data for the drive! At bus voltage failure the reversing time is always 1 second.</b>	
Functions	Delay time for drive	<input type="radio"/> Default <input checked="" type="radio"/> Custom
Basic settings	Start-up delay	100 ms
<b>Drive</b>	Coasting delay	0 ms
Blind/shutter	Minimum run time for drive	50 ms
Safety/weather		

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Blind/Shutter (per channel)

- Available for individual configuration or template
- Move to position (1 byte object, 0 % (open)...100%(closed))
  - Direct, indirectly via upper/lower end position or shortest way
- Slat adjustment
  - Via duration of slat adjustment:  
After adjustment of duration the number of steps from open to close has to be tested and typed in the parameter
  - Via total duration for slat turning: Time from manufacturer of the drive to adjust the required number of steps
- Limit step commands to the number of adjusted steps avoids further movement of hanging in case of slate operation
- Total turning of slats after move down (Function closed-open-closed) to release slats which got stuck
- Position of slats at lower end position to adjust the brightness in the room

1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Blind/shutter	
Configuration	Parameter setting <input type="radio"/> Apply from template <input checked="" type="radio"/> Individual
+ Device settings	Move to position <input type="text" value="Direct"/>
+ Manual operation	Enable group objects "Move to pos. height/Move to pos. slat" <input checked="" type="checkbox"/>
+ Safety/weather alarms	
+ Logic/threshold	Determine slat adjustment time <input checked="" type="radio"/> Via duration of slat adjustment (step) <input type="radio"/> Via total duration for slat turning
+ Switch actuator template	Duration of slat adjustment (step) <input type="text" value="200"/> ms
+ Shutter actuator template	Number of slat adjustments (from 0% = open to 100% = closed) <input type="text" value="7"/>
- Shutter actuator A+B	Limit step commands to number of slat adjustments <input checked="" type="checkbox"/>
Functions	Total turning of slats after move down <input checked="" type="checkbox"/>
Basic settings	Position of slat after arriving at the lower end position (100% = deactivated) <input type="text" value="100"/> %
Drive	Limit traveling range via group object <input type="text" value="Enable limitation"/>
Blind/shutter	Upper limit (0% = top; 100% = bottom) <input type="text" value="0"/> %
Safety/weather	Lower limit (0% = top; 100% = bottom) <input type="text" value="100"/> %
Automatic sun protection	
Status messages	



# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Blind/Shutter (per channel)

- Travelling range limitation upper/lower limit depending on function (automatic sun protection and direct commands)
- Direct commands:
  - Move blind/shutter Up-Down
  - Slat adjustment/stop Up-Down
  - Move to position height
  - Move to position slat
  - Scene 1 ... 64
- Dead times
  - Defines times where the hanging is not moving though motor is turning (mechanical slippage)
  - Consideration enables precise positioning
  - In projects to be tested with different times

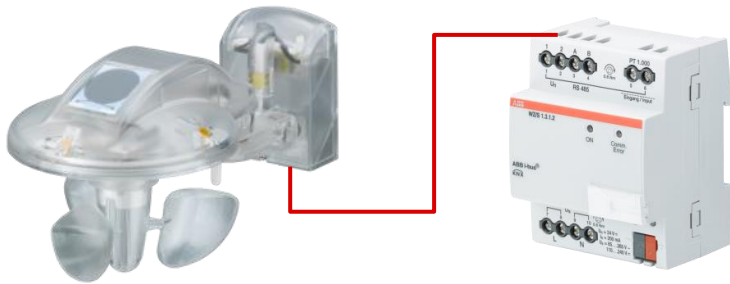
Shutter actuator A+B		
Functions	Limit traveling range via group object	Enable limitation
Basic settings	Upper limit (0% = top; 100% = bottom)	0 %
Drive	Lower limit (0% = top; 100% = bottom)	100 %
<b>Blind/shutter</b>	Upper limit valid for automatic sun protection commands	<input checked="" type="checkbox"/>
Safety/weather	Upper limit valid for direct commands	<input checked="" type="checkbox"/>
Automatic sun protection	Lower limit valid for automatic sun protection commands	<input checked="" type="checkbox"/>
Status messages	Lower limit valid for direct commands	<input checked="" type="checkbox"/>
Scene assignments	Set dead times	<input type="radio"/> Default <input checked="" type="radio"/> Custom
+ Shutter actuator C+D	Dead time blind/shutter from bottom until moving up	80 ms
+ Shutter actuator E+F	Dead time of slat from 100% closed until slat turn	120 ms
+ Shutter actuator G+H	Slippage of slat on change of direction	200 ms

