Product Manual

ABB i-bus® EIB / KNX

Shutter Actuators
JA/S 2.230.1, JA/S 4.230.1, JA/S 8.230.1, JA/S 4.230.1M, JA/S 8.230.1M, JA/S 4.24.1

Intelligent Installation Systems

This manual describes the functions of the Shutter Actuators
JA/S 2.230.1, JA/S 4.230.1, JA/S 8.230.1, JA/S 4.230.1M, JA/S 8.230.1M
and JA/S 4.24.1
Subject to changes and errors excepted.

Exclusion of liability:
Despite checking that the contents of this document match the hardware and software, deviations cannot be completely excluded. We therefore cannot accept any liability for this. Any necessary corrections will be inserted in new versions of the manual.
Please inform us of any suggested improvements.

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1 Introduction

Shading

Fitting buildings with shutters and blinds offers numerous benefits such as
– preventing glare at workstations,
– protecting furniture and carpets from fading,
– regulating the room temperature,
– providing protection from people looking in from the outside,
– giving protection against intruders.

Apart from shutters and blinds, there are numerous other types of hangings available: awnings, roller blinds, curtains, vertical blinds etc.

The control of shutters/blinds via motors not only saves the user the task of raising and lowering the blinds by hand but also enables the implementation of fully automatic control. This type of control takes into consideration the time of day, the strength of the sunlight, the temperature conditions, the wind force etc. and positions the shutter/blind in accordance with these factors. The user can of course also adjust this position manually to match his requirements more precisely.

Ventilation

Fresh air creates a pleasant atmosphere in the room. Used air is replaced by air that is full of oxygen via the ventilation system and unpleasant smells are banned from the room.

Ventilation can take place via various ventilation openings e.g. doors, windows, skylights, ventilation flaps etc.

The control of ventilation slots via motors is particularly suitable in areas where ventilation slots are not manually accessible (e.g. skylights on the ceiling, ventilation flaps in the top corner of the room or vertical windows in high rooms). Automatic control is beneficial in rooms that are not constantly in use but should be ventilated at regular intervals.

Control

ABB STOTZ-KONTAKT offers a broad product spectrum of Shutter Actuators for controlling motors for numerous types of shutters/blinds as well as ventilation flaps. Six Shutter Actuators are available as DIN rail mounted devices for insertion in the distribution board:
– Shutter Actuator, 2-fold, 230 V AC, MDRC
– Shutter Actuator, 4-fold, 230 V AC, MDRC
– Shutter Actuator, 8-fold, 230 V AC, MDRC
– Shutter Actuator with manual operation, 4-fold, 230 V AC, MDRC
– Shutter Actuator with manual operation, 8-fold, 230 V AC, MDRC
– Shutter Actuator, 4-fold, 24 V DC, MDRC

The Shutter Actuators are supplied via the ABB i-bus® EIB / KNX and do not require an additional power supply. The connection to the EIB / KNX is established via a bus connecting terminal. The Shutter Actuators with manual operation JA/S 4.230.1M and JA/S 8.230.1M can also be operated manually without EIB / KNX voltage. In this case, a 230 V AC auxiliary supply is required.

Push buttons are located at the front of Shutter Actuators with manual operation. They are used to raise and lower the shutter/blind manually, to stop shutter movement and for louvre adjustment. The current direction of travel or the current limit position is displayed via LEDs.

The output contacts for the directions UP and DOWN are mechanically interlocked for all the Shutter Actuators so that voltage cannot be applied at both contacts at the same time. The pause on change in direction can be set via parameters.

The behaviour on bus voltage failure and recovery as well as after programming can be set in the parameters.

All six Shutter Actuators for 230 V AC/24 V DC drives are programmed with the application program “Shutter .../2”. These are some of the functions that can be set:
- Movement UP/DOWN
- Stop/louvre adjustment
- Move into position (up to 4 preset positions)
- Set position (modification of the preset position during operation)
- Move to position 0…255
- Scenes
- Automatic sun protection
- Automatic heating/cooling
- Monitoring of wind, rain and frost alarms (cyclical)
- Block
- Forced Operation
- Status display of current position
- Status display of current operating mode

Comparison table of the Shutter Actuators

	JA/S 2.230.1	**JA/S 4.230.1**	**JA/S 8.230.1**	**JA/S 4.230.1M**	**JA/S 8.230.1M**	**JA/S 4.24.1**
General						
Number of outputs	2 x 2	4	8	4	8	4
Nominal voltage	230 V AC					24 V DC
Nominal current	6 A					
Manual operation	–	–	–	with or without EIB / KNX		–
Power supply	EIB / KNX	EIB / KNX	EIB / KNX	EIB / KNX or 230 V AC	EIB / KNX or 230 V AC	EIB / KNX
Connections						
Load circuits	Screw terminals					
EIB / KNX	Bus connecting terminal					
230 V AC auxiliary voltage	–	–	–	Screw terminals		–
Installation						
Assembly	Tragschiene 35 mm		35 mm mounting rail			
Dimensions	90 x 72 x 64	90 x 72 x 64	90 x 144 x 64	90 x 72 x 64	90 x 144 x 64	90 x 72 x 64
Width (1 module = 18 mm)	4 modules	4 modules	8 modules	4 modules	8 modules	4 modules

2 Device technology

2.1 Shutter Actuator, 2-fold, 230 V AC, MDRC

2CDC 071 236 F0003

The Shutter Actuator JA/S 2.230.1 is used to control two independent groups, each with a maximum of two 230 V AC drives, for positioning shutters, blinds, awnings and other hangings as well as for controlling doors, windows and ventilation flaps.

The output contacts for the directions UP and DOWN are mechanically interlocked so that voltage cannot be applied at both contacts at the same time. The pause on change in direction can be set via the parameters.

The Shutter Actuator is a DIN rail mounted device for insertion in the distribution board. The connection to the ABB i-bus® EIB / KNX is established via a bus connecting terminal.

Technical data

Power supply	– Operating voltage	21...30 V DC, via the EIB / KNX
	– Current input	typ. 10 mA
	– Power consumption via EIB / KNX	< 250 mW
Outputs	– Number of outputs	2 independent outputs, each with 2 changeover contacts (UP/DOWN mechanically interlocked)
	– Nominal voltage	230 V AC
	– Max. switching current	6 A (AC1/AC3) at 230 V AC or 6 A (AC1/AC3) at 400 V AC
	– Min. switching current	100 mA at 5 V or 10 mA at 10 V or 1 mA at 24 V
Operating and display elements	– Red LED and push button	for entering the physical address
Connections	– Load circuits	2 screw terminals for phase connection (e.g. L1 and L2) 2 screw terminals per output for UP and DOWN Wire range: finely-stranded: 0.2 – 2.5 mm^2 single-core: 0.2 – 4.0 mm^2
	– EIB / KNX	Bus connecting terminal (black/red)
Type of protection	– IP 20, EN 60 529	
Ambient temperature range	– Operation	– 5 °C ... + 45 °C
	– Storage	– 25 °C ... + 55 °C
	– Transport	– 25 °C ... + 70 °C
Design	– Modular installation device, proM	
Housing, colour	– Plastic housing, grey	
Mounting	– on 35 mm mounting rail, DIN EN 60 715	
Dimensions	– 90 x 72 x 64 mm (H x B x T)	
Mounting depth/width	– 68 mm/4 modules at 18 mm	
Weight	– 0.25 kg	
Mounting position	– As required	
Certification	– EIB- and KNX-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

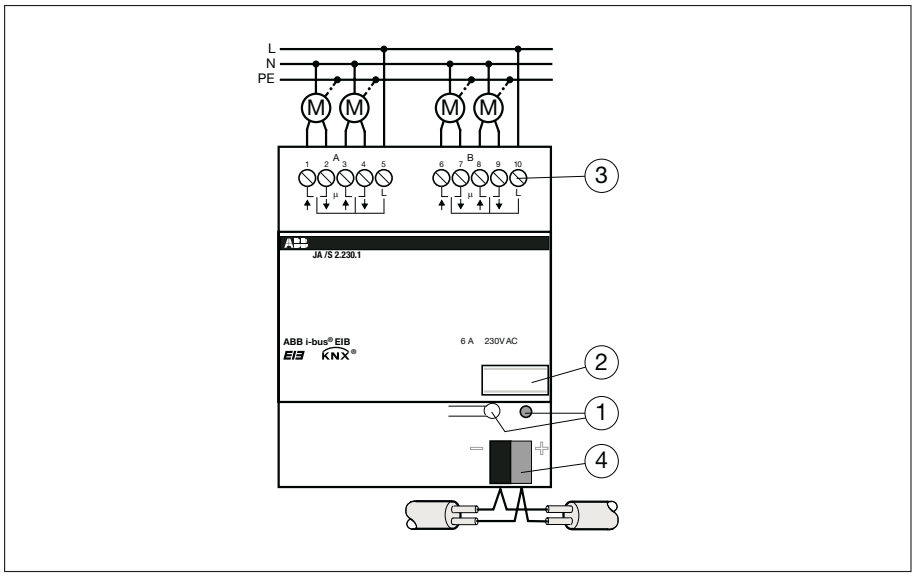
Shutter Actuator, 2-fold, 230 V AC, MDRC
JA/S 2.230.1, GHQ6 310 071 R0111

Application programs

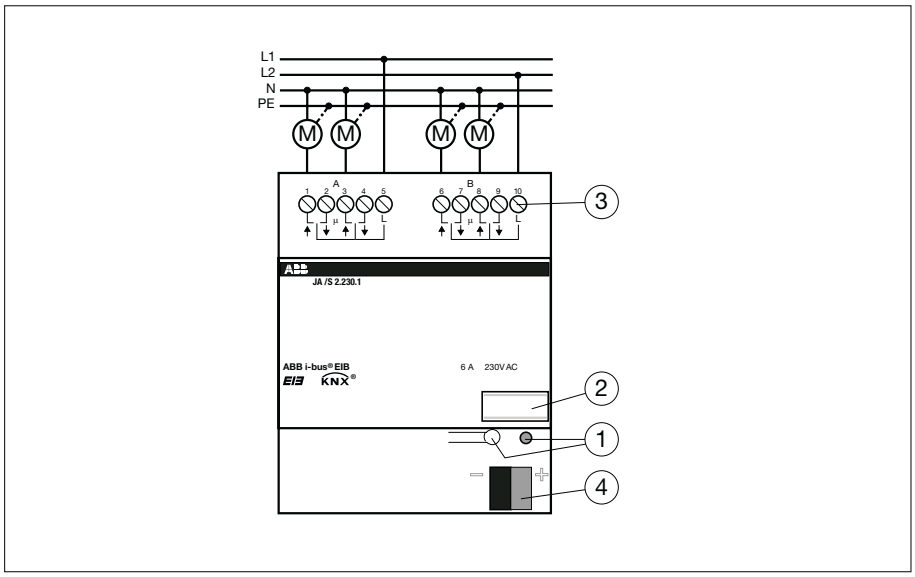
	Max. number of communication objects	Max. number of group addresses	Max. number of associations
Shutter, 2f/2.4	63	254	254

Circuit diagram

“Shutter” and “Blinds” operating modes



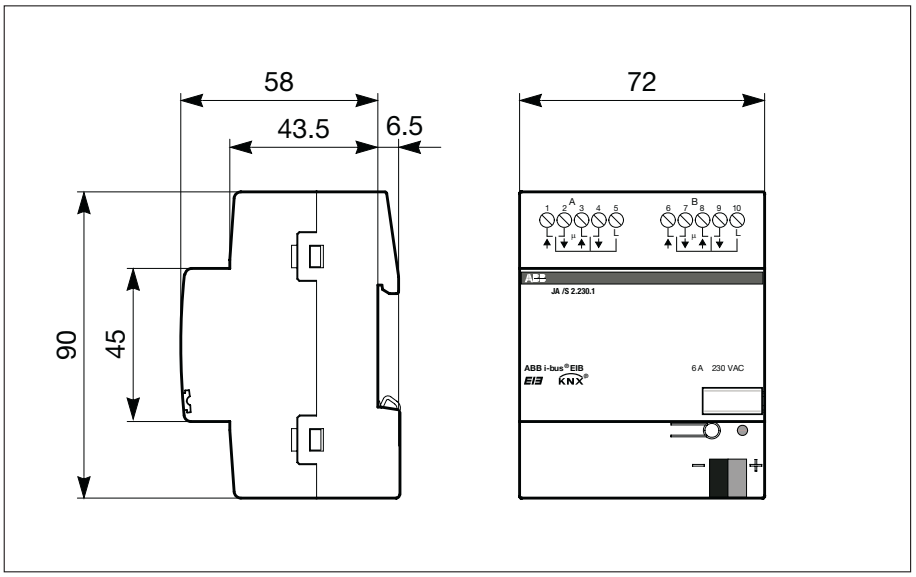
“Ventilation flaps/switch mode” operating mode



1 Programming LED, push button
2 Marker Tag
3 Connection terminals
4 Bus terminal

Shutter Actuator, 2-fold, 230 V AC, MDRC
JA/S 2.230.1, GHQ6 310 071 R0111

Dimension drawing



Note

The programming is carried out with ETS from version ETS2 V1.2a onwards.

To guarantee all the programmable functions, in particular the UP/DOWN directions of travel, it is important to ensure that the drive has been connected properly. The technical data supplied by the drive manufacturer must be taken into account.

If the outputs are switched several times in rapid succession, the switching of the output contacts is delayed.

The following process should be carried out during the initial commissioning of the Shutter Actuator:

1. Install and wire up the Shutter Actuator.
2. **First** connect the EIB / KNX voltage. The output contacts automatically adopt the neutral position.
3. Only **then** connect the 230 V AC operating voltage for the shutter outputs.

If the preselected parameter settings have been modified during programming, the output contacts adopt the specified *Position on bus voltage recovery* once the EIB / KNX voltage has been connected.

The function “ventilation flaps/switch mode” may be inverted by connecting the load to the “Down” terminal instead of the “Up” terminal (e.g. terminal “2” instead of terminal “3”).

Depending on the position of the output contact, also the non-connected terminals are under voltage!

The Shutter Actuator is supplied with a downloaded application program. It is therefore only necessary to download the group addresses and parameters during commissioning. The complete application program can also be downloaded if required.

2.2 Shutter Actuator, 4-fold, 230 V AC, MDRC

The Shutter Actuator JA/S 4.230.1 is used to control four independent groups, each with a maximum of four 230 V AC drives, for positioning shutters, blinds, awnings and other hangings as well as for controlling doors, windows and ventilation flaps.

The output contacts for the directions UP and DOWN are mechanically interlocked so that voltage cannot be applied at both contacts at the same time. The pause on change in direction can be set via the parameters.

The Shutter Actuator is a DIN rail mounted device for insertion in the distribution board. The connection to the ABB i-bus® EIB / KNX is established via a bus connecting terminal.

Technical data

Power supply	– Operating voltage	21...30 V DC, via the EIB / KNX
	– Current input	typ. 10 mA
	– Power consumption via EIB / KNX	< 250 mW
Outputs	– Number of outputs	4 independent outputs, each with 1 changeover contact (UP/DOWN mechanically interlocked)
	– Nominal voltage	230 V AC
	– Max. switching current	6 A (AC1/AC3) at 230 V AC or 6 A (AC1/AC3) at 400 V AC
	– Min. switching current	100 mA at 5 V or 10 mA at 10 V or 1 mA at 24 V
Operating and display elements	– Red LED and push button	for entering the physical address
Connections	– Load circuits	2 screw terminals for phase connection (e.g. L1 and L2) 2 screw terminals per output for UP and DOWN Wire range: finely-stranded: 0.2 – 2.5 mm^2 single-core: 0.2 – 4.0 mm^2
	– EIB / KNX	Bus connecting terminal (black/red)
Type of protection	– IP 20, EN 60 529	
Ambient temperature range	– Operation	– 5 °C ... + 45 °C
	– Storage	– 25 °C ... + 55 °C
	– Transport	– 25 °C ... + 70 °C
Design	– Modular installation device, proM	
Housing, colour	– Plastic housing, grey	
Mounting	– on 35 mm mounting rail, DIN EN 60 715	
Dimensions	– 90 x 72 x 64 mm (H x W x D)	
Mounting depth/width	– 68 mm/4 modules at 18 mm	
Weight	– 0.25 kg	
Mounting position	– As required	
Certification	– EIB- and KNX-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

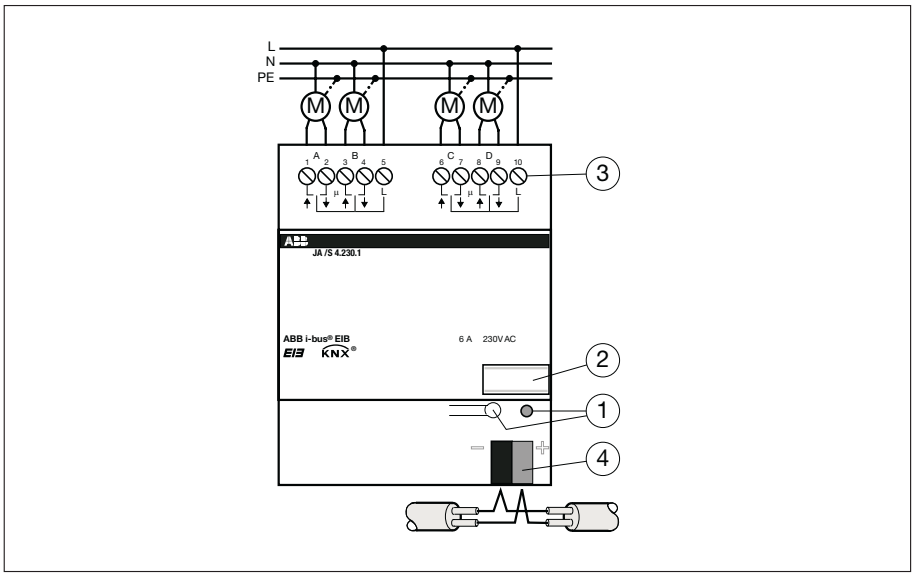
Shutter Actuator, 4-fold, 230 V AC, MDRC
JA/S 4.230.1, GHQ6 310 071 R0111

Application programs

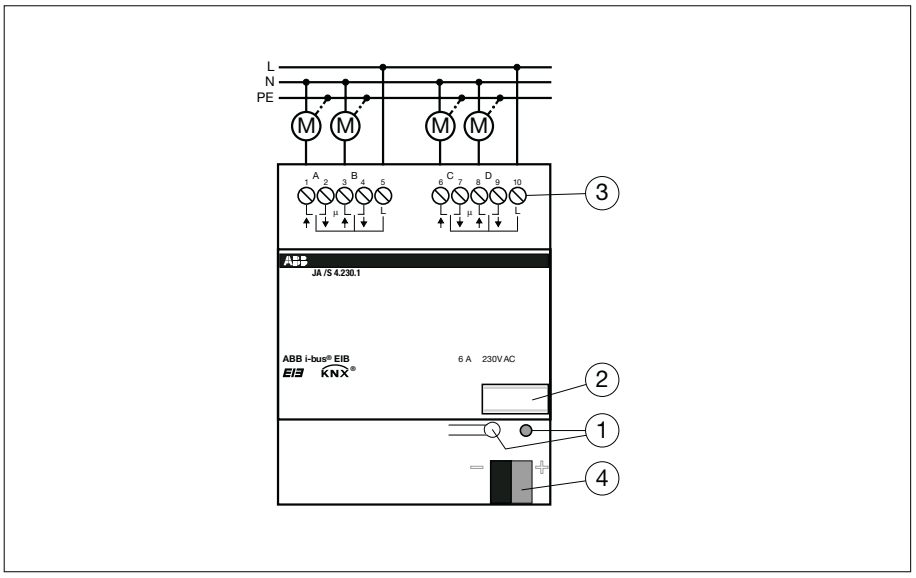
	Max. number of communication objects	Max. number of group addresses	Max. number of associations
Shutter, 4f/2.4	121	254	254

Circuit diagram

“Shutter” and “Blinds” operating modes

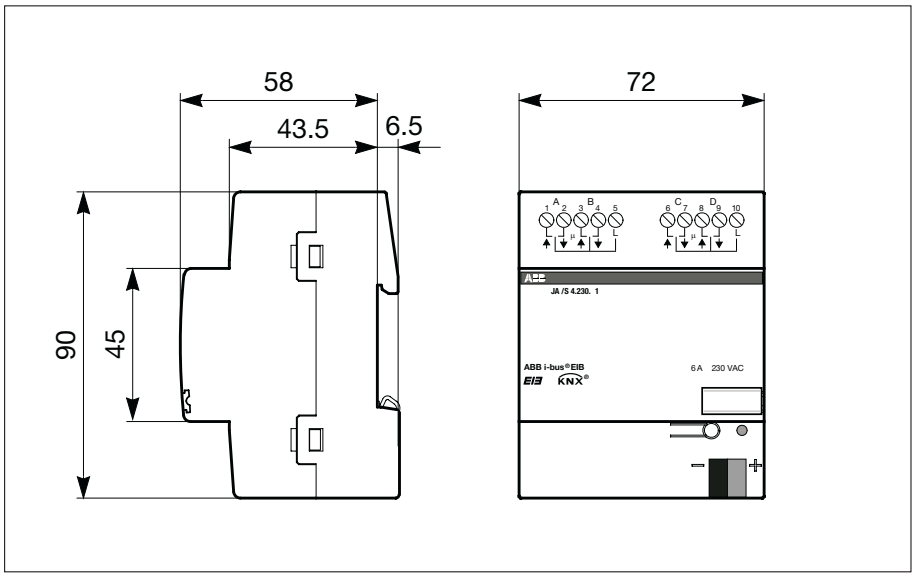


“Ventilation flaps/switch mode” operating mode



1 Programming LED, push button
2 Marker Tag
3 Connection terminals
4 Bus terminal

Dimension drawing



Note

The programming is carried out with ETS from version ETS2 V1.2a onwards.

To guarantee all the programmable functions, in particular the UP/DOWN directions of travel, it is important to ensure that the drive has been connected properly. The technical data supplied by the drive manufacturer must be taken into account.

If the outputs are switched several times in rapid succession, the switching of the output contacts is delayed.

The following process should be carried out during the initial commissioning of the Shutter Actuator:

1. Install and wire up the Shutter Actuator.
2. **First** connect the EIB / KNX voltage. The output contacts automatically adopt the neutral position.
3. Only **then** connect the 230 V AC operating voltage for the shutter outputs.