# KNX Combi Switch Actuator - Shutter Functions

Safety/Weather Alarms - Weather Stations to detect Wind, Frost and Rain

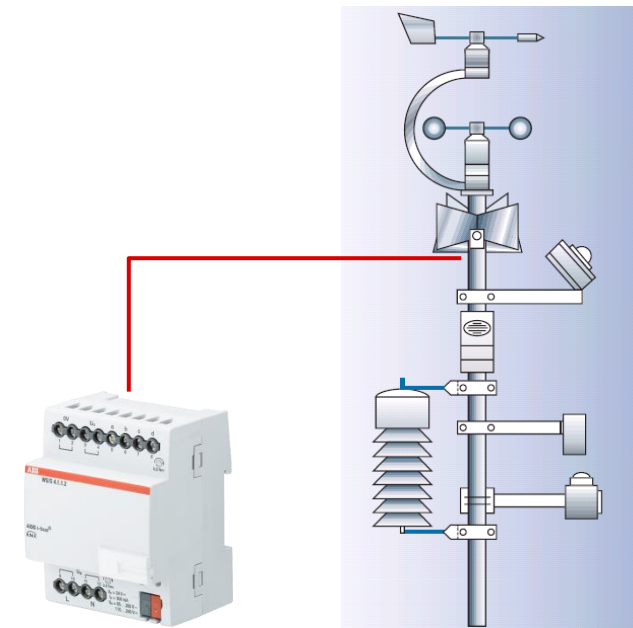
## Weather Sensor, WES/A 3.1 and Weather Unit WZ/S 1.3.1.2

Solution mainly for residential projects



## Weather Station WS/S 4.1.1.2

For commercial projects, common weather sensors can be connected (0-10V, 4-20mA, etc.)



# KNX Combi Switch Actuator - Shutter Functions

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## Safety/Weather Alarms (per device)

- Distinction between switch and shutter functionality
- Shutter
  - Three Wind alarms / Rain / Frost
  - Priority of wind, rain and frost adjustable
  - Monitoring of sensor signals (standard due to security reasons) can be deactivated
- For both switching and shutter additionally forced operation and blocking at the dedicated parameter blocks available

- Safety/weather alarms	"Safety priority 2"	<input type="checkbox"/>
	Enable group object "Safety priority 3"	<input type="checkbox"/>
<b>Safety/weather alarms</b>		
+ Logic/threshold		
+ Switch actuator template		
+ Shutter actuator template		
+ Shutter actuator A+B		
+ Shutter actuator C+D		
+ Shutter actuator E+F		
+ Shutter actuator G+H		
<b>Weather alarms for blind actuator operation</b>		
<i>i</i> The reaction with weather alarms active must be specified on the "Safety/weather alarms" parameter page for the blind channels.		
	Order of priority for weather alarms	1.Wind alarm - 2.Rain alarm - 3.Frost alarm
	Enable group object "Wind alarm 1"	<input checked="" type="checkbox"/>
	Enable group object "Wind alarm 2"	<input checked="" type="checkbox"/>
	Enable group object "Wind alarm 3"	<input checked="" type="checkbox"/>
	Cyclical monitoring interval (0 = cycl. monitoring deactivated)	00:00:30 hh:mm:ss
	Enable group object "Rain alarm"	<input checked="" type="checkbox"/>
	Cyclical monitoring interval (0 = cycl. monitoring deactivated)	00:00:00 hh:mm:ss
	Enable group object "Frost alarm"	<input checked="" type="checkbox"/>
	Cyclical monitoring interval (0 = cycl. monitoring deactivated)	00:00:00 hh:mm:ss

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Safety/weather (per channel)

- Available for individual configuration or template
- Reaction of the drive on different safety or weather conditions
  - No reaction, up, down, stop, unchanged, recall scene, individual position (height and slat)
  - Up to three wind sensors can be assigned  
Application: Complex building structure with different wind situations at the various facades
  - Rain and frost alarm sensors can be assigned  
Application: Closing of windows in case of rain, retract frost sensitive hanging
  - Blocking function via 1 bit telegram  
Application: Cleaning of window with shutter up and blocked

1.2.4 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Safety/weather

Parameter setting  Apply from template  Individual

**i** Wind, rain, and frost alarm are active if objects on page "Safety/weather alarms" are enabled and linked with group addresses