If the preselected parameter settings have been modified during programming, the output contacts adopt the specified *Position on bus voltage recovery* once the EIB / KNX voltage has been connected.

The function “ventilation flaps/switch mode” may be inverted by connecting the load to the “Down” terminal instead of the “Up” terminal (e.g. terminal “2” instead of terminal “3”).

Depending on the position of the output contact, also the non-connected terminals are under voltage!

The Shutter Actuator is supplied with a downloaded application program. It is therefore only necessary to download the group addresses and parameters during commissioning. The complete application program can also be downloaded if required.

Shutter Actuator, 8-fold, 230 V AC, MDRC
JA/S 8.230.1, GHQ6 310 071 R0111

2.3 Shutter Actuator, 8-fold, 230 V AC, MDRC

The Shutter Actuator JA/S 8.230.1 is used to control a maximum of eight independent 230 V AC drives, for positioning shutters, blinds, awnings and other hangings as well as for controlling doors, windows and ventilation flaps.

The output contacts for the directions UP and DOWN are mechanically interlocked so that voltage cannot be applied at both contacts at the same time. The pause on change in direction can be set via the parameters.

The Shutter Actuator is a DIN rail mounted device for insertion in the distribution board. The connection to the ABB i-bus® EIB / KNX is established via a bus connecting terminal.

Technical data

Power supply	– Operating voltage	21...30 V DC, via the EIB / KNX
	– Current input	typ. 10 mA
	– Power consumption via EIB / KNX	< 250 mW
Outputs	– Number of outputs	8 independent outputs, each with 1 changeover contact (UP/DOWN mechanically interlocked)
	– Nominal voltage	230 V AC
	– Max. switching current	6 A (AC1/AC3) at 230 V AC or 6 A (AC1/AC3) at 400 V AC
	– Min. switching current	100 mA at 5 V or 10 mA at 10 V or 1 mA at 24 V
Operating and display elements	– Red LED and push button	for entering the physical address
Connections	– Load circuits	4 screw terminals for phase connection (e.g. L1 and L2) 2 screw terminals per output for UP and DOWN Wire range: finely-stranded: 0.2 – 2.5 mm^2 single-core: 0.2 – 4.0 mm^2
	– EIB / KNX	Bus connecting terminal (black/red)
Type of protection	– IP 20, EN 60 529	
Ambient temperature range	– Operation	– 5 °C ... + 45 °C
	– Storage	– 25 °C ... + 55 °C
	– Transport	– 25 °C ... + 70 °C
Design	– Modular installation device, proM	
Housing, colour	– Plastic housing, grey	
Mounting	– on 35 mm mounting rail, DIN EN 60 715	
Dimensions	– 90 x 144 x 64 mm (H x W x D)	
Mounting depth/width	– 68 mm/8 modules at 18 mm	
Weight	– 0.5 kg	
Mounting position	– As required	
Certification	– EIB- and KNX-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

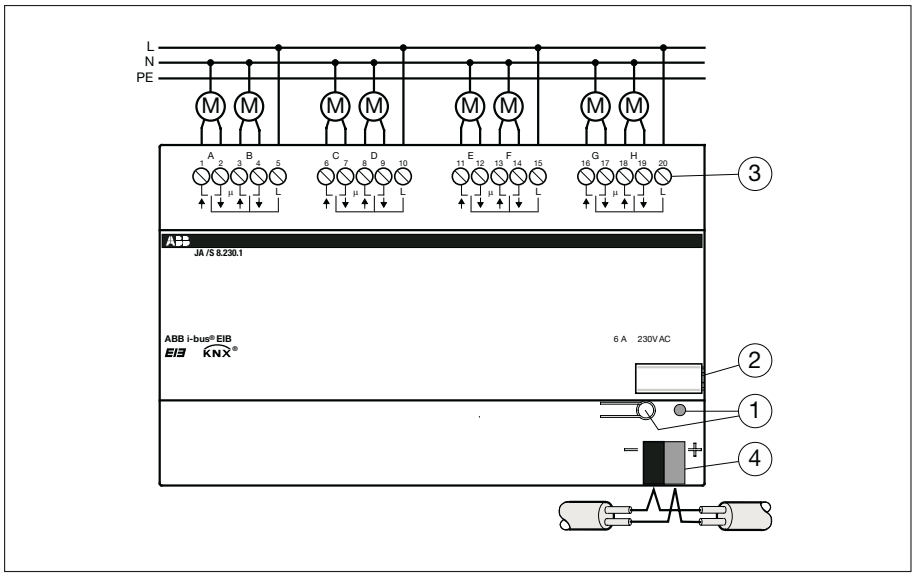
Shutter Actuator, 8-fold, 230 V AC, MDRC
JA/S 8.230.1, GHQ6 310 071 R0111

Application programs

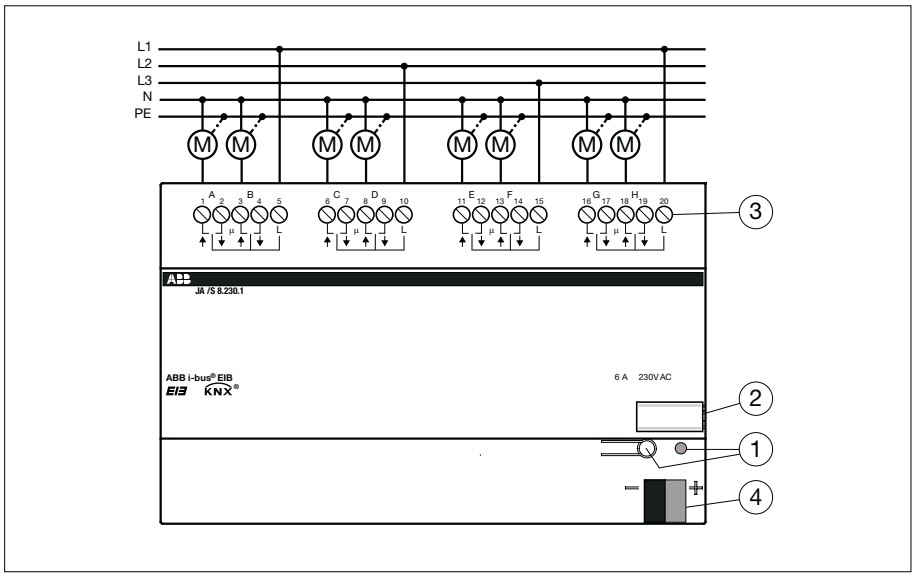
	Max. number of communication objects	Max. number of group addresses	Max. number of associations
Shutter, 8f/2.4	237	254	254

Circuit diagram

“Shutter” and “Blinds” operating modes



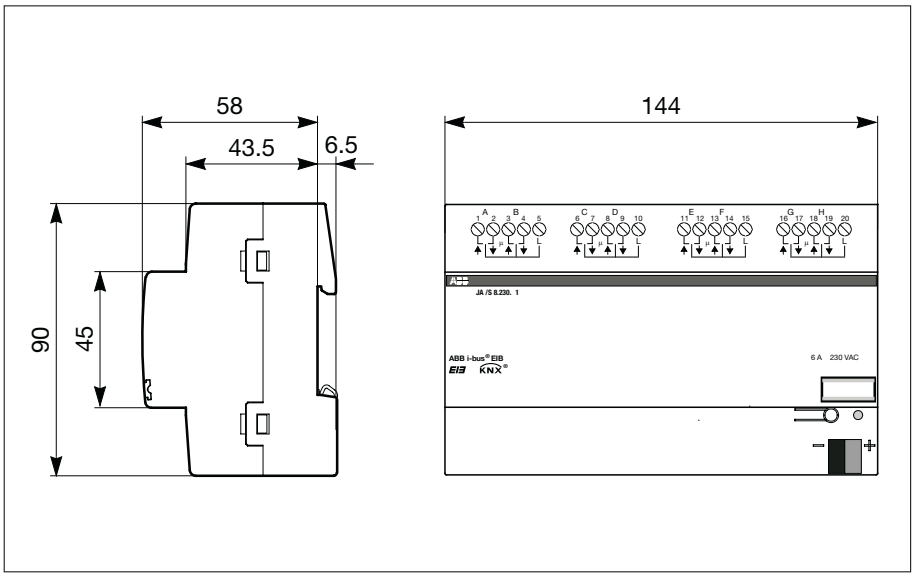
“Ventilation flaps/switch mode” operating mode



1 Programming LED, push button
2 Marker Tag
3 Connection terminals
4 Bus terminal

Shutter Actuator, 8-fold, 230 V AC, MDRC
JA/S 8.230.1, GHQ6 310 071 R0111

Dimension drawing



Note

The programming is carried out with ETS from version ETS2 V1.2a onwards.

To guarantee all the programmable functions, in particular the UP/DOWN directions of travel, it is important to ensure that the drive has been connected properly. The technical data supplied by the drive manufacturer must be taken into account.

If the outputs are switched several times in rapid succession, the switching of the output contacts is delayed.

The following process should be carried out during the initial commissioning of the Shutter Actuator:

1. Install and wire up the Shutter Actuator.
2. **First** connect the EIB / KNX voltage. The output contacts automatically adopt the neutral position.
3. Only **then** connect the 230 V AC operating voltage for the shutter outputs.

If the preselected parameter settings have been modified during programming, the output contacts adopt the specified *Position on bus voltage recovery* once the EIB / KNX voltage has been connected.

The function “ventilation flaps/switch mode” may be inverted by connecting the load to the “Down” terminal instead of the “Up” terminal (e.g. terminal “2” instead of terminal “3”).

Depending on the position of the output contact, also the non-connected terminals are under voltage!

The Shutter Actuator is supplied with a downloaded application program. It is therefore only necessary to download the group addresses and parameters during commissioning. The complete application program can also be downloaded if required.

Shutter Actuator with manual operation, 4-fold, 230 V AC, MDRC
JA/S 4.230.1M, GHQ6 310 064 R0111

2.4 Shutter Actuator with manual operation, 4-fold, 230 V AC, MDRC

The Shutter Actuator JA/S 4.230.1M is used to control a maximum of four independent 230 V AC drives for positioning shutters, blinds, awnings and other hangings as well as for controlling doors, windows and ventilation flaps.

Push buttons are located at the front of the device which are used to raise and lower the shutter/blind manually, to stop shutter movement and for louvre adjustment. The current direction of movement or the current position is displayed via LEDs. Depending on requirements, manual operation is possible either with mains voltage and no bus voltage or with bus voltage and no mains voltage.

The output contacts for the directions UP and DOWN are mechanically interlocked so that voltage cannot be applied at both contacts at the same time. The pause on change in direction can be set via the parameters.

The Shutter Actuator is a DIN rail mounted device for insertion in the distribution board. It is connected to the ABB i-bus® EIB / KNX via a bus connecting terminal.

Technical data

Power supply	– Operating voltage	21...30 V DC, via the EIB / KNX for bus operation or manual operation with bus voltage or 230 V AC + 10/– 15 %, 45 ... 65 Hz for manual operation without bus voltage
	– Current input	typ. 10 mA
	– Power consumption via EIB / KNX	< 250 mW
	– Power consumption 230 V AC	< 1 W
Outputs	– Number of outputs	4 independent outputs, each with 1 changeover contact (UP/DOWN mechanically interlocked)
	– Nominal voltage	230 V AC
	– Max. switching current	6 A (AC1/AC3) at 230 V AC or 6 A (AC1/AC3) at 400 V AC
	– Min. switching current	100 mA at 5 V or 10 mA at 10 V or 1 mA at 24 V
Operating and display elements	– Red LED and push button	for entering the physical address
	– Manual operation	2 push buttons per output for UP and DOWN (long operation) or STOP/louvre adjustment (short operation)
	– Display of direction of travel/position	2 LEDs per output for UP and DOWN or top/bottom
	– Operating mode	1 push button for toggling between manual operation and operation via the EIB / KNX
	– Display of operating mode	1 LED for displaying the mode
Connections	– Load circuits	2 screw terminals for phase connection (e.g. L1 and L2) 2 screw terminals per output for UP and DOWN

	– 230 V AC auxiliary voltage	2 screw terminals for L 2 screw terminals for N Wire range: finely-stranded: 0.2 – 2.5 mm^2 single-core: 0.2 – 4.0 mm^2
	– EIB / KNX	Bus connecting terminal (black/red)
Type of protection	– IP 20, EN 60 529	
Ambient temperature range	– Operation	– 5 °C ... + 45 °C
	– Storage	– 25 °C ... + 55 °C
	– Transport	– 25 °C ... + 70 °C
Design	– Modular installation device, proM	
Housing, colour	– Plastic housing, grey	
Mounting	– on 35 mm mounting rail, DIN EN 60 715	
Dimensions	– 90 x 72 x 64 mm (H x W x D)	
Mounting depth/width	– 68 mm/4 modules at 18 mm	
Weight	– 0.26 kg	
Mounting position	– As required	
Certification	– EIB- and KNX-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

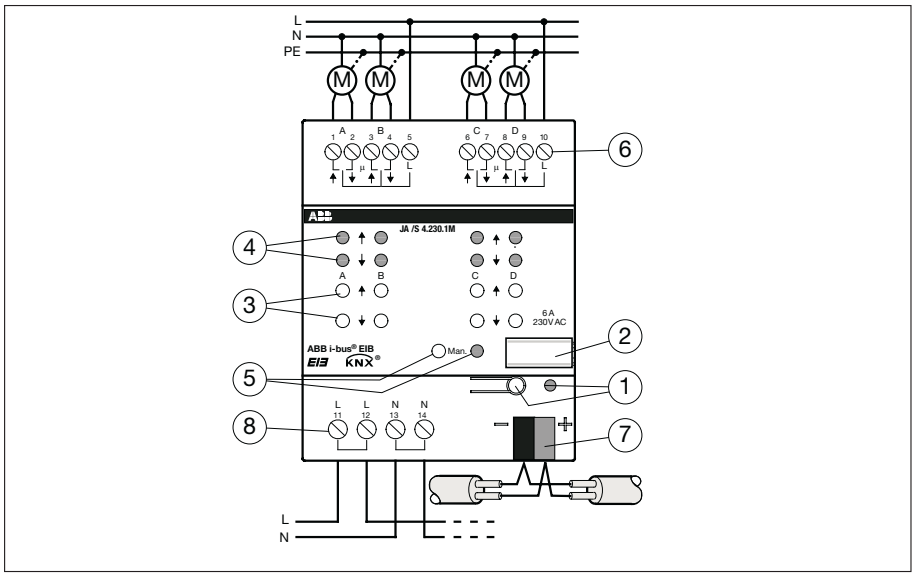
Shutter Actuator with manual operation, 4-fold, 230 V AC, MDRC JA/S 4.230.1M, GHQ6 310 064 R0111

Application programs

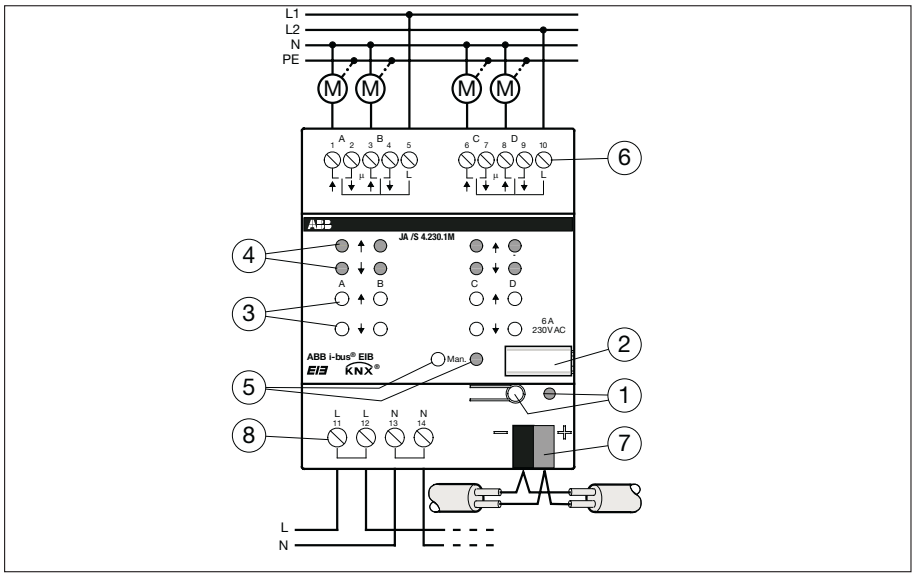
	Max. number of communication objects	Max. number of group addresses	Max. number of associations
Shutter, 4f M/2.4	124	254	254

Circuit diagram

“Shutter” and “Blinds” operating modes



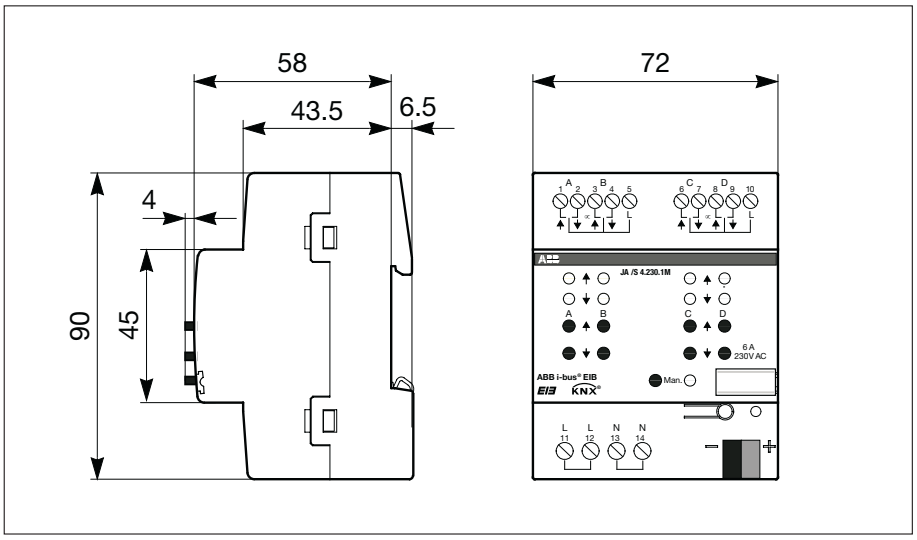
“Ventilation flaps/switch mode” operating mode



1 Programming LED, push button
2 Marker Tag
3 Push buttons Up/Down/Stop/Step
4 LED Position
5 LED and push button “Man.”
6 Connection terminals
7 Bus terminal
8 230 V supply voltage

Shutter Actuator with manual operation, 4-fold, 230 V AC, MDRC JA/S 4.230.1M, GHQ6 310 064 R0111

Dimension drawing



Note

The programming is carried out with ETS from version ETS2 V1.2a onwards.

To guarantee all the programmable functions, in particular the UP/DOWN directions of travel, it is important to ensure that the drive has been connected properly. The technical data supplied by the drive manufacturer must be taken into account.

If the outputs are switched several times in rapid succession, the switching of the output contacts is delayed.

The following process should be carried out during the initial commissioning of the Shutter Actuator:

1. Install and wire up the Shutter Actuator.
2. **First** connect the EIB / KNX voltage or the 230 V AC auxiliary voltage. The output contacts automatically adopt the neutral position.
3. Only **then** connect the 230 V AC operating voltage for the shutter outputs.

If the preselected parameter settings have been modified during programming, the output contacts adopt the specified *Position on bus voltage recovery* once the EIB / KNX voltage has been connected.

The function “ventilation flaps/switch mode” may be inverted by connecting the load to the “Down” terminal instead of the “Up” terminal (e.g. terminal “2” instead of terminal “3”).

Depending on the position of the output contact, also the non-connected terminals are under voltage!

The Shutter Actuator is supplied with a downloaded application program. It is therefore only necessary to download the group addresses and parameters during commissioning. The complete application program can also be downloaded if required. Therefore the device must be unloaded. If the device is unloaded, it cannot be operated manually.

The programming LED is supplied with power by the power supply of the JA/S 4.230.1M and lights up after the programming button is pressed, even without a connection to the EIB / KNX. Therefore, the LED cannot be used for verification of the bus connection.

Shutter Actuator with manual operation, 8-fold, 230 V AC, MDRC JA/S 8.230.1M, GHQ6 310 064 R0111

2.5 Shutter Actuator with manual operation, 8-fold, 230 V AC, MDRC

The Shutter Actuator JA/S 8.230.1M is used to control a maximum of eight independent 230 V AC drives for positioning shutters, blinds, awnings and other hangings as well as for controlling doors, windows and ventilation flaps.

Push buttons are located at the front of the device which are used to raise and lower the shutter/blind manually, to stop shutter movement and for louvre adjustment. The current direction of movement or the current position is displayed via LEDs. Depending on requirements, manual operation is possible either with mains voltage and no bus voltage or with bus voltage and no mains voltage.

The output contacts for the directions UP and DOWN are mechanically interlocked so that voltage cannot be applied at both contacts at the same time. The pause on change in direction can be set via the parameters.

The Shutter Actuator is a DIN rail mounted device for insertion in the distribution board. It is connected to the ABB i-bus® EIB / KNX via a bus connecting terminal.

Technical data

Power supply	– Operating voltage	21...30 V DC, via the EIB / KNX for bus operation or manual operation with bus voltage or 230 V AC + 10/– 15 %, 45 ... 65 Hz for manual operation without bus voltage
	– Current input	typ. 10 mA
	– Power consumption via EIB / KNX	< 250 mW
	– Power consumption 230 V AC	< 1 W
Outputs	– Number of outputs	4 independent outputs, each with 1 changeover contact (UP/DOWN mechanically interlocked)
	– Nominal voltage	230 V AC
	– Max. switching current	6 A (AC1/AC3) at 230 V AC or 6 A (AC1/AC3) at 400 V AC
	– Min. switching current	100 mA at 5 V or 10 mA at 10 V or 1 mA at 24 V
Operating and display elements	– Red LED and push button	for entering the physical address
	– Manual operation	2 push buttons per output for UP and DOWN or STOP/louvre adjustment
	– Display of direction of travel/position	2 LEDs per output for UP and DOWN or top/bottom
	– Operating mode	1 push button for toggling between manual operation and operation via the EIB / KNX
	– Display of operating mode	1 LED for displaying the mode
Connections	– Load circuits	4 screw terminals for phase connection (e.g. L1 and L2) 2 screw terminals per output for UP and DOWN

	– 230 V AC auxiliary voltage	2 screw terminals for L 2 screw terminals for N Wire range: finely-stranded: 0.2 – 2.5 mm^2 single-core: 0.2 – 4.0 mm^2
	– EIB / KNX	Bus connecting terminal (black/red)
Type of protection	– IP 20, EN 60 529	
Ambient temperature range	– Operation	– 5 °C ... + 45 °C
	– Storage	– 25 °C ... + 55 °C
	– Transport	– 25 °C ... + 70 °C
Design	– Modular installation device, proM	
Housing, colour	– Plastic housing, grey	
Mounting	– on 35 mm mounting rail, DIN EN 60 715	
Dimensions	– 90 x 144 x 64 mm (H x W x D)	
Mounting depth/width	– 68 mm/8 modules at 18 mm	
Weight	– 0.52 kg	
Mounting position	– As required	
Certification	– EIB- and KNX-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

ABB i-bus® EIB / KNX

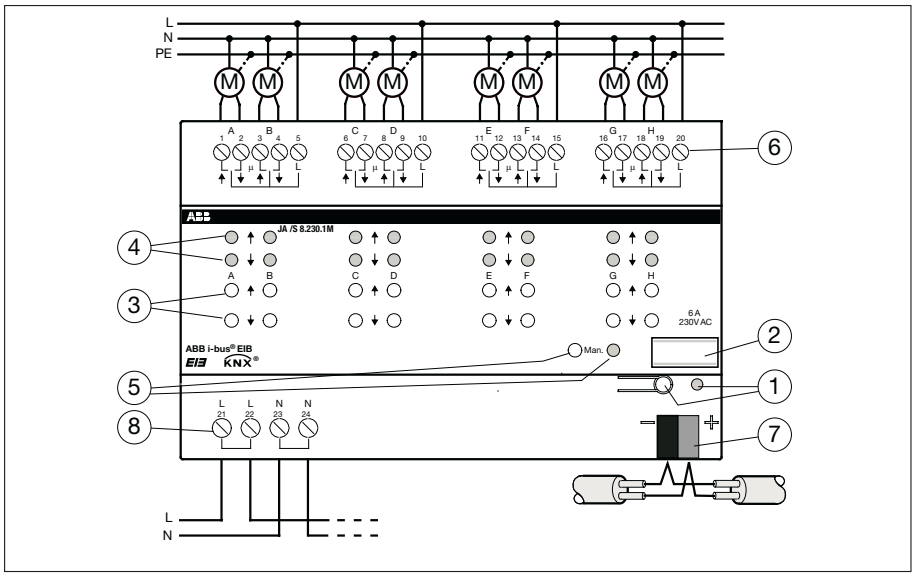
Shutter Actuator with manual operation, 8-fold, 230 V AC, MDRC JA/S 8.230.1M, GHQ6 310 064 R0111

Application programs

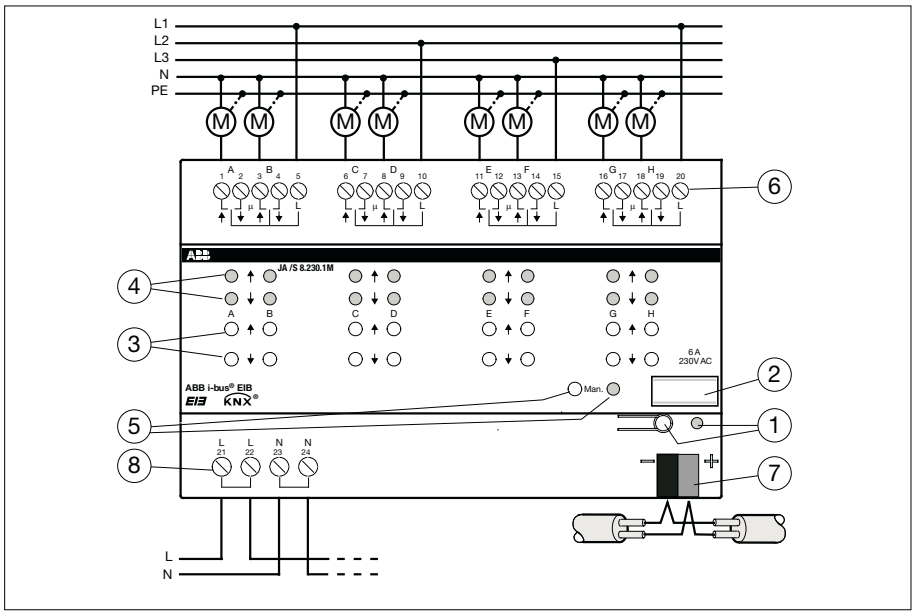
	Max. number of communication objects	Max. number of group addresses	Max. number of associations
Shutter, 8f M/2.4	240	254	254

Circuit diagram

“Shutter” and “Blinds” operating modes



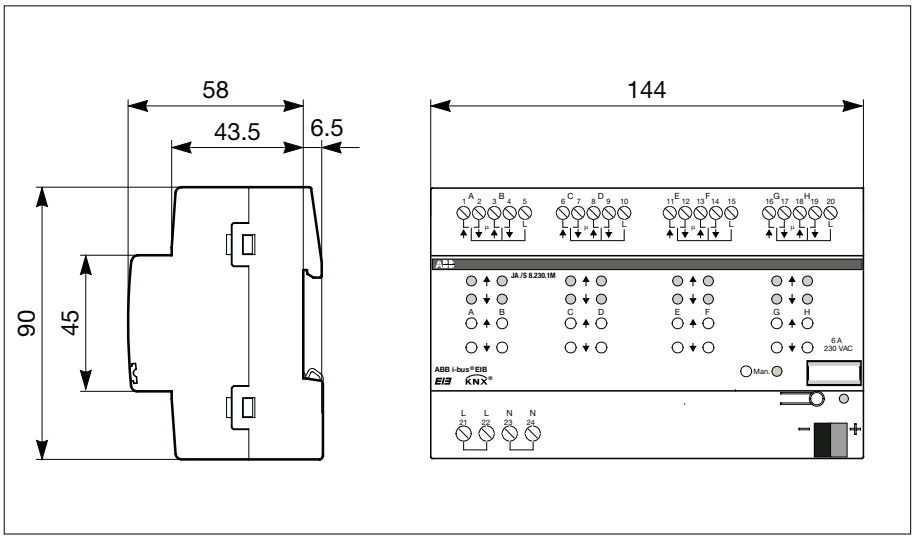
“Ventilation flaps/switch mode” operating mode



1 Programming LED, push button
2 Marker Tag
3 Push buttons Up/Down/Stop/Step
4 LED Position
5 LED and push button “Man.”
6 Connection terminals
7 Bus terminal
8 230 V supply voltage

Shutter Actuator with manual operation, 8-fold, 230 V AC, MDRC JA/S 8.230.1M, GHQ6 310 064 R0111

Dimension drawing



Note

The programming is carried out with ETS from version ETS2 V1.2a onwards.

To guarantee all the programmable functions, in particular the UP/DOWN directions of travel, it is important to ensure that the drive has been connected properly. The technical data supplied by the drive manufacturer must be taken into account.

If the outputs are switched several times in rapid succession, the switching of the output contacts is delayed.

The following process should be carried out during the initial commissioning of the Shutter Actuator:

1. Install and wire up the Shutter Actuator.
2. **First** connect the EIB / KNX voltage or the 230 V AC auxiliary voltage. The output contacts automatically adopt the neutral position.
3. Only **then** connect the 230 V AC operating voltage for the shutter outputs.

If the preselected parameter settings have been modified during programming, the output contacts adopt the specified *Position on bus voltage recovery* once the EIB / KNX voltage has been connected.

The function “ventilation flaps/switch mode” may be inverted by connecting the load to the “Down” terminal instead of the “Up” terminal (e.g. terminal “2” instead of terminal “3”).

Depending on the position of the output contact, also the non-connected terminals are under voltage!

The Shutter Actuator is supplied with a downloaded application program. It is therefore only necessary to download the group addresses and parameters during commissioning. The complete application program can also be downloaded if required. Therefore the device must be unloaded. If the device is unloaded, it cannot be operated manually.

The programming LED is supplied with power by the power supply of the JA/S 8.230.1M and lights up after the programming button is pressed, even without a connection to the EIB / KNX. Therefore the LED cannot be used for verification of the bus connection.

2.6 Shutter Actuator, 4-fold, 24 V DC, MDRC

The Shutter Actuator JA/S 4.24.1 is used to control a maximum of four independent 24 V DC drives for positioning shutters, blinds, awnings and other hangings as well as for controlling doors, windows and ventilation flaps.

The polarity of the output voltage is reversed in order to change directions of travel. The pause on change in direction can be set via the parameters.

The Shutter Actuator is a DIN rail mounted device for insertion in the distribution board. It is connected to the ABB i-bus® EIB / KNX via a bus connecting terminal.

Technical data

Power supply	– Operating voltage	21...30 V DC, via the EIB / KNX
	– Current input	typ. 10 mA
	– Power consumption via EIB / KNX	< 250 mW
Outputs	– Number of outputs	4 independent outputs, each with 1 contact for UP and 1 contact for DOWN
	– Nominal voltage	24 V DC
	– Max. switching current	6 A DC at 12 V DC or 6 A DC at 24 V DC
	– Min. switching current	100 mA at 5 V or 10 mA at 10 V or 1 mA at 24 V
Operating and display elements	– Red LED and push button	for entering the physical address
Connections	– Load circuits	2 screw terminals for “+” and “–” 2 screw terminals per output for UP and DOWN Wire range: finely-stranded: 0.2 – 2.5 mm^2 single-core: 0.2 – 4.0 mm^2
	– EIB / KNX	Bus connecting terminal (black/red)
Type of protection	– IP 20, EN 60 529	
Ambient temperature range	– Operation	– 5 °C ... + 45 °C
	– Storage	– 25 °C ... + 55 °C
	– Transport	– 25 °C ... + 70 °C
Design	– Modular installation device, proM	
Housing, colour	– Plastic housing, grey	
Mounting	– on 35 mm mounting rail, DIN EN 60 715	
Dimensions	– 90 x 72 x 64 mm (H x W x D)	
Mounting depth/width	– 68 mm/4 modules at 18 mm	
Weight	– 0.25 kg	
Mounting position	– as required	
Certification	– EIB- and KNX-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

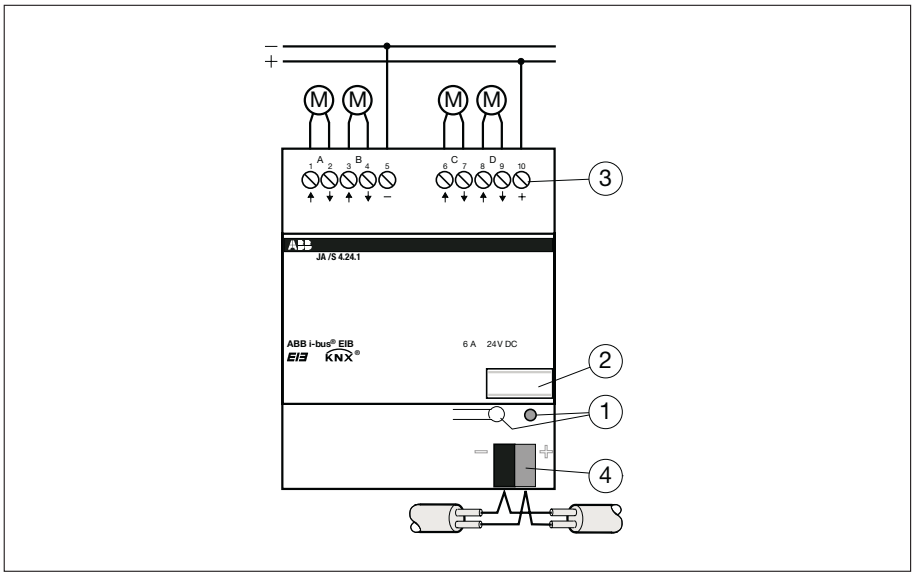
Shutter Actuator, 4-fold, 24 V DC, MDRC
JA/S 4.24.1, GHQ6 310 073 R0111

Application programs

	Max. number of communication objects	Max. number of group addresses	Max. number of associations
Shutter, 4f 24V/2.4	121	254	254

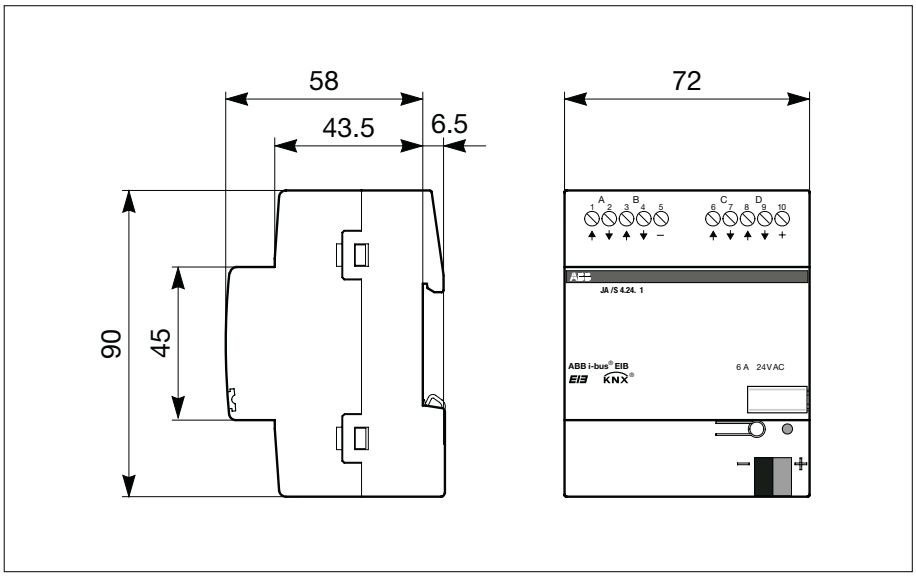
Circuit diagram

“Shutter”, “Ventilation flaps/switch mode” and “Blinds” operating modes



1 Programming LED, push button
2 Marker Tag
3 Connection terminals
4 Bus terminal

Dimension drawing



Note

The programming is carried out with ETS from version ETS2 V1.2a onwards.

To guarantee all the programmable functions, in particular the UP/DOWN directions of travel, it is important to ensure that the drive has been connected properly. The technical data supplied by the drive manufacturer must be taken into account.

If the outputs are switched several times in rapid succession, the switching of the output contacts is delayed.

The following process should be carried out during the initial commissioning of the Shutter Actuator:

1. Install and wire up the Shutter Actuator.
2. **First** connect the EIB / KNX voltage. The output contacts automatically adopt the neutral position.
3. Only **then** connect the 24 V DC operating voltage for the shutter outputs.

If the preselected parameter settings have been modified during programming, the output contacts adopt the specified *Position on bus voltage recovery* once the EIB / KNX voltage has been connected.

The function “ventilation flaps/switch mode” may be inverted by connecting the load to the “Down” terminal instead of the “Up” terminal (e.g. terminal “2” instead of terminal “3”).

Depending on the position of the output contact, also the non-connected terminals are under voltage!

The Shutter Actuator is supplied with a downloaded application program. It is therefore only necessary to download the group addresses and parameters during commissioning. The complete application program can also be downloaded if required.

3 Application and planning

3.1 Operating modes

The operating mode can be freely selected for each individual output of the Shutter Actuator. The following operating modes are available for selection:
– shutter,
– blinds,
– ventilation flaps/switch mode.

“Blinds” operating mode
The “Blinds” operating mode is particularly suitable for controlling blinds with the functions UP/DOWN and STOP/louvre adjustment.

The functions of the “Shutter” operating mode are described in chapters 3.2 to 3.5.

“Shutter” operating mode
The “Shutter” operating mode is particularly suitable for controlling shutters, awnings, roller blinds and other hangings with the functions UP/DOWN and STOP as well as for controlling doors and windows.

The functions in the “Shutter” operating mode only differ slightly from the functions in the “Blinds” operating mode. The only difference is that there is no louvre adjustment function in the “Shutter” operating mode.
The functions described in chapters 3.2 to 3.5 for the “Blinds” operating mode thus also apply to the “Shutter” operating mode (with the exception of the louvre adjustment function).

“Ventilation flaps/switch mode” operating mode
The operating mode “Ventilation flaps/switch mode” is particularly suitable for controlling ventilation flaps with the function OPEN/CLOSED.
The operating mode “Ventilation flaps/switch mode” can alternatively also be used as a switch output for switching loads.

The functions in the operating mode “Ventilation flaps/switch mode” are described in chapter 3.6.

Manual operation
The manual operation function is described for all three operating modes together in chapter 3.7.

3.2 General functions

3.2.1 Travelling times

Total travel time
The total travel time is the period that the shutter/blind requires to travel from the upper limit position to the lower limit position (see Diagram 1).
If the Shutter Actuator receives an UP or DOWN movement command, the corresponding output is switched and the shutter moves in the required direction.

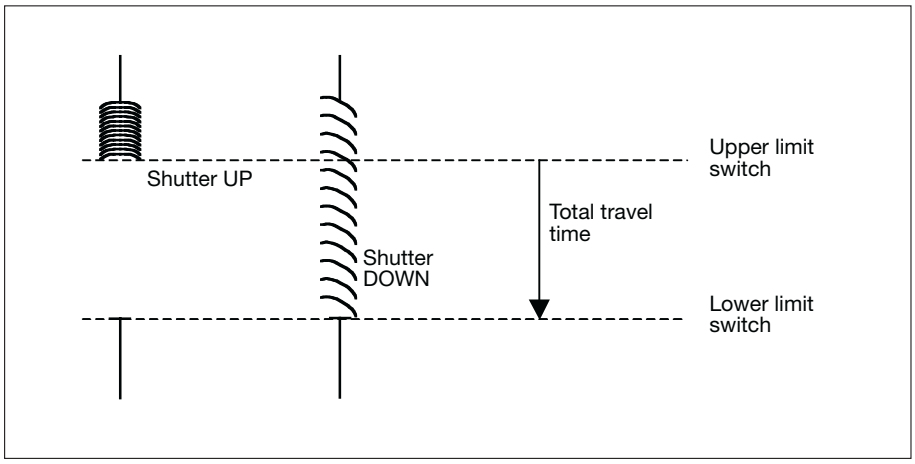


Diagram 1: Total travel time

The shutter is moved in this direction until the Shutter Actuator receives a STOP command or until the upper or lower limit position has been reached and the motor is switched off via the limit switch.

If the motor is switched off via the limit switch, the corresponding output contact of the Shutter Actuator remains closed until the set total travel time has elapsed plus a safety period of the parameterized overflow time (see parameter “Outputs are disconnected from voltage after”).
Only then the output contact or reverts to neutral position.

The overflow time will not be taken into consideration, if a value different from “100 %” is selected for the parameter “Position of louvre after arriving on lower end position”. In this case, the shutter/blind will move into the parameterized louver position.

The current position of the shutter/blind during operation can also be determined with the aid of the total travel time. It is therefore important to measure and set the total travel time as accurately as possible, particularly if the functions “Move to position”, “Automatic control” or “Status response” are used. Only then is it possible to calculate the current position of the shutter/blind precisely.

Duration of louvre adjustment
After an upward movement of the blind, the louvres normally are open (horizontal louvre position). If the blind is now lowered, the louvres are closed first of all (vertical louvre position) and the blind moves downwards. If the blind is now raised again, the louvres are opened again first (horizontal louvre position) and then raised (see Diagram 2).

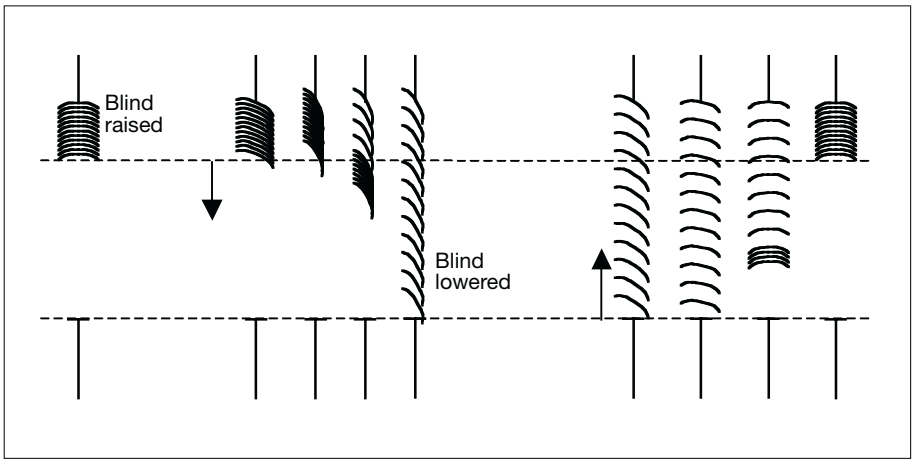


Diagram 2: Louvre position when raising and lowering the blind

Short movements can be carried out by the Shutter Actuator in order to adjust the louvre angle specifically. The blind is thus moved for a short period (the “Duration of louvre adjustment”) in the required direction and louvre adjustment is thus carried out. The shorter the duration of louvre adjustment, the greater the accuracy of the louvre angle.

Maximum number of louvre adjustments
The maximum number of louvre adjustments is the number of adjustments needed to move the louvres from fully closed to fully open. The current position of the louvres during operation is determined with the help of this parameter.

The maximum number of louvre adjustments must be counted by the commissioning engineer and entered as a parameter.

Pause on change in direction, pause between two movements
To prevent the shutter drive from being damaged by a sudden change in direction, the output contacts are disconnected from the supply for the duration of the pause on reverse. Only then is the output contact switched for the required direction of travel.

The technical data supplied by the manufacturer of the respective drive mechanism must be taken into account when setting the pause on change in direction!

The output contacts for the directions UP and DOWN are mechanically interlocked so that voltage cannot be applied at both contacts at the same time and thus damage the drive mechanism.

Start-up delay, deceleration delay
Many motors do not produce full power immediately when they are switched on but only after a start-up delay of several milliseconds. Other motors also continue to run for several milliseconds after they have been switched off (deceleration delay).

These parameters must only be entered if a more precise positioning of the shutter/blind is required. The basic settings of these parameters are generally sufficient for normal operation. The technical data supplied by the manufacturer of the respective drive mechanism must be taken into account during the parameter assignment!