Output reacts to wind alarm 1	<input checked="" type="checkbox"/>
Output reacts to wind alarm 2	<input type="checkbox"/>
Output reacts to wind alarm 3	<input type="checkbox"/>
Position for wind alarm	Open
Position for rain alarm	Down
Position for frost alarm	No reaction/deactivated
Position for blocking	Individual position
Position height (0% = top; 100% = bottom)	50 %
Position slat (0% = open; 100% = closed)	0 %

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Safety/weather (per channel)

- Forced operation via 1 or 2 bit  
Application: Roof windows open in case of fire alarm

- 1 bit
  - one position for height and slat
  - Activation with value 0 **or** 1
- 2 bit (practically triggered via visualization)
  - two different positions for height and slat possible
  - Activation with value 3 (active on) **and** 2 (active off)

0 | 0 = forced operation inactive (value 0 decimal)  
0 | 1 = forced operation inactive (value 1 decimal)  
1 | 0 = forced operation active, Off state (value 2 decimal)  
1 | 1 = forced operation active, On state (value 3 decimal)

Functions	Forced operation (1 bit/2 bit)	Activated 1 bit - 1 active
Basic settings	Position height (0% = top; 100% = bottom)	50 %
Drive	Position slat (0% = open; 100% = closed)	100 %
Blind/shutter		
<b>Safety/weather</b>	Position for reset of weather alarm, blocking and forced operation	No reaction
Automatic sun protection		

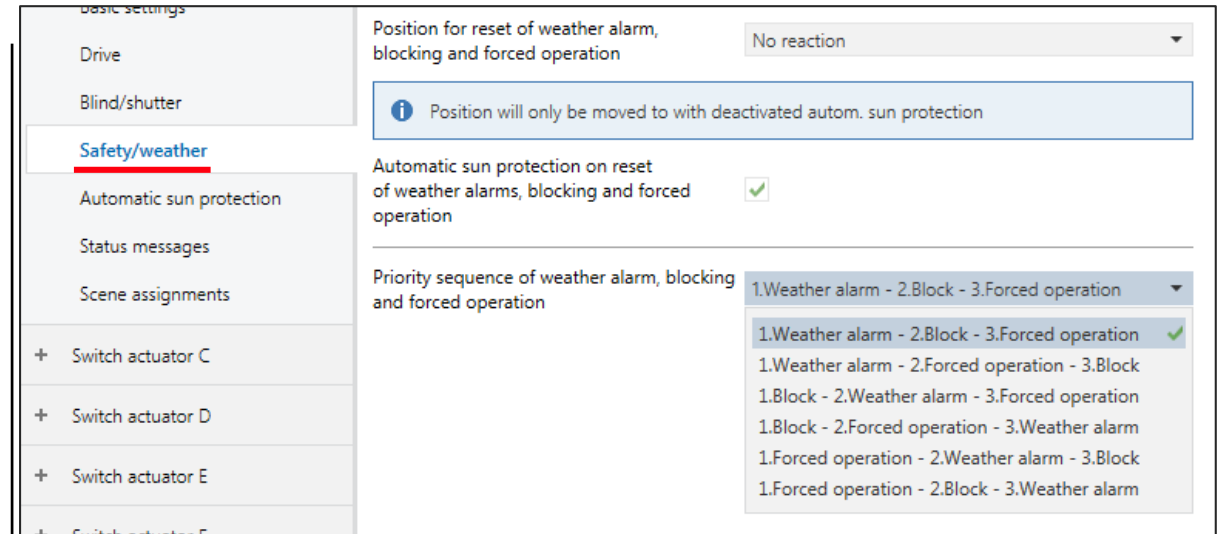
<b>Safety/weather</b>	Forced operation (1 bit/2 bit)	Activated 2 bit
Automatic sun protection	Forced operation active ON	
Status messages	Position height (0% = top; 100% = bottom)	0 %
Scene assignments	Position slat (0% = open; 100% = closed)	0 %
+ Switch actuator C	Forced operation active OFF	
+ Switch actuator D	Position height (0% = top; 100% = bottom)	0 %
+ Switch actuator E	Position slat (0% = open; 100% = closed)	0 %

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Safety/weather (per channel)

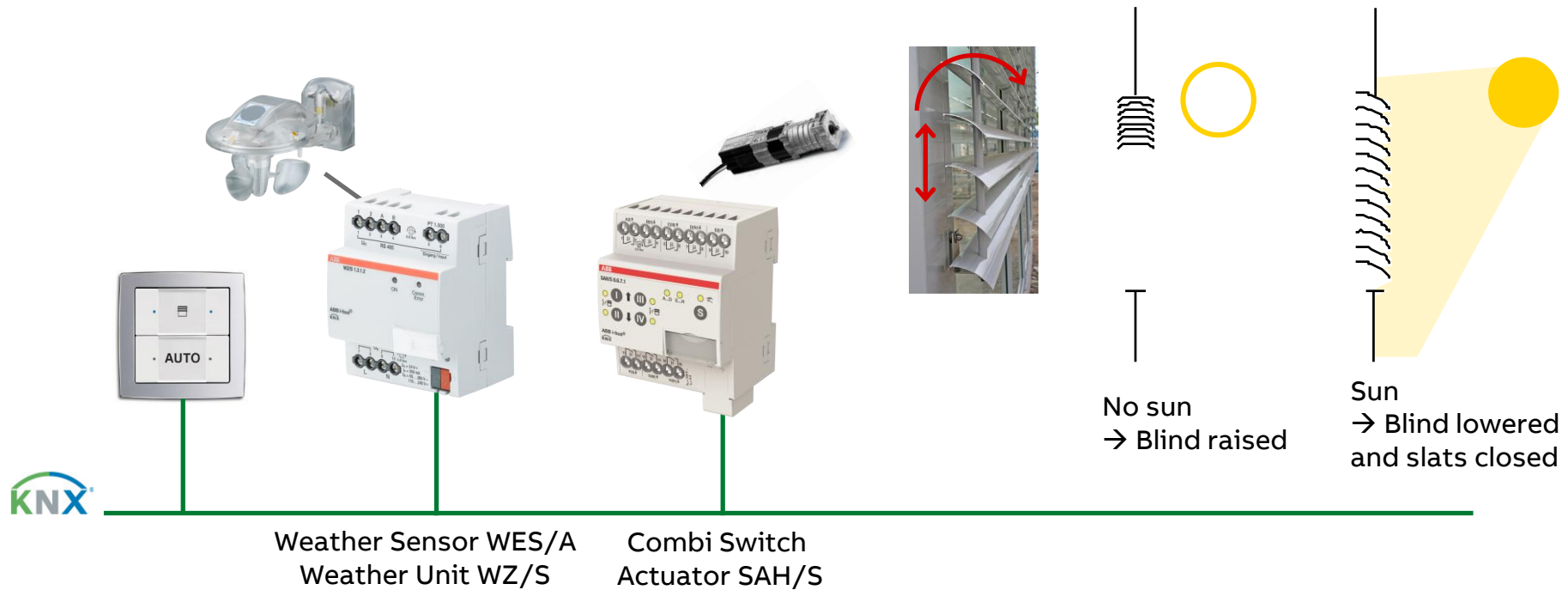
- Position for reset of weather alarm, blocking and forced operation
  - No reaction, up, down, stop, unchanged, scene, individual position, refreshed KNX state (any background functions during safety/weather functions will be carried out)
- Automatic sun protection on reset of weather alarms, blocking and forced operation
- Priority sequence of safety/weather alarms
  - Note: Priority sequence of weather alarms (wind, rain, frost) to be adjusted under parameter page Safety/weather alarms