3.2.2 Behaviour on bus voltage failure, bus voltage recovery, programming and bus reset

Programming and bus reset
All the communication objects adopt the value “0” (except end positions = “1”) after programming or after a bus reset. All positions are invalid/ erased. The shutter/blind is moved to the set *Position after programming*. If the option “Position X” has been set as the *Position after programming*, the shutter/blind is moved via one of the end positions on the shortest way into the target position in order to determine the current position. Once the action has been completed, the “status response” communication objects are updated and send their status on the EIB / KNX.

If the option “no reaction” or “Stop” has been set as the *Position after programming*, the Shutter Actuator does not detect the current position of the shutter/blind. The communication objects “Telegr. status of position” have the value “1” or “129” and are not sent on the EIB / KNX. If after programming a defined position of the shutter/blind is required for the first time, it is first of all raised to the very top to determine the current position and then into the target position.

About 18 seconds after programming or bus reset all communication objects send their values on the EIB / KNX.

Bus voltage failure and recovery
If the bus voltage failure occurs during a movement (up, down) of the hanging, the movement will stop if the setting in parameter *Position on bus voltage failure* would force an inversion of the travel direction. The parameterized setting on bus voltage failure can not be carried out on devices without auxiliary voltage. See also chapter 5.3 “Special operating modes”.

On bus voltage recovery, all the communication objects adopt the value “0” (or “1” or “129”). The shutter/blind is moved to the set *Position on bus voltage recovery.* If the option “Position X” is set as the *Position on bus voltage recovery*, the shutter/blind is moved via one of the end positions on the shortest way into the target position in order to determine the current positions. Once the action has been completed, the “status response” communication objects are updated and send their status on the EIB / KNX.

If the option “no reaction” or “Stop” has been set as the *Position on bus voltage recovery*, the Shutter Actuator does not detect the current position of the shutter/blind. The communication objects “Telegr. status of position” have the value “1 or “129” and are not sent on the EIB / KNX.
If after bus voltage recovery a defined position of the shutter/blind is required for the first time, it is first of all raised to the very top to determine the current position and then into the target position.

About 18 seconds after bus voltage recovery all communication objects send their values on the EIB / KNX.

Bus voltage failure, bus voltage recovery, programming and bus reset on devices with manual operation (only JA/S 4.230.1M and JA/S 8.230.1M)
After programming or after a bus reset, the position LEDs are switched off first as the Shutter Actuator does not detect the position of the connected shutters/blinds and a safety alarm has also not been stored. The Shutter Actuator is in the operating state “Operation via EIB / KNX” and the “Man.” LED is switched off.

On bus voltage failure, the Shutter Actuator can continue to be operated manually if the 230 V AC auxiliary voltage has been connected.
The following should be noted:

In case of a bus voltage failure, the shutter/blind is moved to the set *Position on bus voltage failure* and *Position on bus voltage recovery*. The values of the communication objects are saved and will be used after bus voltage recovery, e.g. the actual position. It is not necessary to carry out a reference movement in order to find out the actual position.

Any possible blocking as a result of a safety alarm is cancelled.
The shutters/blinds can be moved via the push buttons. The LEDs are only switched on and off according to the current limit position or current action. A safety alarm (both LEDs switched on) is not displayed.

It is possible to toggle between the operating states “Operation via EIB / KNX” and “Manual operation” via the “Man.” push button and display the states via the “Man.” LED. The automatic reset to “Operation via EIB / KNX” is carried out once the set *Time for automatic reset* has elapsed.

3.2.3 Safety functions

Wind alarm
The Shutter Actuator can receive 1 bit wind alarm commands to protect the shutter/blind in the event of wind and storms. If a wind alarm occurs, the shutter/blind is moved to the set the *Position for wind alarm* and can no longer be moved until the wind alarm is deactivated again.

The Shutter Actuator can be controlled by up to 3 anemometers. It can be freely selected for each output which of the three anemometers it should react to and whether the wind alarm function should be activated or not for this output. The *Position for wind alarm* can likewise be set separately for each output (see Diagram 3). The anemometers which are assigned to an output are linked by an OR function i.e. if an alarm has been triggered at at least one of the associated anemometers, the shutter/blind is moved to the alarm position.

The anemometers are monitored cyclically by the Shutter Actuator i.e. the anemometers send the status of the wind alarm cyclically and the Shutter Actuator expects this signal. If there is no signal, the Shutter Actuator assumes that the anemometer is faulty or that the bus line has been interrupted and moves all the shutters/blinds which are influenced by the corresponding anemometer to the set *Position for wind alarm* and operation is blocked. The monitoring period of the Shutter Actuator should be twice as long as the cyclical sending time of the anemometer so that the shutters/blinds do not move immediately to the *Position for wind alarm* when a signal is omitted (e.g. due to a high bus load).

When the wind alarm is reset, the shutter/blind is moved to the set *Position on reset of weather alarm, blocking and forced operation* and operation is enabled.

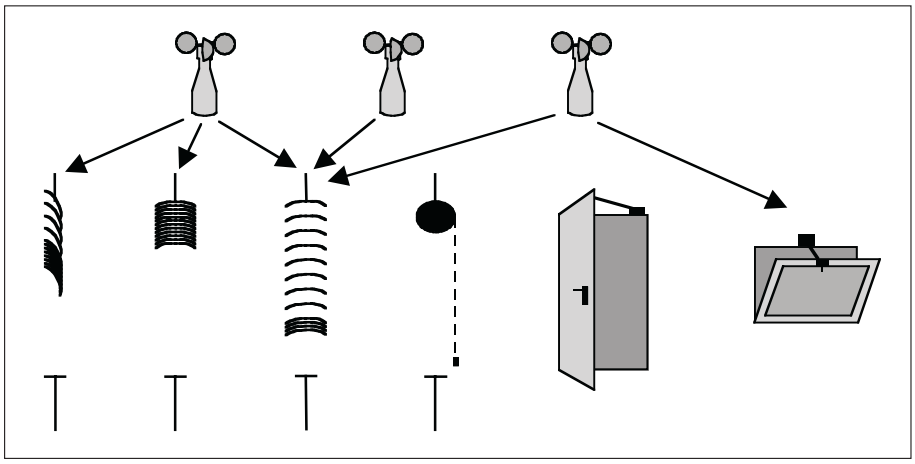


Diagram 3: Wind alarm

Rain alarm and frost alarm
For protection against rain and frost (e.g. for awnings), the Shutter Actuator can receive 1 bit rain alarm and frost alarm commands. In the event of an alarm, the shutter/blind is moved into the set position and cannot be moved until the alarm is reset.

The *Position for rain alarm* and the *Position for frost alarm* can be set separately for each output. The rain sensor and the frost sensor are monitored cyclically by the Shutter Actuator i.e. the sensors send the alarm status cyclically and the Shutter Actuator expects this signal. If there is no signal, the Shutter Actuator assumes that the sensors are faulty or that the bus line has been interrupted and moves all the shutters/blinds which are influenced by the sensor to the set alarm position and operation is blocked.

The monitoring period of the Shutter Actuator should be twice as long as the cyclical sending time of the sensor so that the shutters/blinds do not move immediately to the rain or frost alarm position when a signal is omitted (e.g. due to a high bus load).

When the rain or frost alarm is reset, the shutter/blind is moved to the set *Position on reset of weather alarm, blocking and forced operation* and operation is enabled.

Block
With the help of the disable function, an output of the Shutter Actuator can be moved into a set position via a 1 bit command and operation is blocked.

When the disable function is recalled, the shutter/blind is moved to the set *Position for blocking* and operation is blocked. After a reset, the shutter/blind is moved to the set *Position on reset of weather alarm, blocking and forced operation* and operation is enabled.

It is possible for example to block the operation of an interior shutter or blind via this function if the window has been opened.

Forced operation
Each shutter/blind can also be moved individually into a forced position via a 2 bit command and operation is blocked. On activation of the forced operation function, the Shutter Actuator is simultaneously informed whether the shutter/blind should be moved to the upper forced position or lower forced position. The operation of the shutter/blind is blocked.

On reset of the forced operation function, the shutter/blind is moved to the set *Position on reset of weather alarm, blocking and forced operation* and operation is enabled.

The forced operation function is suitable for example for raising shutters and blinds when the windows are cleaned. The operation of the shutter/blind is blocked at the same time so that the cleaners are not put in danger due to unexpected movements.

Priority of safety functions
The safety functions of wind alarm, rain alarm, frost alarm, blocking and forced operation have priority over all the other functions of the Shutter Actuator. If one of these functions has been activated for an output, the operation of the output is disabled for other movements.

An order of priority can also be defined among the safety functions to control the shutter/blind specifically if more than one safety function is active at the same time.

For example, it is possible to define via a parameter that the forced operation function has priority over a wind alarm when the window is being cleaned so that the cleaners cannot be surprised by an UP command triggered by a wind alarm when they are cleaning the louvres.

Limiting the travelling range
The travelling range can be limited for the user for specific applications. For example, the control of windows, doors or skylights can be limited to a range of 0 to 20 % open for a specific group of users while the caretaker has full operation available.

3.3 Movement into position

3.3.1 Determining the current position

Reference movement
The Shutter Actuators continually determine the current position of the shutter/blind as well as the position of the louvre angle using the duration of individual movements. Over longer periods, slight inaccuracies may occur when determining the position due to temperature variations and ageing processes. The Shutter Actuators therefore use the upper and lower limit positions to clearly define the current position of the shutter/blind. Each time that the shutter/blind is in the upper or lower limit position, the position is updated in the memory of the Shutter Actuator.

If the limit positions have not been reached during normal operation, a reference movement can be triggered via a bus telegram to move the shutter/blind right to the top or right to the bottom. Depending on the parameter settings, the shutter/blind either remains in the reference position after the reference movement or moves back into the saved position.

Direct and indirect movement into position
It can be set via the parameter *Move to position* whether the shutter/blind should move either “directly” from its current position into the target position or whether a reference movement “indirectly via top” or “indirectly via bottom” should be carried out for each movement into a defined target position.

3.3.2 Move to position 0...100 %

The shutter/blind can be moved into any position via an 8 bit value. In the “Blinds” operating mode, the louvres can also be positioned into any angle via an 8 bit value.

In this way, it can be decided for each movement command which position the shutter/blind should move into. For example, it is possible to set the position from a display unit or a visualisation terminal (see Diagram 4).

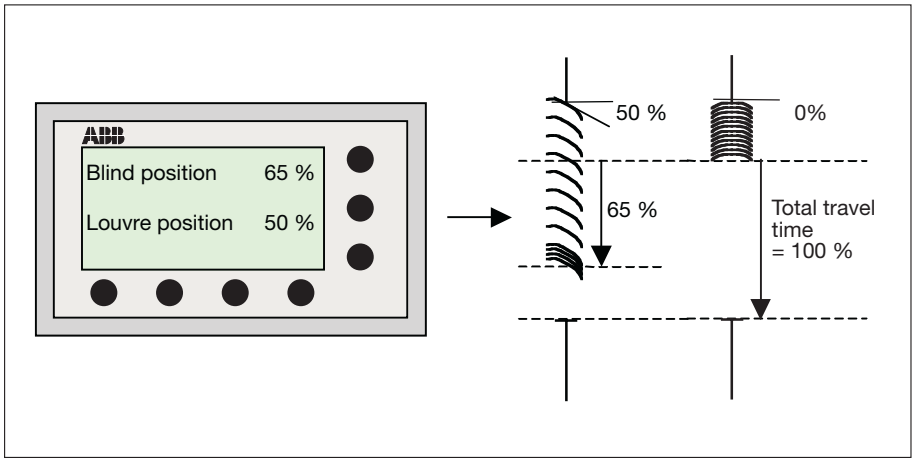


Diagram 4: Move to position 0...100 %

3.3.3 Move to preset position

It is possible to parameterise up to 4 preset positions individually for each output in the Shutter Actuator. These positions can then be recalled via a 1 bit command.

When moving into one of these preset positions, the target position must first be set, either via the parameters during programming or via the function “Set preset position” (see chapter 3.3.4). This preset target position can then for example be recalled as often as required by pressing a switch sensor (see Diagram 5).

3.3.4 Set preset position

The preset position can be changed very easily via a 1 bit command. To do so, the shutters/blinds are moved via UP/DOWN commands as well as STOP/louvre adjustment commands into the required new preset position. This new position is then adopted as the new preset position in the memory of the Shutter Actuator via a 1 bit command.

Application example: The shutters are moved into a preset position after a short push button action and the current position is adopted as the new preset position after a long push button action (see Diagram 5).

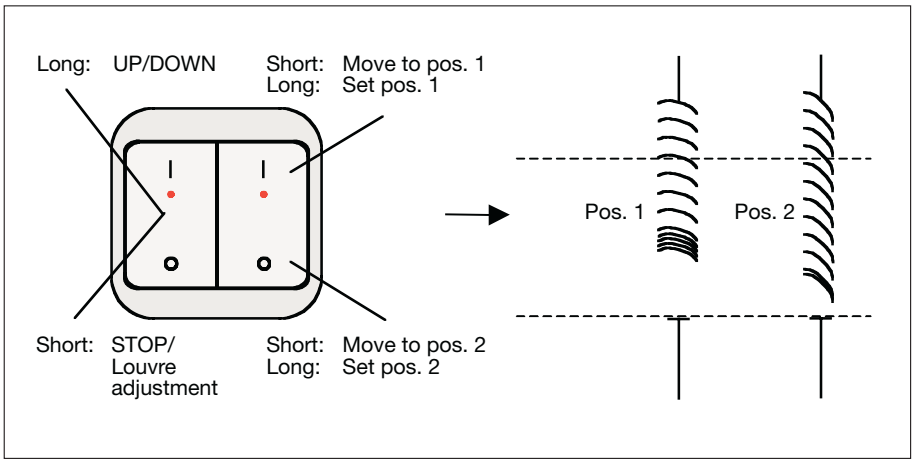


Diagram 5: Move to preset position and save preset position

In the event of a bus voltage failure, the saved preset values are retained. During programming, it is possible to set via a parameter, whether the stored values should be overwritten with the set values.

3.3.5 Scene

8 bit scene
In an 8 bit scene, up to 64 scenes are managed via a single group address. A 8 bit scene telegram contains the following information:

– number of the scene (1...64) as well as
– recall scene/store scene.

The Shutter Actuator receives the telegram and all the outputs, which are assigned to the received scene number via a parameter, move to the recalled scene position or store their current position as a new default value for this scene number.

A key table for the communication object “Scene” with all possible combinations is printed in the appendix (see chapter 5.2).

Each individual output of the Shutter Actuator can be integrated into up to ten 8 bit scenes. For example, a maximum of 40 scenes can be assigned to a 4-fold Shutter Actuator.

Example
The first three outputs of the Shutter Actuator are assigned to the following scenes. The default values are stored the last time that the scenes were set. 40 Szenen zugeordnet werden.

Output	Scene no.	Default position	Default louvre
A	5	20 %	50 %
A	9	47 %	30 %
A	45	70 %	80 %
B	5	20 %	50 %
B	37	82 %	65 %
B	45	75 %	31 %
B	58	65 %	77 %
C	10	80 %	–

If scene no. 5 is now recalled, the shutters/blinds at outputs A and B move into the stored default position and adjust their louvres in accordance with the stored default value. The shutter/blind at output C is not assigned to scene no. 5 and therefore does not move.

If scene no. 10 is recalled, the shutter/blind at output C now moves into the saved default position. As output C is now operated in this example in the "Shutter" operating mode, the subsequent louvre adjustment is not carried out.

If output A has been moved into the position 20 %/50 % via the command "Recall scene no. 5" and the user wishes to now adopt this position as the new default value for scene no. 45, both scene no. 45 and the request "Store scene" are sent via the EIB / KNX with a push button action.
The shutter/blind does not move. The current position is stored as the new default value for scene no. 45 (see the table below) and the shutter/blind is moved to this position the next time this scene is recalled.

Output	Scene no.	Default position	Default louvre
A	5	20 %	50 %
A	9	47 %	30 %
A	45	20 %	50 %

Benefits
The 8 bit scene offers several benefits compared to conventional scene programming. On the one hand, only one telegram is sent via the bus when a scene is recalled and is received by the all the devices in the scene and converted. The target position is stored in the actuator and must not be transferred via the EIB / KNX after each retrieval. A single group address is required for up to 64 scenes. This simplifies the project design and reduces the bus load.

Behaviour on bus voltage failure and programming
In the event of a bus voltage failure, the saved scene values are retained, likewise when only the parameters are downloaded during programming. The scene value is reset to the position "right at the top", i.e. default position = 0 % and default louvres = 0 %, with
- discharging and renewed programming of the device.
- version change of the application.

3.4 Automatic control

3.4.1 Automatic sun protection

Method of functioning
It is possible to set up a very convenient automatic sun protection system by combining Shutter Actuators with other EIB / KNX components.
The automatic sun protection controls the shutter/blind according to the level of sunlight. Depending on the strength and direction of the sun, the shutter/blind is moved into a set position via an 8 bit value or into a variable position depending on the situation.

For example, the blind can be raised if the sun is only weak or is not shining on the window at all. As much light as possible is thereby let into the room without any disruptive direct sunlight being taken into account.

If there is blazing sun on the window however, the blind is lowered and the louvres are closed to the extent that direct sunlight cannot penetrate the room. The residual opening in the blinds lets in a sufficient level of diffuse light into the room. This can be supplemented by artificial light (see Diagram 6).

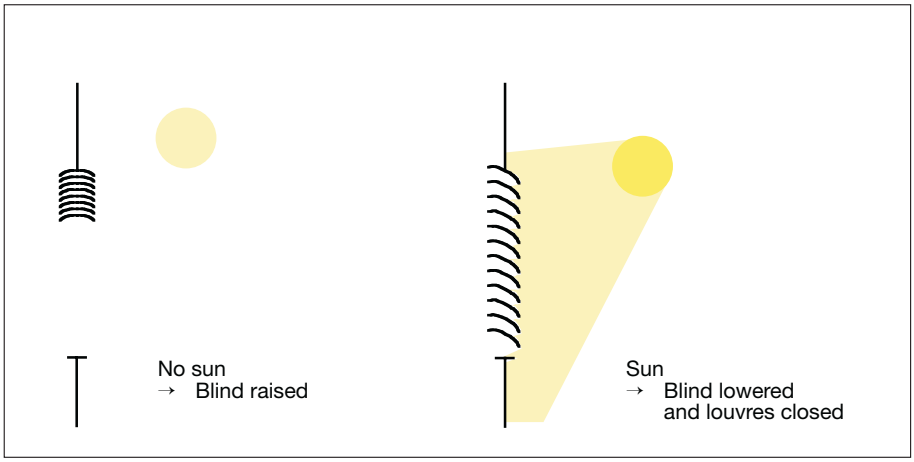


Diagram 6: Method of functioning of an automatic sun protection system

When using special directional louvres, the direct light into the room is guided so that the no disruptive direct light penetrates the room but at the same time optimum use is made of the existing natural daylight (see Diagram 7).

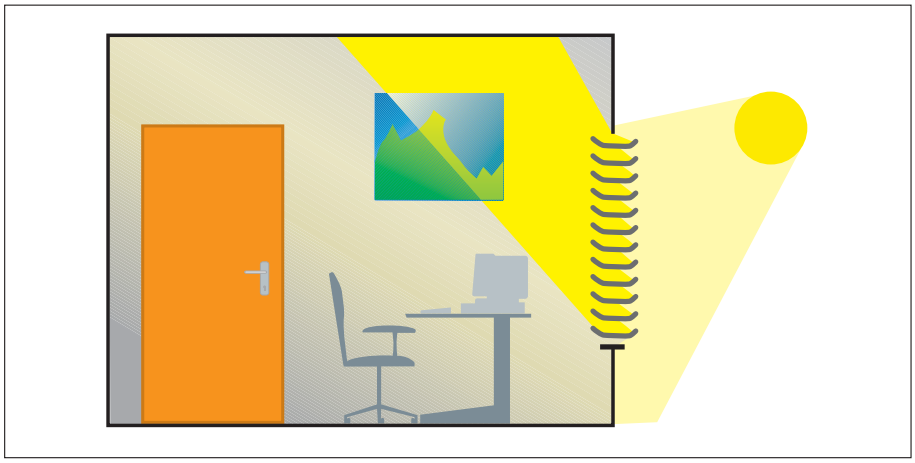


Diagram 7: Direction of daylight

Setting up a simple automatic sun protection system
Two further components are required in addition to the Shutter Actuator and switch sensor in order to set up a simple automatic control system: an activation option for the user (e.g. a further switch sensor or the second rocker of the UP/DOWN switch sensor) and a brightness sensor.

With the help of the second switch sensor, the user of the room can specify whether he wishes to use the automatic sun protection or whether he would rather control the shutters/blinds manually. If the automatic sun protection is activated via a switch sensor, the shutter/blind moves automatically until either the automatic sun protection is deactivated via the same switch sensor or the user issues a direct movement command (e.g. UP/DOWN or move into position) and the automatic function is thus also deactivated.

The Shutter Actuator receives the information via the brightness sensor as to whether there is direct sunlight on the window or the façade. Once the adjustable delay period has elapsed, the Shutter Actuator positions the shutter/blind according to the set *Position for sun = "1" (sun)* or *Position for sun = "0" (no sun)* (see Diagram 8).

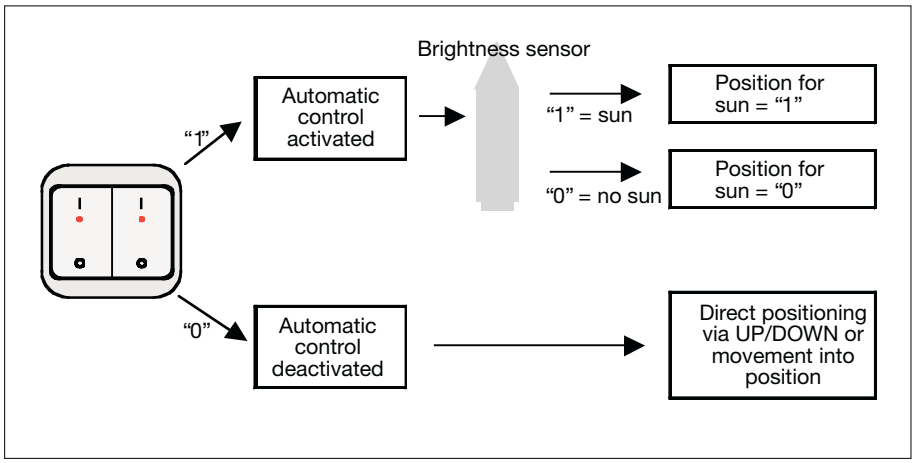


Diagram 8: Setting up a simple automatic sun protection system**Planning information for a simple automatic sun protection system**

The following EIB / KNX components are required for setting up a simple automatic sun protection system (see also Diagram 9):

- Shutter Actuator
- EIB / KNX switch sensor or universal interface + push button
- brightness sensor

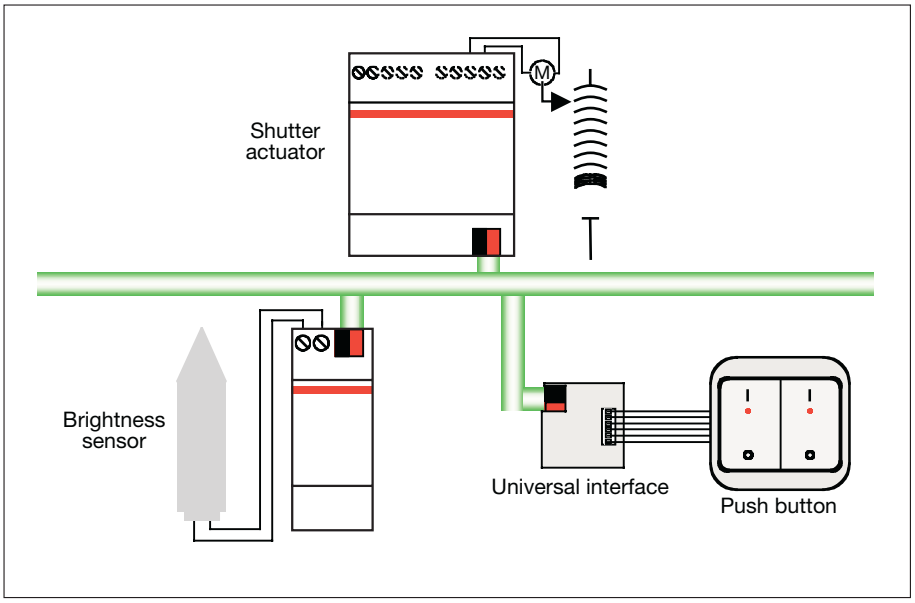


Diagram 9: Planning a simple automatic sun protection system

Setting up an automatic sun protection system with tracking of the sun's position

To set up an automatic sun protection system with tracking of the sun's position, an additional control unit is required (e.g. the Shutter Control Unit JSB/S 1.1).

The current position of the sun is continually calculated in the shutter control unit. The shutter/blind is moved via an 8 bit value into the optimum position to deflect direct sunshine but to let through as much diffuse light as possible. The influence of shadows e.g. the buildings opposite can also be taken into account in the shutter control unit (see Diagram 10).

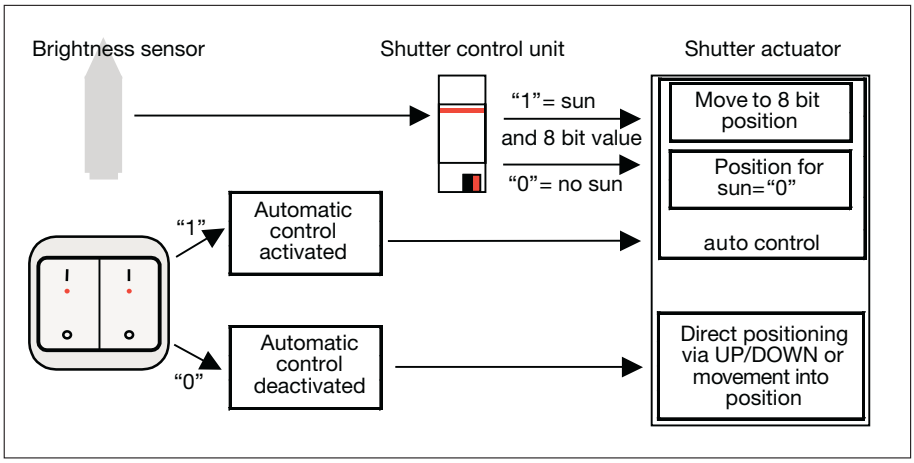


Diagram 10: Setting up an automatic sun protection system with tracking of the sun's position

Planning information for an automatic sun protection system with tracking of the sun's position

The following EIB / KNX components are required for setting up an automatic sun protection system with tracking of the sun's position (see also Diagram 11):

- Shutter Actuator
- EIB / KNX switch sensor or universal interface + push button
- brightness sensor
- shutter control unit

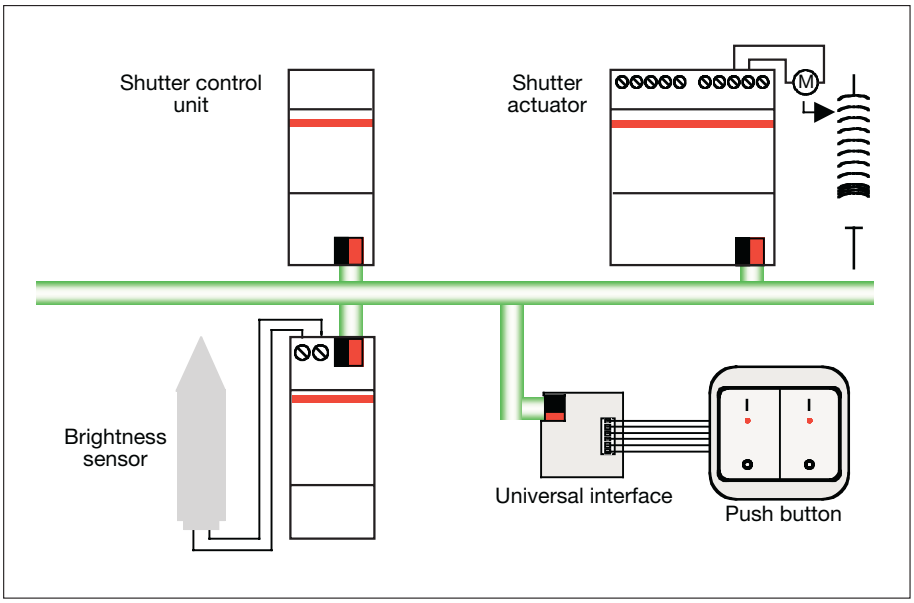


Diagram 11: Planning an automatic sun protection system with tracking of the sun's position

The current position of the sun is calculated using the current time. The shutter control unit can be operated as an independent clock, as a master clock or as a slave clock on the EIB / KNX. Several shutter control units can also be synchronised together. If the shutter control unit is operated as an independent clock or as a master clock, no further time switches are required for sunblind/shutter control.

The shutter control unit can likewise be operated as a slave clock if for example a master clock is present in the installation. A time switch which can send the time and date on the EIB / KNX must be used as a master clock, if an additional time switch is added to the system.

3.4.2 Automatic heating/cooling

Method of functioning

The automatic heating/cooling function controls the shutter/blind according to the sunlight and the required energy input in the room. The shutter/blind is moved into a set position depending on whether the room should be heated or cooled and how strong the sun is and in which direction it is shining.

The shutter can for example be raised during the heating phase when the sun is shining to achieve a maximum energy input into the room. If there is no sun, for example during the night, an internal blind is closed which ensures that the heat collected during the day is not completely lost during night reduction (see Diagram 12).

During the cooling phase, the blind can be lowered during full sunshine in order to keep the energy input at a minimum. During the night, a reduction in the room temperature in an air-conditioned room to the external temperature can likewise be counteracted by the use of an internal blind (see Diagram 12).

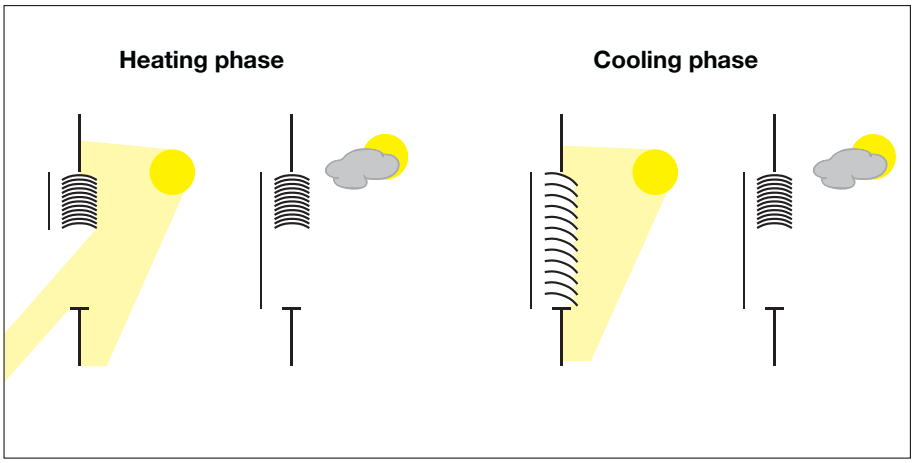


Diagram 12: Method of functioning of an automatic heating/cooling control system

Setup
Two further components are required in addition to the Shutter Actuator and switch sensor in order to set up an automatic heating/cooling control system: a toggling option between automatic sun protection and automatic heating/cooling (e.g. a presence detector) as well as a toggling option between heating and cooling (e.g. a year time switch or a temperature sensor).

With the help of the switch sensor, the user of the room can specify whether he wishes to use the automatic control or whether he would rather control the shutters/blinds manually. If the automatic sun protection is activated via a switch sensor, the shutter/blind moves automatically until either the automatic function is deactivated via the same switch sensor or the user issues a direct movement command (e.g. UP/DOWN or move into position) and the automatic function is thus also deactivated.

The Shutter Actuator receives the information via the presence detector as to whether there are people in the room. If the room is occupied, the blind is controlled according to the automatic sun protection function. If nobody is in the room, the blind is controlled according to the automatic heating/cooling function.

For example, the Shutter Actuator receives the information via a year time switch or a thermostat as to whether the room should be heated or cooled. The blind moves into the set heating or cooling position, depending on the position and intensity of the sun (see Diagram 13).

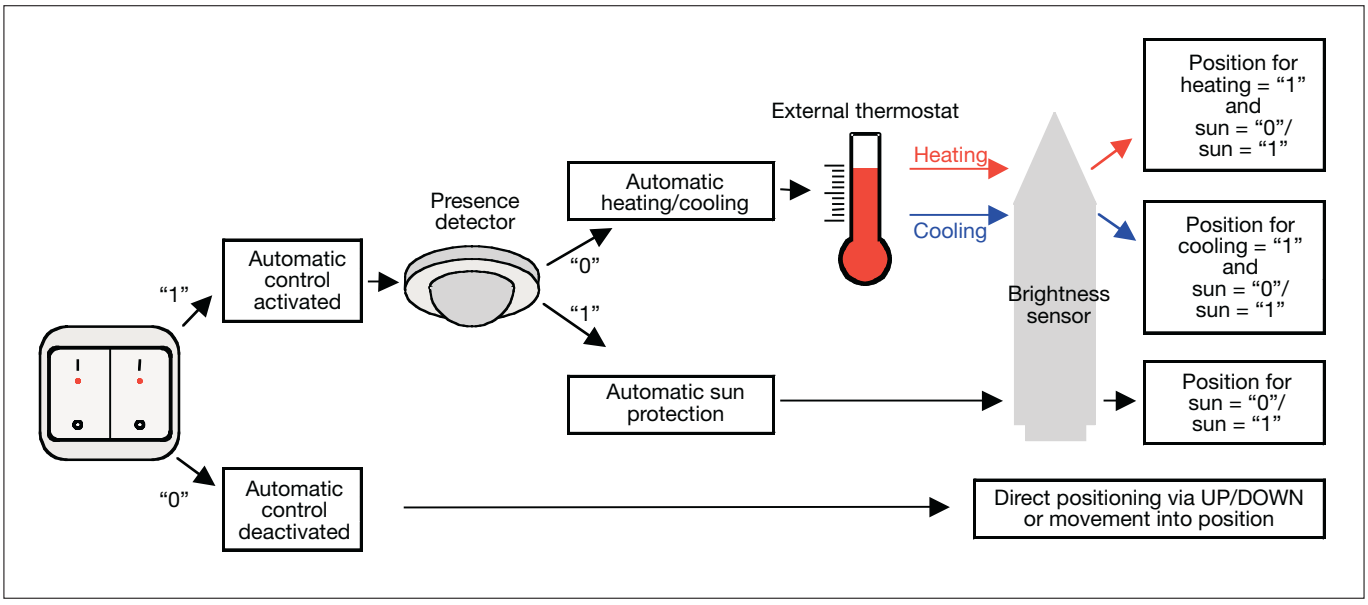


Diagram 13: Setting up an automatic/heating control system

Planning information
The following EIB / KNX components are required for setting up an automatic heating/control system (including automatic sun protection with tracking of the sun's position (see also Diagram 14):

- Shutter Actuator
- EIB / KNX switch sensor or universal interface + conventional push button
- EIB / KNX presence detector or universal interface + conventional presence detector
- brightness sensor
- shutter control unit
- thermostat

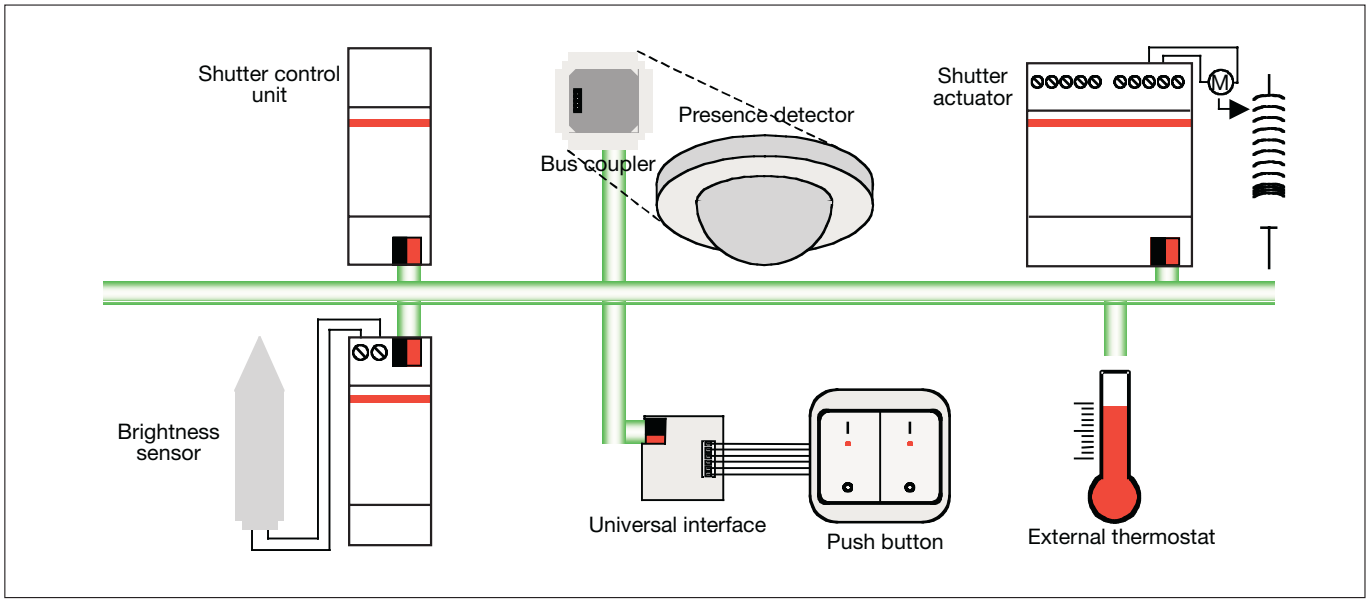


Diagram 14: Planning an automatic heating/cooling function

The automatic heating/cooling control function for shutters/blinds is predominantly carried out independently of the individual room temperature control. Optimum use is made of the sun as an energy source for controlling the blinds, thereby saving energy. The remaining temperature differential to the setpoint temperature is balanced out via the individual room temperature control.

As a result, if a room should be protected all day against the sunlight for example, the air conditioning system only occasionally cools down the room via a 2-step controller. In this case, the control of the air conditioning system is independent of the control of the shutter/blind.

The same room thermostat should therefore not be used for controlling the blinds but rather an external thermostat or a year time switch (e.g. heating period from November to March, cooling period from June to August).
A time switch with 1 bit commands is sufficient for automatic heating/cooling. If the time switch should also be used simultaneously as a master clock for automatic sun protection with tracking of the sun's position, it must also be able to send the time and the date on the EIB / KNX.

3.5 Other functions

3.5.1 Status response

The following status responses are sent on the EIB / KNX bus about 18 seconds after programming, bus reset and bus voltage recovery:
– Telegr. Status Position
– Telegr. Status Louvre
– Telegr. Status Position top
– Telegr. Status Position bottom
– Telegr. Status operation
– Telegr. Status automatic
– Telegr. Status byte
– Telegr. Status external supply
– Telegr. Manual operating status
(only JA/S 4.230.1M and JA/S 8.230.1M)

Within this 18 seconds no change occurs with the communication objects, no status responses:
– Telegr. Status byte
– Telegr. Status external supply
– Telegr. Status Position top
– Telegr. Status Position bottom

Relative position 0...100 %
The Shutter Actuator sends the relative position of the shutter/blind as an 8 bit value. A second 8 bit value is available for transmitting the louvre position for the blinds.

Limit position
The Shutter Actuator sends the information via two 1 bit values as to whether the shutter/blind is in the upper limit position, in the lower limit position or in an intermediate position.

Operation enabled/blocked
In the event of a weather alarm, a blocking command or positive drive, both direct operation of the shutter/blind (UP/DOWN commands or movement into position) and automatic operation (automatic sun protection and automatic heating/cooling) are disabled. Direct and automatic operation are also blocked if the Shutter Actuator is switched to manual operation (only JA/S 4.230.1M and JA/S 8.230.1M).

The information as to whether the operation of the shutter/blind is enabled or blocked is made available by the shutter via the EIB / KNX individually for each of its outputs as 1 bit information.

Automatic control
The Shutter Actuator reports via a 1 bit data object whether automatic operation has been activated for an output (automatic sun protection or automatic heating/cooling).

Status byte
The current status of each output of the Shutter Actuator is transmitted in an 8 bit value. Only one of the following operating states can be active at one time:

– Automatic sun protection activated/deactivated
– Automatic heating/cooling activated/deactivated
– Wind alarm activated/deactivated

- Rain alarm activated/deactivated
- Frost alarm activation/deactivated
- Forced operation disabled/enabled
- Block disabled/enabled
- Manual operation manual operation/operation via EIB / KNX
  (only JA/S 4.230.1M and JA/S 8.230.1M)

Manual (only JA/S 4.230.1M and JA/S 8.230.1M)
The Shutter Actuators with manual operation report via a 1 bit telegram whether the Shutter Actuator is operated manually or via the EIB / KNX. The information is likewise transmitted whether the 230 V AC auxiliary voltage is applied.

Switching voltage (only JA/S 4.230.1M and JA/S 8.230.1M)
In the case of Shutter Actuators with manual operation, the 230 V AC auxiliary voltage and the voltage in the circuits can be monitored. It is sufficient to lead the supply in the circuits via the 230 V AC auxiliary voltage connection.

It should be ensured in any case that the total current with which the connected motors and other loads are supplied does not exceed 16 A and is fused with an appropriate circuit-breaker!

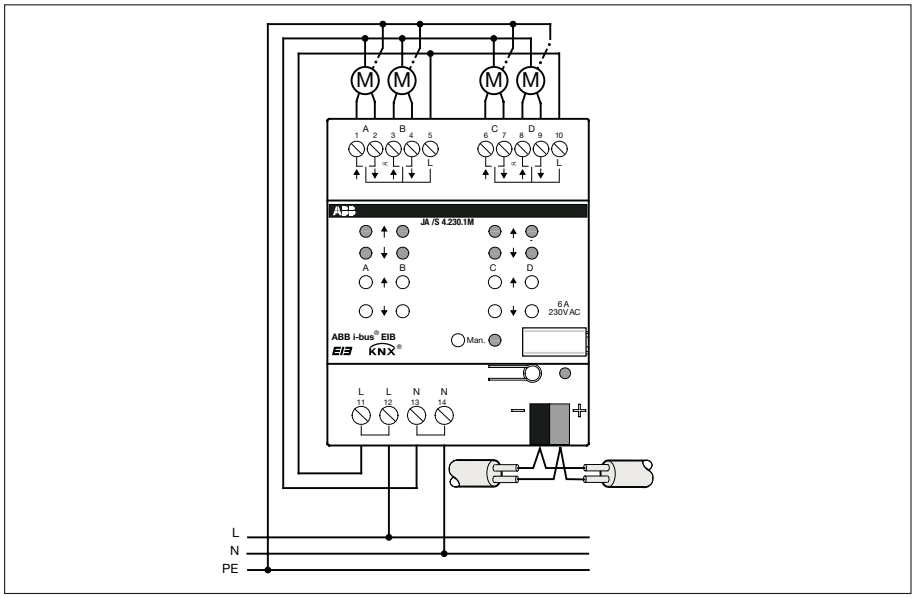


Diagram 15: Planning voltage monitoring in the circuits

3.5.2 Operation via EIB / KNX switch sensors

Planning the push button assignment
Shutter Actuators from ABB open up a variety of possibilities for the user to move shutters/blinds conveniently and directly into the required position. A maximum of safety functions can also be taken into account at the same time.

Due to this variety of possibilities, the planning of switch sensors and other operating elements must be observed for an easily comprehensible operation for the user. Two examples for a possible push button assignment for a 4-fold switch sensor are outlined in the following section.

Example 1
In example 1 (Diagram 16), the two left rockers of the push button are kept free for other functions such as controlling the lighting (ON/OFF, dimming, scenes, constant lighting control etc.).

Via the rocker “Middle right”, the shutter/blinds are moved UP/DOWN (long push button action) and stopped and the louvres are adjusted (short push button action). The LED indicates whether the operation of the shutter/blind is enabled (green) or blocked (red).

Via the rocker “Right”, the shutter/blind is moved to position 1 or 2 with a short push button action while the current position is stored as a new preset value with a long push button action.