# KNX Combi Switch Actuator - Shutter Functions

## Automatic Sun Protection

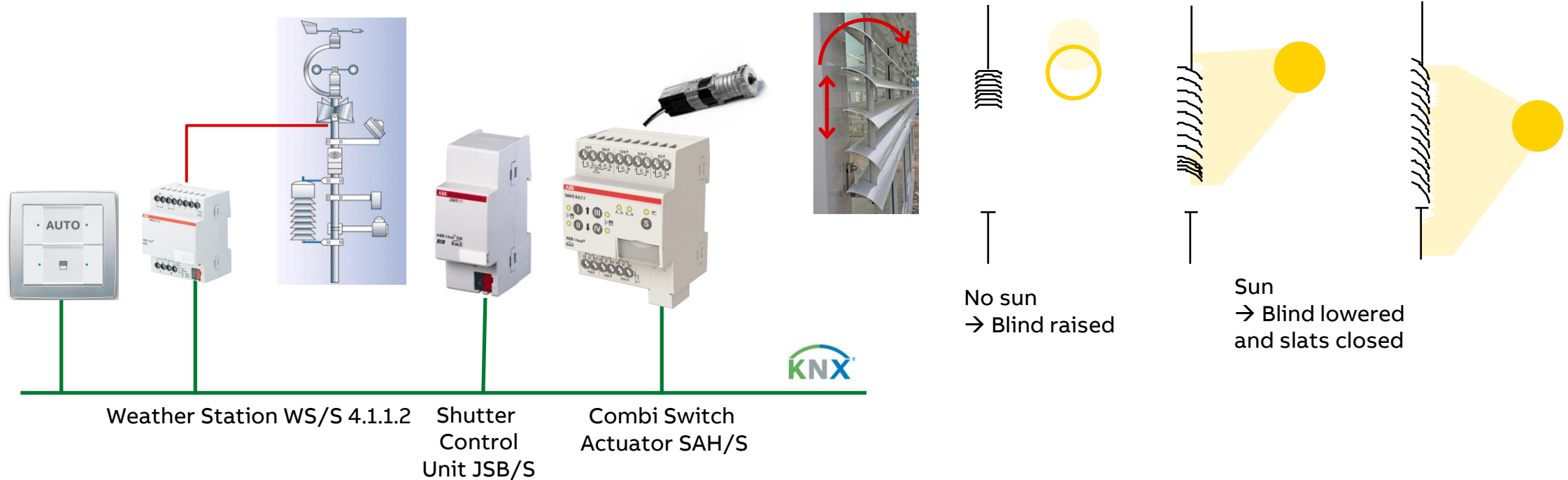
### Standard Sun Automatic



# KNX Combi Switch Actuator - Shutter Functions

## Automatic Sun Protection

Blind control depending on sun position with Shutter Control Unit JSB/S 1.1





# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Automatic sun protection (per channel)

- Automatic sun protection runs the drive depending on over/undershooting of outside brightness level. Information is received from outdoor brightness sensor or weather station as a 1 bit telegram
- Deactivation of automatic sun protection via group object or direct operation (e.g. local push button in the room)
  - Reactivation after certain time possible
- Both automatic sun protection and direct operation can be blocked via group objects
  - No reaction, up, down, stop, unchanged, scene, individual pos.
  - Receive height and/or slat via group object ( 1 byte) allows integration of shutter control unit JSB/S 1.1 for control of blinds depending on sun position

1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Automatic sun protection

Configuration

Parameter setting  Apply from template  Individual

+ Device settings

+ Manual operation

+ Safety/weather alarms

+ Logic/threshold

+ Switch actuator template

+ Shutter actuator template

- Shutter actuator A+B

Functions

Basic settings

Drive

Blind/shutter

Safety/weather

Automatic sun protection

Status messages

Deactivation of the automatic sun protection  Via group object  Via group object and direct command

Automatic reactivation of automatic sun protection

Time for automatic reactivation of automatic sun protection 05:00:00 hh:mm:ss

Enable group object "Block automatic sun protection"

Enable group object "Block direct operation"

Position for sun = 1 (sun) Receive height and slat via group object

Delay for sun = 1 00:00:00 hh:mm:ss

Position for sun = 0 (no sun) Open

Delay for sun = 0 00:00:00 hh:mm:ss

Read activated automatic sun protection group objects after bus voltage recovery and download

**i** Read flags must be set at sending device

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Status messages (per channel)

– Group objects for following status messages:

- Height/Slats (1 byte, 0...100%)
- Upper/Lower end position (1 bit)

Application: A curtain must not be moved when the window is open. Conversely, a drive must not open the window when the awning is down

- Operability (1 bit)

Application: LED on local push button shows operability, operation e.g. not possible due to safety functions (wind) or manual operation

- Automatic sun protection active (1 bit)

- Status Information (1 byte, e.g. safety, - time,- or manual operation active)

Application: Presentation of various status information with text in a visualization

The screenshot displays the configuration interface for a shutter actuator in ETS. The title bar reads "1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Status messages". The left sidebar shows a tree view with "Status messages" selected. The main area is divided into two columns: "Parameter setting" and "Status messages". The "Parameter setting" column has radio buttons for "Apply from template" (unselected) and "Individual" (selected). The "Status messages" column lists several parameters, each with an "Enable group objects" checkbox (all checked) and a "Send value of group object" dropdown menu (all set to "After change or on request").

Parameter	Enable group objects	Send value of group object
"Status Height/Slat"	<input checked="" type="checkbox"/>	After change or on request
"Status Upper/Lower end pos."	<input checked="" type="checkbox"/>	After change or on request
"Status Operability"	<input checked="" type="checkbox"/>	After change or on request
"Status Automatic sun protection"	<input checked="" type="checkbox"/>	After change or on request
"Status information"	<input checked="" type="checkbox"/>	After change or on request

# KNX Combi Switch Actuator - Shutter Functions

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## Shutter Actuator – Status messages (per channel)

- Parameter options (to adapt the number of status telegrams):
  - No, update only (value in group object will be updated but not sent on the bus. Possible to achieve the status via read request, e.g. visualization)
  - After change (value has to be different to be sent on the bus)
  - On request (A request can be triggered by sending the value 0 or 1 on the group object Request status values, e.g. intentional request from visualization)
  - After change **and** on request