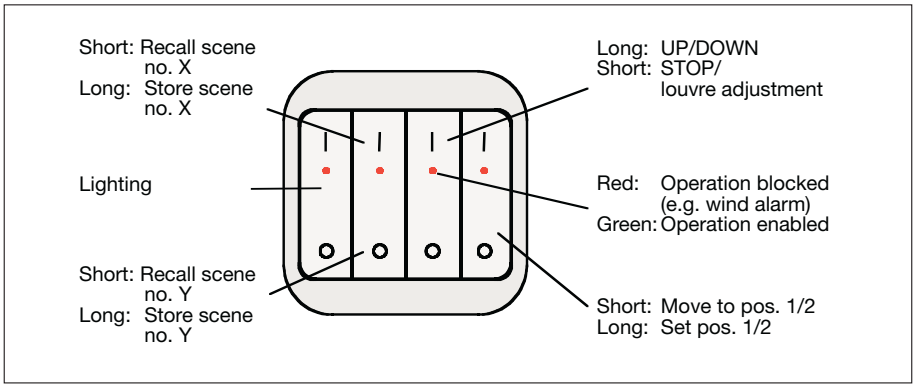


Diagram 16: Push button assignment UP/DOWN, move to position, set position

The push button “Right” can also be occupied with lighting control commands in addition to the shutter commands, so that a complete scene can be controlled and continually adapted to the requirements of the user.

Example 2
In example 2 (Diagram 17), the two left rockers of the push button are likewise kept free for other functions, for example lighting control.

The function of the rocker “Middle right” as well as the LED corresponds to example 1.

The shutter/blind is moved to position 1 or 2 (top or bottom) via the rocker “Right” with a short push button action. A long push button action activates or deactivates the automatic control function (automatic sun protection or automatic heating/cooling). The LED of the push button indicates whether automatic control is activated (red) or deactivated (green).

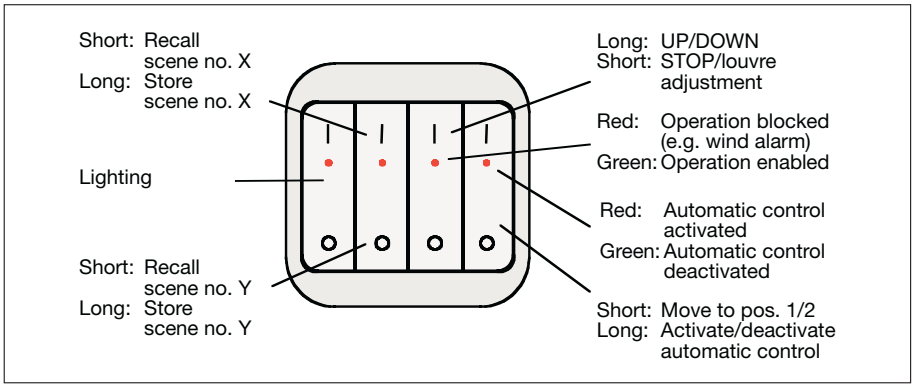


Diagram 17: Push button assignment UP/DOWN, move to position, automatic control

3.6 Functions in the operating mode “Ventilation flaps/ switch mode”

3.6.1 General

Ventilation flaps Open/Closed
Only two positions are used in the operating mode “Ventilation flaps/switch mode”: OPEN and CLOSED. There are no intermediate positions (see Diagram 18).

In the “OPEN” position, the output contact remains closed until a “CLOSED” command is carried out. The output contact is not disconnected from the supply in the “OPEN” position!

In the “CLOSED” position the output will be disconnected from the supply.

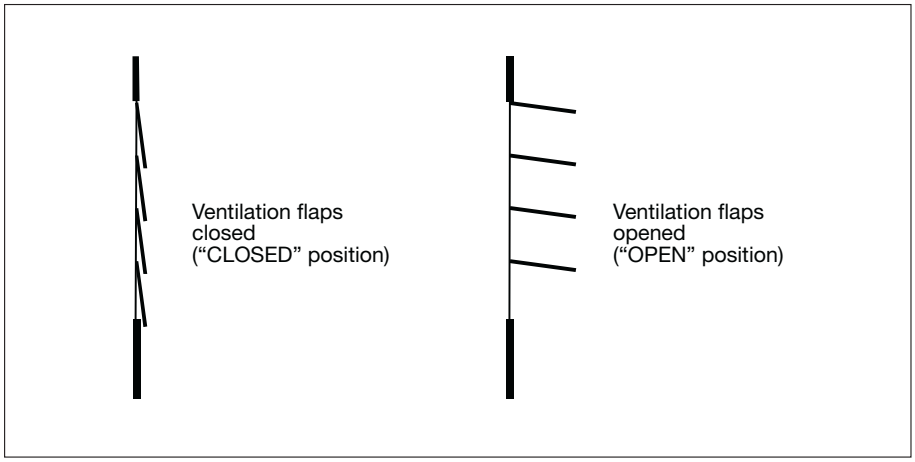


Diagram 18: Ventilation flaps Open/Closed

Switch mode
The operating mode “Ventilation flaps/switch mode” can also be used to switch loads on and off.

When connecting the loads, the technical data of the output contacts of the Shutter Actuator must be taken into account.

Behaviour after programming and bus reset
After programming or after a bus reset, all the communication objects adopt the value “0” (or “00” or “00000000”). The ventilation flaps are positioned according to the set *Position after programming*. After the positioning, the “status response” communication objects are updated and send their status on the EIB / KNX.

About 18 seconds after programming or bus reset all communication objects send their values on the EIB / KNX.

Behaviour on bus voltage failure and recovery
On bus voltage failure, the output contacts are switched to the set *Position on bus voltage failure.*

On bus voltage recovery, all the communication objects adopt the value “0” (or “00” or “00000000”). The ventilation flaps are positioned according to the set *Position on bus voltage recovery.* After the positioning, the “status response” communication objects are updated and send their status on the EIB / KNX.

About 18 seconds after bus voltage recovery all communication objects send their values on the EIB / KNX.

Bus voltage failure, bus voltage recovery, programming and bus reset on devices with manual control (only JA/S 4.230.1M and JA/S 8.230.1M)
After programming or after a bus reset, the Shutter Actuator is in the operating state “Operation via EIB / KNX” and the LED “Man.” is switched off. The positioning LEDs are switched according to the location of the output contact and indicate the position of the ventilation flaps or the switching state of the connected load.

On bus voltage failure, the Shutter Actuator can continue to be operated manually if the 230 V AC auxiliary voltage is connected. The following should be noted:

In case of a bus voltage failure, the shutter/blind is moved to the set *Position on bus voltage failure* and *Position on bus voltage recovery*. The values of the communication objects are saved and will be used after bus voltage recovery.

Any possible blocking due to a safety alarm is cancelled. The outputs can only be switched via the push buttons. The LEDs are only switched on and off in accordance with the current switching state of the outputs. A safety alarm (both LEDs switched on) is not displayed.

It is further possible to toggle between the operating states “Operation via EIB / KNX” and “Manual operation” via the “Man.” push button and display the state via the “Man.” LED. The automatic reset to the mode “Operation via EIB / KNX” is carried out once the set *Time for automatic reset* has elapsed.

Staircase lighting function
When the staircase lighting function is activated, the output contacts are closed after an “OPEN” command (“ON” command) for the duration of the set *Duration/opening time for staircase lighting function* and then opened again automatically. If a “CLOSE” command (“OFF” command) is received during this opening time, the output contacts are opened immediately.

3.6.2 Safety functions

The same safety functions are available in the operating mode “Ventilation flaps/switch mode” as in the “Shutter” and “Blinds” operating modes.
The safety functions are described in chapter 3.2.3.

3.6.3 Status response

Position
The Shutter Actuator can report information about the current position of the ventilation flaps or the current switching state of the connected load via the EIB / KNX. The information is transmitted as a 1 bit value (OPEN/CLOSED or ON/OFF).

Status of operation
In the event of a weather alarm, a blocking command or positive drive, direct operation of the output is disabled via the functions “Ventilation flaps Open-Closed/On-Off” and “Scene”. Operation is likewise blocked if the Shutter Actuator is switched to manual operation.

The information as to whether the operation is enabled or blocked is made available by the Shutter Actuator for each of its outputs as 1 bit data via the EIB / KNX.

Status byte
The following information can be transferred in an 8 bit value individually for each ventilation flap output. Only one of the following operating states can be activated at one time:

- Wind alarm — activated/deactivated
- Rain alarm — activated/deactivated
- Frost alarm — activated/deactivated
- Forced operation — disabled/enabled
- Block — disabled/enabled
- Manual operation — manual operation/operation via EIB / KNX (only JA/S 4.230.1M and JA/S 8.230.1M)

3.7 Manual operation (only JA/S 4.230.1M and JA/S 8.230.1 M)

The functions described in chapter 3.7 apply solely to Shutter Actuators with manual operation JA/S 4.230.1M and JA/S 8.230.1M. The Shutter Actuators can also be manually operated prior to programming but it should be noted however that the LED display does not indicate the current movement or the current limit position correctly.

3.7.1 Manual operating states

It is possible to toggle between the operating states “Operation via EIB / KNX” and “Manual operation” by pressing the “Man.” push button. The acutator is switched into “Manual operation” with a long push button action and switched to “Operation via EIB / KNX” with a short push button action. The LED “Man.” (orange) lights up in the operating state “Manual operation”. In the operating state “Operation via EIB / KNX”, the LED is switched off.

When toggling from “Operation via EIB / KNX” to the operating state “Manual operation”, the relevant LED flashes briefly a few times when the “Man.” push button is pressed. If manual operation is enabled, the state switches to “Manual operation” and the LED is ON. Manual operation can however be disabled via the EIB / KNX. If manual operation is disabled, the LED is switched off once it has flashed and the Shutter Actuator remains in the operating state “Operation via EIB / KNX”.

The “Man.” push button is pressed to toggle from “Manual operation” into “Operation via EIB / KNX”. The “Man.” LED flashes briefly a few times and the operating state is toggled. Depending on the parameter settings, the operating state can also be changed automatically back into “Operation via EIB / KNX” once the specified period has elapsed. The operating state “Operation via EIB / KNX” likewise changes automatically to “Operation via EIB / KNX” if manual operation has been disabled via an EIB / KNX telegram. The LED “Man.” also flashes briefly three times after an automatic change in the operating state.

In the operating state “Operation via EIB / KNX”, the connected drives can only be controlled via the EIB / KNX. The UP/DOWN buttons on the device have no function.

In the operating state “Manual operation”, the connected drives can only be controlled via the push buttons located on the device. Incoming telegrams on the EIB / KNX are not carried out with the exception of telegrams to the “safety” communication objects. If an alarm (e.g. a wind alarm) is triggered at a “safety” communication object, the respective outputs are moved to the corresponding safety position and can no longer be operated via the manual push buttons on the device.

If the 230 V AC auxiliary voltage is not connected, the shutter actuator is in power save mode for “Operation via EIB / KNX” operating state and the position LEDs are off. The power save mode is deactivated with a short push button action on the “Man.” Push button for about 5 minutes. During this time, the position LEDs show the state of the according output.

3.7.2 UP/DOWN buttons

In the operating state “Manual operation”, each output can be controlled individually via 2 push buttons each (UP and DOWN). The push buttons have different functions, depending on the operating mode. In the supplied state, the operating mode is set to “Blinds”. Only one push button can be operated at a time.

“Blinds” operating mode
Long push button action (> 1 second) = move UP/DOWN: The blind is raised after a long operation of the upper push button. A long push button at the lower push button lowers the blind.

Short push button action (< 1 second) = stop/louvre adjustment: If the blind is in motion, the movement is stopped by pressing one of the two push buttons briefly. If the blind is idle, a louvre adjustment upwards or downwards is carried out with a short push button action.

“Shutter” operating mode
Long push button action (> 1 second) = move UP/DOWN: The shutter is raised after a long operation of the upper push button. A long push button at the lower push button lowers the shutter.

Short push button action (< 1 second) = STOP: If the shutter is in motion, the movement is stopped by pressing one of the two push buttons briefly. If the shutter is idle, no function is carried out after a short push button action.

“Ventilation flaps/switch mode” operating mode
The ventilation flaps are opened with a push button action at the upper push button. The ventilation flaps are closed with a operation of the lower push button.

3.7.3 LED display

In the case of Shutter Actuators with manual operation, the status of each output is displayed individually via 2 LEDs. The display is identical to that of the two operating states “Operation via EIB / KNX” and “Manual operation”.

The LED display in the “Shutter” and “Blinds” operating modes differs from the LED display in the operating mode “Ventilation flaps/switch mode”.

“Shutter” and “Blinds” operating modes
Upper or lower LED flashes:
If the shutter/blind is being raised, the upper LED flashes. The lower LED flashes if the shutter/blind is being lowered.

Upper or lower LED is ON:
If the shutter/blind has reached the upper limit position, the upper LED is ON; if the shutter/blind has reached the lower limit position, the lower LED is ON. If the shutter/blind is in an intermediate position, both LEDs are OFF.

Both LEDs are ON:
If both LEDs light up simultaneously, a safety function has triggered an alarm (e.g. a wind alarm) for the respective output. This output cannot be operated via the push buttons while the alarm is activated.

The possible states of the display LEDs for the operating modes “Shutter” and “Blinds” are outlined in the following table.

LED “Man.”	LED Output A UP	LED Output A DOWN	Status
–	flashing	OFF	Shutter/blind is being raised
–	OFF	flashing	Shutter/blind is being lowered
–	ON	OFF	Shutter/blind is in upper limit position
–	OFF	ON	Shutter/blind is in lower limit position
–	ON	ON	Operation blocked, alarm
OFF	–	–	Operating state “Operation via EIB / KNX”
ON	–	–	Operating state “Manual operation”
flashing	–	–	Toggling between “Operation via EIB / KNX” and “Manual operation”

“Ventilation flaps/switch mode” operating mode
Upper or lower LED is ON:
If the ventilation flaps are opened, the upper LED lights up. If the ventilation flaps are closed, the lower LED lights up.

Both LEDs are ON:
If both LEDs light up simultaneously, a safety function has triggered an alarm (e.g. a wind alarm) for the respective output. This output cannot be operated via the push buttons on the device while the alarm is activated.

The possible states of the display LEDs for the operating mode “Ventilation flaps/switch mode” are outlined in the following tables.

LED “Man.”	LED Output A UP	LED Output A DOWN	Status
–	ON	OFF	Ventilation flaps OPEN/ switch output ON
–	OFF	ON	Ventilation flaps CLOSED/ switch output OFF
–	ON	ON	Operation blocked, alarm
OFF	–	–	Operating state “Operation via EIB / KNX”
ON	–	–	Operating state “Manual operation”
flashing	–	–	Toggling between “Operation via EIB / KNX” and “Manual operation”

4 Project design and programming

4.1 Application programs

The Shutter Actuators are downloaded with the following application programs via the ETS from version ETS2 V1.2 onwards:

JA/S 2.230.1:	Shutter, 2f/2.4
JA/S 4.230.1:	Shutter, 4f/2.4
JA/S 8.230.1:	Shutter, 8f/2.4
JA/S 4.230.1M:	Shutter, 4f M/2.4
JA/S 8.230.1M:	Shutter, 8f M/2.4
JA/S 4.24.1:	Shutter, 4f 24V/2.4

This six application programs do not differ from each other in their function. The same communication objects and parameters are always used.

Only the application programs of the Shutter Actuators with manual operation JA/S 4.230.1M and JA/S 8.230.1M are an exception to this. These application programs fulfil the same functions with the same communication objects and parameters but can also carry out additional functions in connection with manual operation. Additional communication objects and parameters are available for these functions.

To guarantee a simple configuration, the application program has a dynamic structure i.e. there are only two communication objects per output in the basic setting and only a few important parameters are visible. The full functionality of the application program becomes visible via the activation of the respective parameters.

All Shutter Actuators are supplied with a downloaded application program. During commissioning, only the group addresses and parameters need to be loaded. The complete application program can also be downloaded on request.

4.2 Communication objects

The application program “Shutter .../2” makes 5 general communication objects available (3 x wind alarm, rain alarm and frost alarm). There are 3 further general communication objects available for the Shutter Actuators with manual operation JA/S 4.230.1M and JA/S 8.230.1M (see chapter 4.2.5).

Type	Max. number of general communication objects
JA/S 4.230.1M	8
JA/S 8.230.1M	8
All the others	5

Depending on the operating mode, the following number of communication objects can also be used in addition per output.

Operating mode	Max. number of communication objects per output
Shutter	29
Blinds	26
Ventilation flaps/switch mode	7

The following section describes the communication objects in the “Shutter” and “Blinds” operating modes (chapter 4.2.1 to 4.2.5), followed by the communication objects in the operating mode “Ventilation flaps/switch mode” (chapter 4.2.6).

The communication objects in the “Shutter” and “Blinds” operating modes are divided into
- “Direct” communication objects,
- “Automatic” communication objects,
- “Safety” communication objects,
- “Status response” communication objects and
- “Manual” communication objects (only JA/S 4.230.1M and JA/S 8.230.1M).

All unconnected communication objects always have the value “0” (or “00” or “00000000”)!

4.2.1 "Direct" communication objects

	Nr.	Objektname	Funktion	K	L	S	Ü	Akt	Typ
	11	Output A	Move blinds Up-Down	✓		✓			1 Bit
	12	Output A	Louvre adj./ Stop Up-Down	✓		✓			1 Bit
	13	Output A	Move to position 0..255	✓		✓			1 Byte
	14	Output A	Move louvres 0..255	✓		✓			1 Byte
	15	Output A	Move to position 1/2	✓		✓			1 Bit
	16	Output A	Move to position 3/4	✓		✓			1 Bit
	17	Output A	Set position 1/2	✓		✓			1 Bit
	18	Output A	Set position 3/4	✓		✓			1 Bit
	19	Output A	Blinds Up-Down limited	✓		✓			1 Bit
	20	Output A	Reference movement	✓		✓			1 Bit
	21	Output A	Scene	✓		✓			1 Byte
	30	Output A	Enable/block direct operation	✓		✓			1 Bit

Diagram 19: "Direct" communication objects

Move shutter Up-Down (EIS 7: 1 bit) ("Shutter" operating mode)
Move blinds Up-Down (EIS 7: 1 bit) ("Blinds" operating mode)
If a telegram with the value "0" is received at this communication object, the shutter/blind is raised. If a telegram with the value "1" is received, the shutter/blind is lowered. The output contact reverts to the neutral position once the *total travel time* for UP/DOWN movement has elapsed.

Telegram value:	"0":	UP
	"1":	DOWN

Louvre adj./Stop Up-Down (EIS 7: 1 bit) ("Shutter" operating mode)
Stop Up-Down (EIS 7: 1 bit) ("Blinds" operating mode)
If the shutter/blind is in motion, the movement is stopped on receipt of a telegram at this communication object, regardless of whether a "0" or a "1" has been received.

"Blinds" operating mode: If the shutter is idle, it is raised ("0") or lowered ("1") for the duration of the louvre adjustment and then stopped on receipt of a telegram at this communication object.

"Shutter" operating mode: If the blind is idle, no action is carried out on receipt of a telegram at this communication object.

Telegram value:	"0":	Stop/louvre adj. UP
	"1":	Stop/louvre adj. DOWN

Move to position 0...255 (EIS 6: 8 bit)
If a telegram is received at this communication object, the shutter/blind moves to the corresponding position for the received value.

After reaching the target position, the louvres are positioned as before. Only if during the shutter/blind movement a telegram was received on the communication object "Move louvres 0…255", the louvres will be positioned accordingly.

Telegram value:	"0":	Top
	"...":	Intermediate position
	"255":	Bottom

Move louvres 0...255 (EIS 6: 8 bit) (only “Blind” operating mode)
If a telegram is received at this communication object, the louvres are positioned according to the received value. If the shutter is already in motion, it is first moved to the target position and then the positioning of the louvres is carried out.

Telegram value:	“0”:	Louvres opened to maximum
	“...”:	Intermediate position
	“255”:	Louvres closed to maximum

Move to position 1/2 (EIS 1: 1 bit)
Move to position 3/4 (EIS 1: 1 bit)
If a telegram is received at this communication object, the shutter/blind is moved to the stored preset position. In the “Blinds” operating mode, the louvre adjustment is carried out according to the preset position once the position has been reached.

If a telegram with the value “0” is received, the shutter/blind moves to position 1 (or position 3). If a telegram with the value “1” is received, the shutter/blind is moved to position 2 (or position 4).

Telegram value:	“0”:	Move to position 1 or Move to position 3
	“1”:	Move to position 2 or Move to position 4

Set position 1/2 (EIS 1: 1 bit)
Set position 3/4 (EIS 1: 1 bit)
If a telegram is received at this communication object, the current position of the shutter/blind is adopted as the new preset value.

If a telegram with the value “0” is received, the current position is stored as the new preset value for position 1 (or position 3). If a telegram with the value “1” is received, the current position is stored as the new preset value for position 2 (or position 4). If position 1 or 2 is now recalled (position 3 or 4), the shutter/blind moves to the new preset values.

The modified preset values are retained on bus voltage failure. After programming the Shutter Actuator, the preset values are reset to the values that were parameterised during the project design stage or the values adapted in operation are stored, depending parameterization.

Telegram value:	“0”:	Set position 1 or Set position 3
	“1”:	Set position 2 or Set position 4

Shutter Up-Down limited (EIS 1: 1 bit) (“Shutter” operating mode)
Blinds Up-Down limited (EIS 1: 1 bit) (“Blinds” operating mode)
If a telegram with the value “0” is received at this communication object, the shutter/blind is raised. If a telegram with the value “1” is received, the shutter/blind is lowered. The shutter/blind is stopped if the *Upper limit* or the *Lower limit* of the travelling range is reached.

The motion to the upper or lower limit behaves like the parameter “Move to position” described in chapter 4.3.7. If the option “directly” is set for example, the shutter/blind moves directly to the upper or lower position.

If telegrams are received on the communication object “Louvre adj./Stop Up-Down”, the shutter/blind can be moved in steps external to the set limits.

If the shutter/blind is positioned in a higher position than the upper limit, no reaction will be carried out after a telegram with the value "0” and it is moved down after a telegram with the value “1”. If the shutter/blind is positioned in a lower position than the downer limit, no reaction will be carried out after a telegram with the value “1” and it is moved up after a telegram with the value “0”.

If the shutter actuator has not carried out a reference movement after programming, bus reset or bus voltage recovery, the shutter/blind is moved completely up or down when receiving a telegram on this communication object. It is not stopped at the upper or lower limit in this case.

Telegram value:	“0”:	UP
	“1”:	DOWN

Reference movement (EIS 1: 1 bit)
If a telegram is received at this communication object, all the shutters/blinds which have the following settings are fully raised or fully lowered:

- the option “deactivated” has not been set for *Position after reference movement*
- the option “Ventilation flaps/switch mode” has not been set as the *Operating mode*
- no safety function has been activated and
- manual operation has not been activated (only JA/S 4.230.1M and JA/S 8.230.1M).

The saved position is updated and the shutter/blind is moved into the set *Position after reference movement*. If automatic control is activated, the reference movement will interrupt automatic control until the reference position is reached. It is however not deactivated and continues to receive automatic commands. These commands are implemented as soon as the reference movement is completed. If a movement or positioning command is received while a reference movement is carried out, the reference movement will first be carried out completely and only than the shutter/blind will be moved to the new target position.

Stop and step commands are ignored during a reference movement.

The reference movement can be interrupted by the activation of a safety function. A reference movement cannot be implemented once a safety function has been activated.

A reference movement can also be implemented if direct operation has been inhibited.

Telegram value:	“0”:	Reference movement right to the top
	“1”:	Reference movement right to the bottom

Scene (8 bit)
Each output can be integrated into up to ten scenes with this communication object. A telegram is received which contains the number of the scene that is addressed together with the information about whether the shutter/blind is moved to the last saved position or whether the current position should be stored as the new preset value.

The stored scene values are retained in the event of a bus voltage failure and if only the parameters are downloaded during programming. If the complete application is downloaded again during programming, the scene value is reset to the position “right at the top”.

Telegram code:	MXNNNNNN	
	NNNNNN:	0...63: Scene number
	X:	free (contains no information)
	M:	“0”: Recall scene
		“1”: Store scene

An 8 bit scene key table with all possible combinations is printed in the appendix (see chapter 5.2).

Enable/block direct operation (EIS 1: 1 bit)
If a telegram with the value “1” is received at this communication object, incoming telegrams at the direct communication objects are not executed (with the exception of reference movement).

This object is available if the automatic control has been activated and if the option “enable/disable via communication object” is set under the parameter “Toggling to direct operation”.

Telegram value:	“0”:	Direct operation enabled
	“1”:	Direct operation blocked

4.2.2 “Automatic” communication objects

	Nr.	Objektname	Funktion	K	L	S	Ü	Akt	Typ
	22	Output A	Activation of aut. control	✓		✓			1 Bit
	23	Output A	Sun	✓		✓			1 Bit
	24	Output A	Move to pos. for sun 0..255	✓		✓			1 Byte
	25	Output A	Adjust louvres for sun 0..255	✓		✓			1 Byte
	26	Output A	Presence	✓		✓			1 Bit
	27	Output A	Heating	✓		✓			1 Bit
	28	Output A	Cooling	✓		✓			1 Bit
	29	Output A	Enable/disable aut. control	✓		✓			1 Bit

Diagram 20: “Automatic” communication objects

Activation of automatic control (EIS 1: 1 bit)
If a telegram with the value “1” is received at this communication object, automatic control is activated for the corresponding output. The output is controlled via the “automatic” communication objects: “Sun”, “Presence”, “Heating” and “Cooling” as well as “Move to position for sun 0...255” and “Adjust louvres for sun 0...255”.

If a telegram with the value “0” is received, the shutter/blind remains in the current position and no longer reacts to incoming telegrams at the “automatic” communication objects. If the shutter is in the process of carrying out an automatic movement command, the action is carried out.

If automatic control is activated movement to the last sun protection position is performed.

Active automatic control is interrupted during a reference movement until the reference position has been reached. It is however not deactivated and continues to receive automatic commands. These commands are implemented as soon as the reference movement is completed.

Telegram value:	“0”:	Automatic control deactivated
	“1”:	Automatic control activated

Sun (EIS 1: 1 bit)
Incoming telegrams at this communication object are only taken into account if the communication object “Activation of automatic control” has the value “1”.

If a telegram with the value “1” is received at the communication object “Sun”, the shutter/blind moves to the set *Position for sun = “1”*. If a telegram with the value “0” is received, the shutter/blind moves to the set *Position for sun = “0”.*

The reaction to an incoming telegram can be carried out with a time delay via the parameters *Delay for sun = “1”* and *Delay for sun = “0”* so that the shutter/blind is not continually raised and lowered when there are frequent changes in the weather. If a telegram with the opposite value is received within the delay period, the shutter/blind does not move to the *Position for sun = “1”* and remains in the *Position for sun = “0”* or vice versa.

If the option “receive position via 8 bit value” has been set for the parameter *Position for sun = “X”*, the output moves once the delay period has elapsed to the position that was last received at the communication objects “Move to position for sun 0...255” (“Shutter” and “Blinds” operating modes) and “Adjust louvres for sun 0...255” (“Blinds” operating mode only).

Telegram value:	“0”:	No sun
	“1”:	Sun

Move to position for sun 0...255 (EIS 6: 8 bit)
This communication object is visible, if automatic control is activated (“Activation of automatic control” = “1”) . To move to a position at least one of the parameters “Position for sun = X” the value “receive position via 8 bit value” must be set. The shutter is then positioned to correspond with the received value.

After reaching the target position, the louvres are positioned as before. Only if during the shutter/blind movement a telegram was received on the communication object “Adjust louvres for sun 0…255”, the louvres will be positioned accordingly.

Telegram value:	“0”:	Top
	“...”:	Intermediate position
	“255”:	Bottom

Adjust louvres for sun 0...255 (EIS 6: 8 bit) (only “Blind” operating mode)
This communication object is visible, if automatic control is activated (“Activation of automatic control” = “1”) . To move to a position at least one of the parameters “Position for sun = X” the value “receive position via 8 bit value” must be set. The louvres are then positioned to correspond with the received value.

The movement command “Move to position for sun 0...255” is always executed first. Once the target position is reached, the positioning of the louvres is carried out.

Telegram value:	“0”:	Louvres opened to maximum
	“...”:	Intermediate position
	“255”:	Louvres closed to maximum

Presence (EIS 1: 1 bit)
Incoming telegrams at this communication object are only taken into account if the communication object “Activation of automatic control” has the value “1”.

Using the communication object “Presence”, it is possible to toggle between automatic sun protection and automatic heating/cooling. If a telegram with the value “1” is received at the object “Presence”, the shutter/blind is only controlled via the communication object “Sun” (automatic sun protection). If a telegram with the value “0” is received, the shutter/blind is controlled via the communication objects “Sun”, “Heating” and “Cooling” (automatic heating/cooling).

The reaction to an incoming telegram can be carried out with a time delay via the parameters *Delay for presence = “1”* and *Delay for presence = “0”.* If a telegram with the opposite value is received within the delay period, the period is restarted. If a telegram with the same value is received, the delay period is not restarted. The shutter/blind moves to the target position once the delay has elapsed.

Telegram value:	“0”:	No-one is present (→ automatic heating/cooling)
	“1”:	Someone is present (→ automatic sun protection)

Heating (EIS 1: 1 bit)
Cooling (EIS 1: 1 bit)
Incoming telegrams at these communication objects are only taken into account if the communication object “Activation of automatic control” has the value “1” and the communication object “Presence” has the value “0”.

If a telegram with the value “1” is received at the communication object “Heating”, the output moves to the set *Position for heating = “1” and sun = “1”* or *Position for heating = “1” and sun = “0”.*

If a telegram with the value “1” is received at the communication object “Cooling”, the output moves to the set *Position for cooling = “1” and sun = “1”* or *Position for cooling = “1” and sun = “0”.*

If a “0” or a “1” is received at both communication objects, the automatic heating/cooling mode is deactivated and the output is controlled via the automatic sun protection.

Telegram value:	“0”:	No heating/no cooling
	“1”:	Heating/cooling

Enable/disable automatic control (EIS 1: 1 bit)
If a telegram with the value “1” is received at this communication object, automatic control is automatically deactivated and the output can only be controlled via the “direct” communication objects. Automatic control can no longer be activated via the communication object “Activation of automatic control”.

If a telegram with the value “0” is received at this communication object, automatic control can be reactivated for the corresponding output.

Telegram value:	“0”:	Automatic control enabled
	“1”:	Automatic control disabled

4.2.3 “Safety” communication objects

	Nr.	Objektname	Funktion	K	L	S	Ü	Akt	Typ
	1	Output A...X	Wind alarm no. 1	✓		✓			1 Bit
	2	Output A...X	Wind alarm no. 2	✓		✓			1 Bit
	3	Output A...X	Wind alarm no. 3	✓		✓			1 Bit
	4	Output A...X	Rain alarm	✓		✓			1 Bit
	5	Output A...X	Frost alarm	✓		✓			1 Bit
	31	Output A	Block	✓		✓			1 Bit
	32	Output A	Forced control	✓		✓			2 Bit

Diagram 21: “Safety” communication objects

Wind alarm no. 1 (EIS 1: 1 bit)
Wind alarm no. 2 (EIS 1: 1 bit)
Wind alarm no. 3 (EIS 1: 1 bit)
Rain alarm (EIS 1: 1 bit)
Frost alarm (EIS 1: 1 bit)
These communication objects expect cyclical telegrams. If a telegram with the value “0” is received within the monitoring period, the associated outputs can be controlled via the “direct” and “automatic” communication objects.

If no telegrams or a telegram with the value “1” are received during the monitoring period, the shutters/blinds are moved to the set *Position for wind alarm* (for rain alarm or frost alarm). The up and down movement commands which are initiated by alarms always behave like reference movements. Operation via the “direct” and “automatic” communication objects is disabled.

If a telegram with the value “0” is received again for the first time after a weather alarm or once the monitoring period has been exceeded, the shutters/blinds are moved to the *Position on reset of weather alarm, blocking and forced operation* and operation via the “direct” and “automatic” communication objects is enabled again.

The monitoring period is restarted after each receipt of a telegram, after the programming of the actuator and on bus voltage recovery.

If the parameter *Position for wind alarm* has been set to “no reaction”, a wind alarm is not carried out for the respective output and the cyclical monitoring of the object is not taken into account. The same applies to the rain alarm and frost alarm functions.

If more than one wind object has been assigned to a shutter/blind, the values in the associated communication objects “Wind alarm no. X” are logically linked via an OR gate i.e. if there is a wind alarm at one of the assigned communication objects (or a telegram is omitted within the monitoring period), the shutter/blind remains in the *Position for wind alarm* until there are no wind alarms at any of the assigned objects.

Telegram value:	“0”:	No alarm (operation enabled)
	“1”:	Alarm (operation blocked)

Block (EIS 1: 1 bit)
If a telegram with the value “0” is received at this communication object, the output can be operated via the “direct” and “automatic” communication objects. If a telegram with the value “1” is received, the output moves to the set *Position for blocking.* The operation of the output via the “direct” and “automatic” communication objects is disabled.

If a telegram with the value “0” is received for the first time after a “1”, the shutter/blind moves into the *Position on reset of wind alarm, blocking and forced operation* and operation via the “direct” and “automatic” communication objects is enabled again.

Telegram value:	“0”:	Operation enabled
	“1”:	Operation disabled

Forced operation (EIS 8: 2 bit)
If a telegram with the value “2” (binary 10) is received at this communication object, the shutter/blind is raised. Operation via the “direct” and “automatic” communication objects is blocked. If a telegram with the value “3” (binary 11) is received, the shutter/blind is lowered. Operation via the “direct” and “automatic” communication objects is blocked.

The up and down movement commands which are initiated by alarms always behave like reference movements.

If a telegram with the value “0” (binary 00) or “1” (binary 01) is received at this communication object, the shutter/blind moves into the *Position on reset of wind alarm, blocking and forced operation* and operation via the “direct” and “automatic” communication objects is enabled again.

Telegram value:	“0”	(binary 00): Operation enabled
	“1”	(binary 01): Operation enabled
	“2”	(binary 10): UP/operation blocked
	“3”	(binary 11): DOWN/operation blocked

4.2.4 “Status response” communication objects

	Nr.	Objektname	Funktion	K	L	S	Ü	Akt	Typ
	33	Output A	Telegr. status of position	✓	✓		✓		1 Byte
	34	Output A	Telegr. status of louvres	✓	✓		✓		1 Byte
	35	Output A	Telegr. status of upper position	✓	✓		✓		1 Bit
	36	Output A	Telegr. status of lower position	✓	✓		✓		1 Bit
	37	Output A	Telegr. status of operation	✓	✓		✓		1 Bit
	38	Output A	Telegr. status of automatic control	✓	✓		✓		1 Bit
	39	Output A	Telegr. status byte	✓	✓		✓		1 Byte

Diagram 22: “Status response” communication objects

Never set the Write-flag for “Status response” communication objects!

The “Status response” communication objects don’t send their value, in case the value has not been actualized, e.g. if no reference position has been reached after a bus voltage break down!

Telegr. status of position 0...255 (EIS 6: 8 bit)
The Shutter Actuator sends the current position of the shutter/blind to this communication object. The current position is sent approx. 2 seconds + the entire seconds required for the change of direction after the completion of a movement. If a new movement is started in the meantime, the current position is only sent once the last action has been completed.

Telegram value:	“0”:	Top
	“...”:	Intermediate position
	“255”:	Bottom

Telegr. status of louvres 0...255 (EIS 6: 8 bit) (only “Blind” mode)
The Shutter Actuator sends the current position of the louvres to this communication object. The current position is sent approx. 2 seconds after the completion of a movement. If a new movement is started in the meantime, the current position is only sent once the last action has been completed.

Telegram value:	“0”:	Louvres opened to maximum
	“...”:	Intermediate position
	“255”:	Louvres closed

Telegr. status of upper position (EIS 1: 1 bit)
The Shutter Actuator sends the information to this communication object as to whether the shutter/blind is located in the upper limit position or not. The current position is sent approx. 1 second (plus the switch on duration of the louvre adjustment if applicable) after the upper limit position has been reached or left. If a new movement is started in the meantime, the current position is only sent once the last action has been completed.

Telegram value:	“0”:	Shutter/blind not in upper limit position
	“1”:	Shutter/blind in upper limit position

Telegr. status of lower position (EIS 1: 1 bit)
The Shutter Actuator sends the information to this communication object as to whether the shutter/blind is located in the lower limit position or not. The current position is sent approx. 1 second (plus the switch on duration of the louvre adjustment if applicable) after the lower limit position has been reached or left.

Telegram value:	“0”:	Shutter/blind not in lower limit position
	“1”:	Shutter/blind in lower limit position

If on both communication objects “Telegr. status of upper position” and “Telegr. status of lower position” a “1” is sent at the same time, the actuator does not know the position of the shutter/blind. The values of the position communication objects are not valid!

Telegr. status of operation (EIS 1: 1 bit)
The Shutter Actuator sends the information to this communication object as to whether operation via the “direct” and “automatic” communication objects has been enabled or disabled.

Operation is disabled if one of the “safety” functions has been activated (e.g. wind alarm) or if the Shutter Actuator has been switched to manual operation (e.g. via the push button “Man.”) or if both, direct and automatic control is disabled via communication object. The status is sent after a change.

Telegram value:	“0”:	Operation enabled
	“1”:	Operation blocked

Telegr. status of automatic control (EIS 1: 1 bit)
The Shutter Actuator sends the information to this communication object as to whether automatic control (automatic sun protection or automatic heating/cooling) has been activated.

Automatic control is activated if a telegram with the value “1” has been received at the communication object “Activation of automatic control” and neither the safety functions nor manual operation have been activated. The status is sent after a change.

Telegram value:	“0”:	Automatic control not activated
	“1”:	Automatic control activated

Telegr. status byte (8 bit)
The Shutter Actuator sends the information about the current operating mode of the output to this communication object. Only one operating mode can be activated at the same time. The status byte is sent after a change.

“0”:	Not activated
“1”:	Activated
Bit No. 7:	Automatic sun protection
6:	Automatic heating/cooling
5:	Wind alarm
4:	Rain alarm
3:	Frost alarm
2:	Forced operation
1:	Block
0:	Manual operation

A status byte key table with all possible combinations is printed in the appendix (see chapter 5.1.1).

4.2.5 "Manual" communication objects (only JA/S 4.230.1M and JA/S 8.230.1 M)

	Nr.	Objektname	Funktion	K	L	S	Ü	Akt	Typ
	6	Output A...X	Enable/block manual operation	✓		✓			1 Bit
	7	Output A...X	Telegr. status of man. operation	✓	✓		✓		1 Bit
	8	Output A...X	Telegr. status of auxiliary voltage	✓	✓		✓		1 Bit

Diagram 23: "Manual" communication objects

Enable/block manual operation (EIS 1: 1 bit)
The manual operation of the Shutter Actuator can be enabled or disabled via this communication object.

If this communication object has the value "0", the Shutter Actuator can be switched to manual operation via the "Man." push button on the device. If this communication object has the value "1", the Shutter Actuator can only be operated via the EIB / KNX.

If the Shutter Actuator is in manual mode and a telegram with the value "1" is received, the Shutter Actuator switches automatically to operation via EIB / KNX.

Telegram value:	"0":	Manual operation enabled
	"1":	Manual operation disabled

Telegr. status of manual operation (EIS 1: 1 bit)
The Shutter Actuator sends the information to this communication object about whether manual operation or operation via EIB / KNX has been activated. The status of manual operation is sent after a change.

Telegram value:	"0":	Operation via EIB / KNX
	"1":	Manual operation

Telegr. status of auxiliary voltage (EIS 1: 1 bit)
The Shutter Actuator sends the information to this communication object about whether the 230 V AC auxiliary voltage has been connected. The status of the auxiliary voltage is sent after a change.

Telegram value:	"0":	230 V AC auxiliary voltage not OK
	"1":	230 V AC auxiliary voltage OK

4.2.6 Communication objects in the operating mode "Ventilation flaps/ switch mode"

	Nr.	Objektname	Funktion	K	L	S	Ü	Akt	Typ
	11	Output A	Ventil.Open-Closed/ On-Off	✓		✓			1 Bit
	31	Output A	Block	✓		✓			1 Bit
	32	Output A	Forced control	✓		✓			2 Bit
	33	Output A	Telegr. status Open-Closed/On-Off	✓	✓		✓		1 Bit
	37	Output A	Telegr. status of operation	✓	✓		✓		1 Bit
	39	Output A	Telegr. status byte	✓	✓		✓		1 Byte

Diagram 24: Communication objects in the operating mode "Ventilation flaps/switch mode"

Ventilation flaps Open-Closed/On-Off (EIS 1: 1 bit)
The output contact closes if a telegram with the value "1" is received at this communication object. The connected ventilation flaps are thereby opened or the connected loads are switched on.

If a telegram with the value "0" is received, the ventilation flaps are closed or the loads are switched off. The output contact reverts to the neutral position.

Telegram value:	"1":	Open/On
	"0":	Closed/Off

“Safety” communication objects
The “safety” communication objects:

– Wind alarm no. 1 **(EIS 1: 1 bit)**
– Wind alarm no. 2 **(EIS 1: 1 bit)**
– Wind alarm no. 3 **(EIS 1: 1 bit)**
– Rain alarm **(EIS 1: 1 bit)**
– Frost alarm **(EIS 1: 1 bit)**
– Block **(EIS 1: 1 bit)**
– Forced operation **(EIS 8: 2 bit)**

(see chapter 4.2.3) carry out the same function in all operating modes.

Telegr. status Open-Closed/On-Off (EIS 1: 1 bit)
If the Shutter Actuator sends the information to this communication object as to whether the ventilation flaps are opened or closed or the connected loads are switched on or off. The current status is always sent after a change.

Telegram value:	“0”:	Ventilation flaps CLOSED / switch contact OFF
	“1”:	Ventilation flaps OPEN / switch contact ON

Telegr. status of operation (EIS 1: 1 bit)
The Shutter Actuator sends the information to this communication object as to whether operation has been enabled or blocked via the communication objects “Ventilations flaps Open-Closed/On-Off” and “Scene”.

Operation is blocked if one of the “safety” functions has been activated (e.g. wind alarm) or if the Shutter Actuator has been switched to manual operation (e.g. via the push button “Man.”). The operational status is sent after a change.

Telegram value:	“0”:	Operation enabled
	“1”:	Operation blocked

Telegr. status byte (8 bit)
The Shutter Actuator sends the information about the current operating mode of the output to this communication object. Only one operating mode can be activated at the same time.

“0”:	Not activated
“1”:	Activated
Bit No. 7:	“0” (not used)
6:	“0” (not used)
5:	Wind alarm
4:	Rain alarm
3:	Frost alarm
2:	Forced operation
1:	Block
0:	Manual operation

A status byte key table with all possible combinations is printed in the appendix (see chapter 5.1.2).

4.3 Parameters

The parameter windows described in chapters 4.3.1 to 4.3.2 are only available once per Shutter Actuator. The remaining parameter windows are available once for each output and are described in this manual using output A as an example (e.g. parameter window “A-General” contains the general parameters for output A).

The parameters for the operating modes “Shutter” and “Blinds” are described first (chapters 4.3.3 to 4.3.11), followed by the parameters for the operating mode “Ventilation flaps/switch mode” (chapters 4.3.12 to 4.3.15).

4.3.1 “A...X-Safety” parameter window

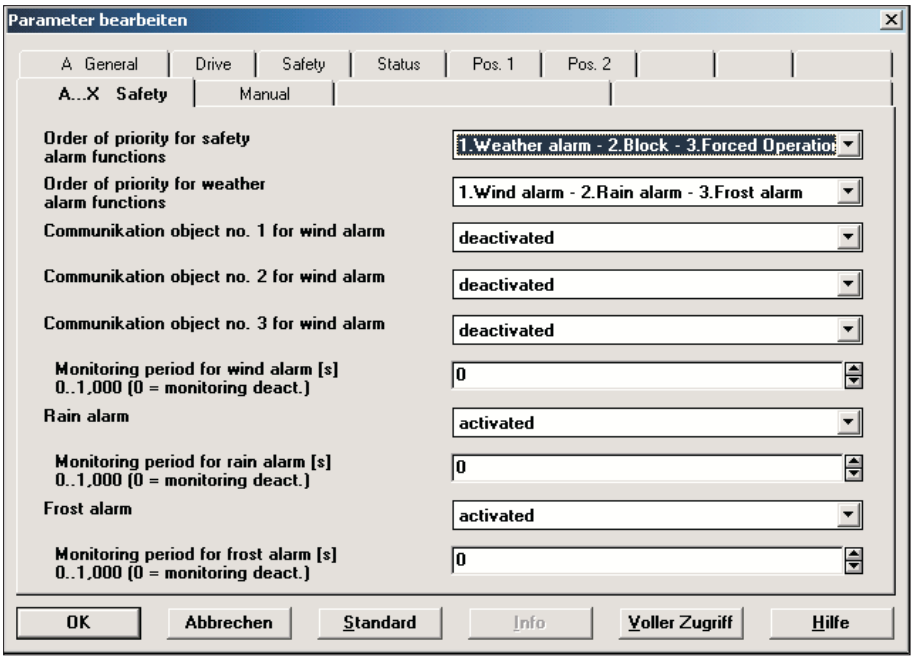


Diagram 26: “A...X-Safety” parameter window

Order of priority for safety functions

Options:
- 1.Weather alarm – 2.Block – 3.Forced operation
- 1.Weather alarm – 2.Forced operation – 3.Block
- 1.Block – 2.Weather alarm – 3.Forced operation
- 1.Block – 2.Forced operation – 3.Weather alarm
- 1.Forced operation – 2.Block – 3.Weather alarm
- 1.Forced operation – 2.Weather alarm – 3.Block

For defining the priority between the safety functions of weather alarm, blocking and forced operation.