The screenshot displays the configuration interface for a shutter actuator in ETS. The path is: 1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Status messages. The interface is divided into a left sidebar and a main configuration area. The sidebar contains a tree view with the following items: Switch actuator template, Shutter actuator template, Shutter actuator A+B (expanded), Functions (expanded), Basic settings, Drive, Blind/shutter, Safety/weather, Automatic sun protection, Status messages (highlighted with a red underline), Scene assignments, and Shutter actuator C+D. The main configuration area shows the 'Status messages' settings for 'Shutter actuator A+B'. At the top, there is a 'Parameter setting' section with two radio buttons: 'Apply from template' (unselected) and 'Individual' (selected). Below this, there are seven rows of settings, each with an 'Enable group objects' checkbox (all checked) and a 'Send value of group object' dropdown menu (all set to 'After change or on request'). The settings are: 1. 'Status Height/Slat', 2. 'Status Upper/Lower end pos.', 3. 'Status Operability', 4. 'Status Automatic sun protection', and 5. 'Status information'.

Group Object Name	Enable group objects	Send value of group object
"Status Height/Slat"	<input checked="" type="checkbox"/>	After change or on request
"Status Upper/Lower end pos."	<input checked="" type="checkbox"/>	After change or on request
"Status Operability"	<input checked="" type="checkbox"/>	After change or on request
"Status Automatic sun protection"	<input checked="" type="checkbox"/>	After change or on request
"Status information"	<input checked="" type="checkbox"/>	After change or on request

# KNX Combi Switch Actuator - Shutter Functions

ETS

## Shutter Actuator – Scene assignment (per channel)

- Available for individual configuration or template
- Activation for of up to 16 scenes 1 byte
- Recall and storage of scenes via 1 byte object
- Scene recall also via further group object (for scene 1 ... 4)
  - Additional 1 bit object to activate the scene
  - Advantage: 1 bit is easier to handle for some sensors than 1 byte
- Delay in running the drive
  - Application: delayed start of the drives to avoid load peak
- Position height or slat individually adjustable

1.2.1 SAH/S8.16.7.1 Switch/Shutter Act, 8-f, 16A, MDRC > Shutter actuator A+B > Scene assignments

Parameter setting  Apply from template  Individual

Overwrite scenes on download

Enable scene assignment 1

Scene recall also via group object

Scene number 1

Delay 00:00:05 hh:mm:ss

Position height (0% = top; 100% = bottom) 50 %

Position slat (0% = open; 100% = closed) 70 %

Enable scene assignment 2

Scene recall also via group object

Scene number 1

Delay 00:00:00 hh:mm:ss

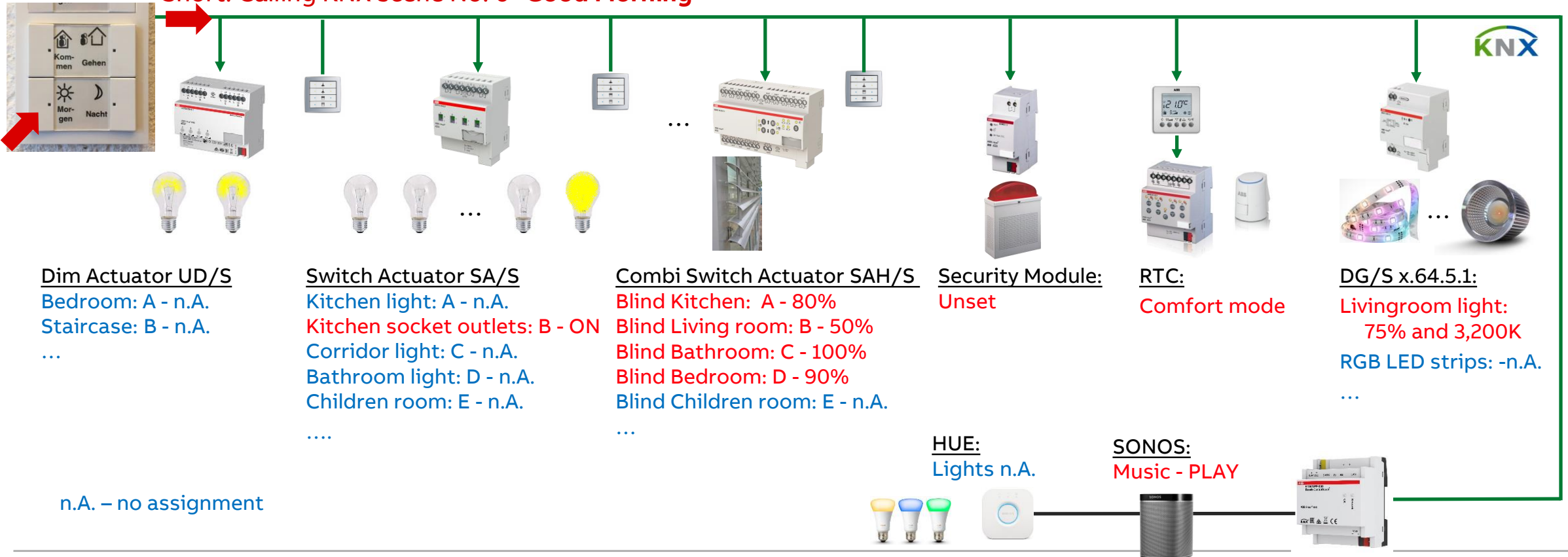
Position height (0% = top; 100% = bottom) 30 %

181	Channel C: Shutter	Scenes 1..64	Scene	5/2/6	1 byte
184	Channel C: Shutter	Recall scene assignment 3	Blinds half open	5/2/1	1 bit

# KNX Combi Switch Actuator - Shutter Functions

1 byte Light Scene

Short: Calling KNX scene No. 6 "Good Morning"



n.A. – no assignment

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# KNX Combi Switch Actuator - Shutter Functions

Combi Switch Actuator SAH/S ↔ Shutter Actuator JRA/S

# KNX Combi Switch Actuator - Shutter Functions

Main Differences: Combi Switch Actuator SAH/S ↔ Shutter Actuator JRA/S

Feature	Combi Switch Actuator SAH/S	Shutter Actuator JRA/S
Number of Channels for Shutter	4, 8, 12	2,4,6*,8 <small>*JRA/S 6.230.3.1 with binary inputs</small>
Option Switching / Number of Channels	yes / 8,16,24	yes / 2,4,6,8
Relay current	6, 10, 16 A	6 A
Actuator for 24V DC	no	yes, JRAS/S 4.24.5.1
Change over contact with mechanical lock	no, two relays per shutter output with software lock	yes
ABB i-bus Tool support	(yes), soon available in 2020	yes
Blind Control depending on sun position together with Shutter Control Unit JSB/S 1.1	yes	yes
Travel Time Detection via current measurement	no	yes, JRA/S x.y.5.1
Parameter for Switching Functions	yes	only Staircase Lighting and invert output (Ventilation Flaps)
ETS Application (special functions)	Central group objects, 8 bit scenes with delay and 1 bit object to recall, Logic functions, Templates	1 bit preset (4x, move to and set position), 8 bit scenes, Heating/Cooling automatic, Overheat control

# KNX Combi Switch Actuator - Shutter Functions

## Online Learning Session

### Homepage

[www.abb.com/KNX](http://www.abb.com/KNX)

- Products and Downloads
  - Lighting Control
    - Search Options DG/S
- Product Manual
- CAD Drawing
- Installation and Operating Instructions
- Specification Text
- ETS Application
- Selection Table
- CE & RoHS Declaration of Conformity
- ...

Detailed information for: SAH/S24.10.7.1


This page contains technical data sheet, documents library and links to offering related to this product. [Print...](#)  
If you require any other information, please contact us using form located at the bottom of the page. [Print to Pdf...](#)

Data Sheet Downloads









### SAH/S24.10.7.1

General Information

Extended Product Type:	SAH/S24.10.7.1
Product ID:	2CDG110249R0011
EAN:	4016779066839
Catalog Description:	SAH/S24.10.7.1 Switch/Shutter Actuator, 24-fold, 10 A, MDRC
Long Description:	The compact 10 A combi switch actuator has 24 independent switching relays (no electromechanically interlocking). The outputs can be used individually via ABB i-bus® KNX for switching electrical loads or in pairs for controlling 230 V AC roller shutter or blind drives. The device features a manual operation, which can also be disabled. Via the manual operation the outputs can be operated manually and the switching or driving status is displayed. The device is powered by KNX and requires no additional power supply.



Show all (10) >

Data sheet (2)	 ETS Application (.knxprod) [XX] SAH/Sx.y.7.1 Summary: ETS Application SAH/Sx.y.7.1 Version 1.0 Software - German, English - 2019-10-30 - 8,17 MB	 KNXPROD
Declaration of conformity (1)	 Product Manual (.PDF) [EN] SAH/S x.x.7.1 Summary: Product manual SAH/S x.x.7.1 Manual - English - 2019-10-30 - 6,37 MB	 PDF
Drawing (2)	 Specification text (.PDF) [EN] SAH/S24.10.7.1 Summary: Specification text SAH/S24.10.7.1 Tender specification - English - 2019-10-30 - 0,12 MB	 PDF
Manual (1)	 Specification text (.RTF) [EN] SAH/S24.10.7.1 Summary: Specification text SAH/S24.10.7.1 Tender specification - English - 2019-10-30 - 0,05 MB	 RTF
Operating instruction (1)		
Software (1)		
Tender specification (2)		



# KNX Combi Switch Actuator - Shutter Functions

## Online Learning Session

### Further information

#### Training & Qualification Database

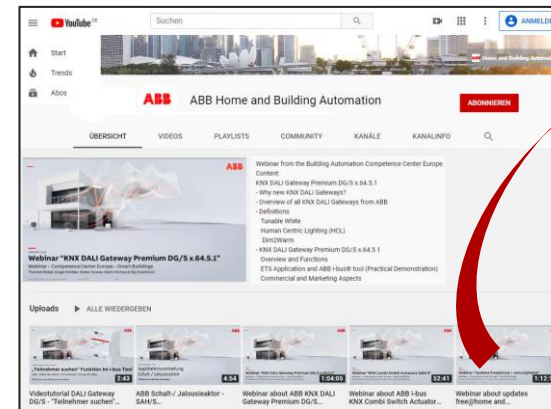
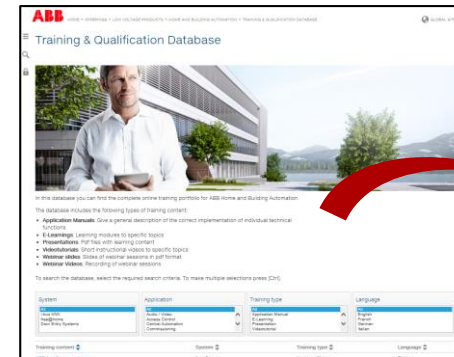
– The database includes the following types of training content:

- Application Manuals
- E-Learnings
- Presentations
- Video tutorials
- Webinar slides and videos
- [www.abb.com/knx](http://www.abb.com/knx) or <https://go.abb/ba-training>

#### YouTube

– Channel “ABB Home and Building Automation”

- <https://www.youtube.com/user/ABBibusKNX>



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# KNX Combi Switch Actuator - Shutter Functions

## Online Learning Session

### Further information

Training (ABB internal) and Learning (external) Package Shading in Buildings, based on shutter actuator JRA/S

– The package with various information around KNX and shutter control includes:

- Presentation
- Exercise
- ETS Project

Link to download the packages “Shading in Buildings“ will be published in the feedback mail



# KNX Combi Switch Actuator - Shutter Functions

## Online Learning Session

### Training & Qualification Calendar

In addition to the online modules and the traditional training programs offered by your local ABB sales team, we offer a variety of on-site trainings conducted by our specialists at different ABB training facilities

In this Training & Qualification Calendar you can find the educational events that are taking place during 2020

If you are interested in a training please click the training und you will be forwarded to register in “ABB MyLearning”

[www.abb.com/knx](http://www.abb.com/knx) or <https://go.abb/ba-training>

→ Training and Qualification

→ Training Calendar



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### Training & Qualification Calendar

In addition to the online modules and the traditional training programs offered by your local ABB sales team, we offer a variety of webinars and on-site trainings conducted by our specialists at different ABB Competence Centers.

In this Training & Qualification Calendar you can find the educational events that are taking place during 2018.

If you are interested in a training please [REGISTER HERE](#).

To search the Calendar, select the required search criteria. To make multiple selections press [Ctrl].

System	Date	Location
All	All	Webinar
Door Entry Systems	January 2018	Heidelberg, Germany
Free@home	February 2018	Lüdenscheid, Germany
Fire Alarm Systems	March 2018	S. Palomba (Rome), Italy
I-bus KNX	April 2018	Vittuone (Milan), Italy

Content	Date	Location	Language
KNX for Commercial Building	05.04.2018 - 06.04.2018	Lüdenscheid, Germany	EN
Building Automation Light + Building 2018	10.04.2018	Webinar	EN
KNX in Hotels	19.04.2018 - 20.04.2018	Heidelberg, Germany	EN
HVAC Automation	23.04.2018 - 24.04.2018	Heidelberg, Germany	EN

**ABB MyLearning**

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