Order of priority for weather alarm functions

Options:
- 1.Wind alarm – 2.Rain alarm – 3.Frost alarm
- 1.Wind alarm – 2.Frost alarm – 3.Rain alarm
- 1.Rain alarm – 2.Wind alarm – 3.Frost alarm
- 1.Rain alarm – 2.Frost alarm – 3.Wind alarm
- 1.Frost alarm – 2.Rain alarm – 3.Wind alarm
- 1.Frost alarm – 2.Wind alarm – 3.Rain alarm

For defining the priority between the weather alarm functions of wind alarm, rain alarm and frost alarm.

Communication object no. 1 for wind alarm
Communication object no. 2 for wind alarm
Communication object no. 3 for wind alarm
Options: – activated
– deactivated

If the option “activated” is selected, the communication object “Wind alarm no. X” appears.

Monitoring period for wind alarm [s]
Monitoring period for rain alarm [s]
Monitoring period for frost alarm [s]
Options: – 0...1,000

For setting the monitoring period for the wind alarm, rain alarm or frost alarm in seconds.

The monitoring period in the Shutter Actuator should be at least twice as long as the cyclical sending time of the sensor so that the shutters/blinds are not immediately moved to the alarm position due to the negligible omission of a signal (e.g. due to a high bus load).

If the value of this parameter is set to “0”, the monitoring of the communication object is deactivated.

Rain alarm
Frost alarm
Options: – activated
– deactivated

If the option “activated” is selected, the communication object “Rain alarm” or “Frost alarm” appears.

4.3.2 “Manual” parameter window (only JA/S 4.230.1M and JA/S 8.230.1M)

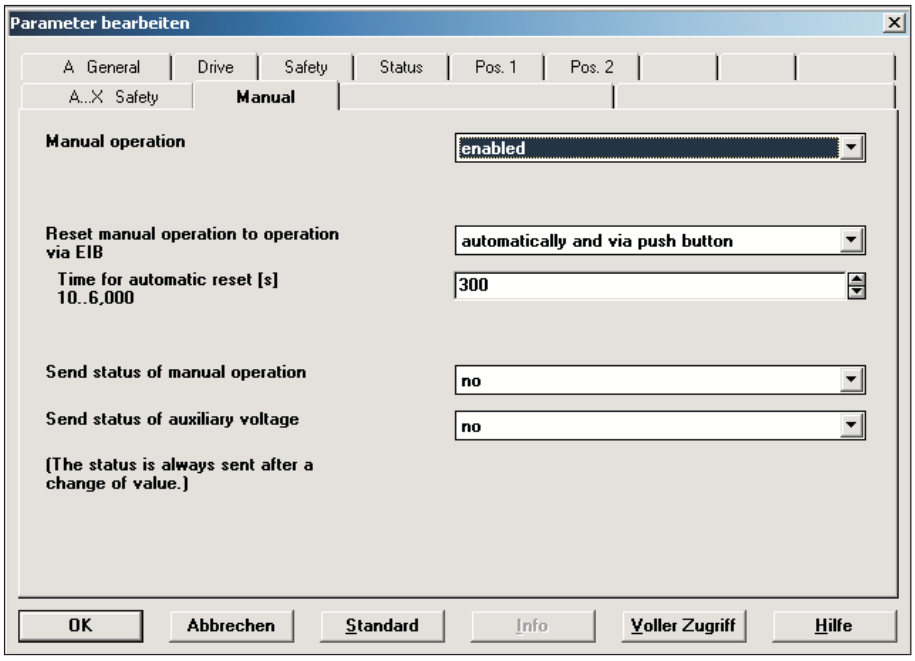


Diagram 27: “Manual” parameter window

Manual operation
Options: – enabled
– enable/disable via communication object

The parameter *Manual operation* defines whether the toggling between the operating states “Manual operation” and “Operation via EIB / KNX” is enabled or blocked via the “Man.” push button on the Shutter Actuator. If the option “enable/disable via communication object” is selected, the communication object “Enable/block manual operation” appears.

Reset manual operation to operation via EIB / KNX
Options: – via push button
– automatically and via push button

This parameter defines how long the Shutter Actuator remains in “Manual operation” once the “Man.” push button has been pressed.

If the option “via push button” is selected, the Shutter Actuator remains in manual mode until the “Man.” push button is pressed again.

If the option “automatically and via push button” is selected, the parameter *Time for automatic reset* appears. After the last push button action, the Shutter Actuator remains in manual operation until either the “Man.” push button is pressed again or the set period for an automatic reset has elapsed.

Time for automatic reset [s]
Options: – 0...6,000

For setting the period for an automatic reset from “Manual operation” to “ Operation via EIB / KNX” after the last push button operation.

Send status of manual operation
Options: – yes
– no

If the option “yes” is selected, the communication object “Telegr. status of manual operation” appears.

Send status of auxiliary voltage
Options: – yes
– no

If the option “yes” is selected, the communication object “Telegr. status of auxiliary voltage” appears.

4.3.3 "A-General" parameter window

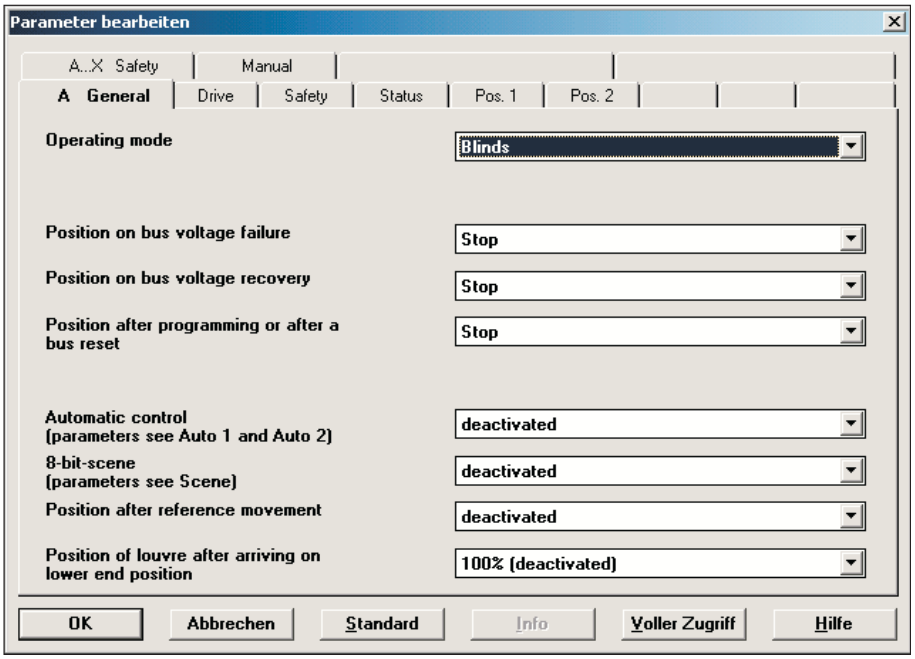


Diagram 28: "A-General" parameter window

Operating mode

Options:
- Shutter
- Blinds
- Ventilation flaps/switch mode

The operating mode is set via this parameter. The communication objects and the parameters for the respective output differ depending on the operating mode. The parameters for the operating modes "Shutter" and "Blinds" are similar and the parameters for these two operating modes are described first (chapter 4.3.4 to 4.3.12). The parameters for the operating mode "Ventilation flaps/switch mode" are described subsequently (chapters 4.3.13 to 4.3.16).

Position on bus voltage failure

Options:
- no reaction
- Up
- Down
- Stop

For setting the behaviour on bus voltage failure. If the option "no reaction" is set, the output contacts remain in their current position. In the option "Stop", the shutter/blind is halted immediately. The output contact reverts to the neutral position.

The parameter setting "Up" or "Down" with a bus voltage fault can only be implemented on devices with a 230 V external supply (JA/S 4.230.1M and JA/S 8.230.1M).

Position on bus voltage recovery

Options:
- no reaction
- Up
- Down
- Stop
- Position 1 to Position 4

For setting the behaviour on bus voltage recovery. If the option “no reaction” is set, the output contacts remain in their current position. In the option “Stop”, the shutter/blind is halted immediately. The output contact reverts to the neutral position.

If the option “Position X” is selected, the shutter/blind first moves right to the top after bus voltage recovery (reference movement) before it travels to the set position.

Position after programming and bus reset

Options:
- no reaction
- Up
- Down
- Stop
- Position 1 to Position 4

For setting the behaviour after programming or bus reset. If the option “no reaction” is set, the output contacts remain in their current position. In the option “Stop”, the shutter/blind is halted immediately. The output contact reverts to the neutral position.

If the option “Position X” is selected, the shutter/blind first moves right to the top after programming (reference movement) before it travels to the set position.

Automatic control

Options:
- activated
- deactivated

The communication objects “Activation of automatic control” and “Sun” as well as the parameter window “Auto 1” appear if the option “activated” is selected.

8 bit scene

Options:
- activated
- deactivated

If the option “yes” is selected, both the communication object “Scene” and the parameter window “Scene” appear.

Position after reference movement
Options: – no reaction
– move to saved position
– deactivated

If the option “no reaction” or “back to saved position” is selected, the communication object “Reference movement” appears.

This parameter specifies how the Shutter Actuator behaves after a reference movement. If the option “no reaction” is set, the shutter/blind remains in the reference position i.e. right at the top or right at the bottom.

If the option “move to saved position” is set, the shutter/blind is moved back to the position it occupied prior to the reference movement. Stop or step commands during the reference movement are ignored and not executed after the reference position is reached.
If automatic control was activated for the shutter/blind prior to the reference-movement, automatic control is reactivated once the saved position has been reached.

Position of louvre after arriving on lower end position
Options: – 100 % (deactivated)/ 90 %/ 80 %/ 70 %/ 60 %/ 50 %/ 40 %/ 30 %/ 20 %/ 10 %/ 0 %

After the shutter/blind has reached the lower end position, the louvres normally are closed. Via this parameter the louvre can be adjusted individually after the shutter/blind has reached the lower end position.

If the option “100 % (deactivated)” is selected, the louvres remain closed.
If the option “0 %” is selected, the louvres will be opened completely.
If one of the other options is selected, the louvers are adjusted accordingly.

This positioning of the louvres is only carried out in connection with a telegram on the direct communication objects. It is e.g. not carried for a security alarm.

4.3.4 “Drive” parameter window

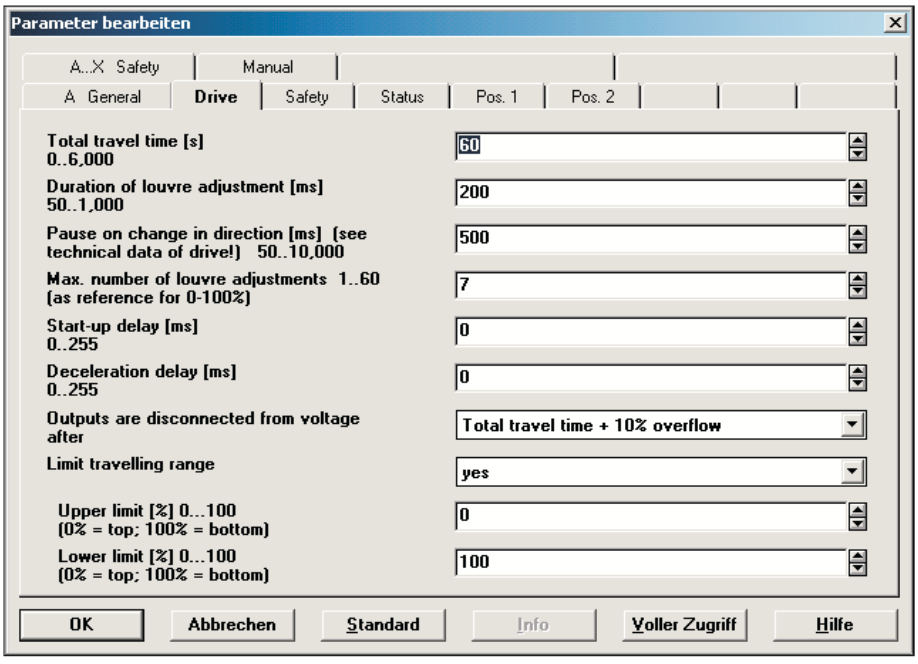


Diagram 29: “Drive” parameter window

Total travel time [s]
Options: – 0...6,000

For setting the total travel time in seconds.

Duration of louvre adjustment [ms] (only in the “Blinds” operating mode)
Options: – 50...1,000

For setting the duration of louvre adjustment in milliseconds.

Pause on change in direction [ms]
Options: – 300...1,000

For setting the pause on change in direction in milliseconds.

The technical data supplied by the drive manufacturer must be taken into account!

Maximum number of louvre adjustments (only in the “Shutter” operating mode)
Options: – 0...60

For setting the maximum number of louvre adjustments.

Start-up delay [ms]
Options: – 0...255

For setting the start-up delay of the drive in milliseconds.

Deceleration delay [ms]
Options: – 0...255

For setting the deceleration delay of the drive in milliseconds.

Outputs are disconnected from voltage after
Optionen:
- End position, no overflow
- End position + 2 % overflow
- End position + 5 % overflow
- End position + 10 % overflow
- End position + 20 % overflow
- Total travel time + 10 % overflow

After reaching the end position (completely up or completely down), the motor automatically switches off. For be sure that the shutter actuator really moves into this position, an overflow time can be parameterized. The voltage will still be connected for the overflow time even though the motor is already switched of.

The calculation of the end position refers to the calculation on time base within the shutter actuator.

Limit travelling range
Options:
- yes
- no

If the option “yes” is selected, the communication object “Shutter Up-Down limited” or “Blinds Up-down limited” appears together with the parameters “Upper limit” and “Lower limit”.

If a telegramm is received at one of those communication objects, the shutter/blind is moved to the parameterized “Upper limit” or “Lower limit” in maximum. Using the communication objects “Move blinds Up-Down” and “Move shutter Up-Down”, the shutter/blind can furthermore be moved completely up/down (see also the description of the according communication objects in chapter 4.2.1). The motion to the upper or lower limit behaves like the parameter “Move to position” described in chapter 4.3.7. If the option “directly” is set for example, the shutter/blind moves directly to the upper or lower position.

Upper limit 0..100 %
Lower limit 0..100 %
Options: – 0...100
“0”: Top
“...”: Intermediate position
“100”: Bottom

For setting the upper or lower limit of the travelling range.

4.3.5 “Safety” parameter window

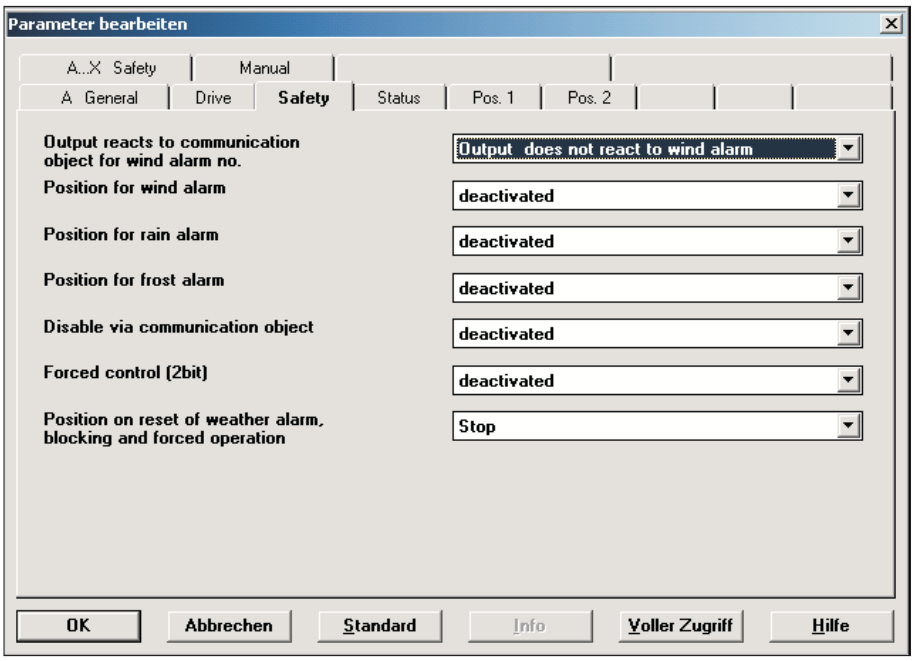


Diagram 30: “Safety” parameter window

Output reacts to communication object no. for wind alarm
Options: – Output does not react on wind alarm
– 1/ 2/ 3/ 1+2/ 1+3/ 2+3/ 1+2+3

This parameter specifies which wind alarm objects the output reacts to. The values of the linked communication objects are connected with an OR function.

This parameter must be set to “Output does not react on wind alarm” if no wind alarm communication object is used!

Position for wind alarm
Position for rain alarm
Position for frost alarm
Options:
– activated – up
– activated – down
– activated – stop
– activated – no reaction
– deactivated

For setting the behaviour in the event of a weather alarm. In the option “Stop”, the shutter/blind is halted immediately. The output contact reverts to the neutral position.

If the option “no reaction” is set, the current movement is carried out in full.

If the option “deactivated” is selected, this output does not react to either an alarm or to the monitoring period.

Disable via communication object
Options:
– activated
– deactivated

If the option “activated” is selected, the communication object “Block” appears as well as the parameter *Position for blocking.*

Position for blocking
Options:
– no reaction
– Up
– Down
– Stop
– Position 1 to Position 4

For setting the behaviour during disable mode. If the option “no reaction” is set, the current movement is carried out in full. In the option “Stop”, the shutter/blind is halted immediately. The output contact reverts to the neutral position.

Forced operation (2 bit)
Options:
– activated
– deactivated

The communication object “Forced operation” appears if the option “activated” is selected.

Position on reset of weather alarm, blocking and positive drive
Options:
– no reaction
– Stop
– move to saved position

This parameter defines how the output behaves after a safety alarm.
If the option “no reaction” is set, the current movement is carried out in full. In the option “Stop”, the shutter/blind is halted immediately. The output contact reverts to the neutral position.

In the option “move to saved position”, the shutter/blind moves to the position it occupied prior to the safety alarm. If automatic control was activated when the safety alarm occurred, it is reactivated.

If in the meantime telegramms are received on the move to position objects (e.g. “Move to position 1/2” or “Move to position 0…255), the shutter/blind will be positioned accordingly.

4.3.6 "Status" parameter window

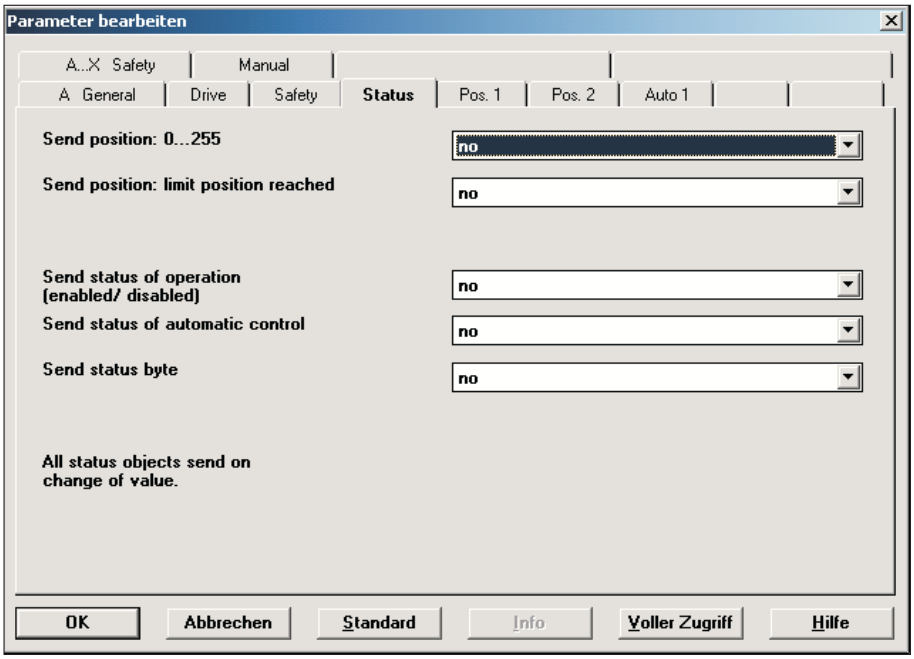


Diagram 31: "Status" parameter window

Send position: 0...255
Options: – yes
– no

If the option "yes" is selected, the communication objects "Telegr. status of position" ("Shutter" and "Blinds" operating modes) and "Telegr. status of louvres" (only in "Blinds" operating mode) appear.

Send position: limit position reached
Options: – yes
– no

If the option "yes" is selected, the communication objects "Telegr. status of upper position" and "Telegr. status of lower position" appear.

Send status of operation
Options: – yes
– no

If the option "yes" is selected, the communication object "Telegr. status of operation" appears.

Send status of automatic control
Options: – yes
– no

If the option "yes" is selected, the communication object "Telegr. status of automatic control". This parameter is only visible, if the option "activated" is selected for the parameter Automatic control in the "General" parameter window.

Send status byte
Options: – yes
– no

The communication object "Telegr. status byte" appears if the option "yes" is selected.

4.3.7 "Pos. 1" parameter window

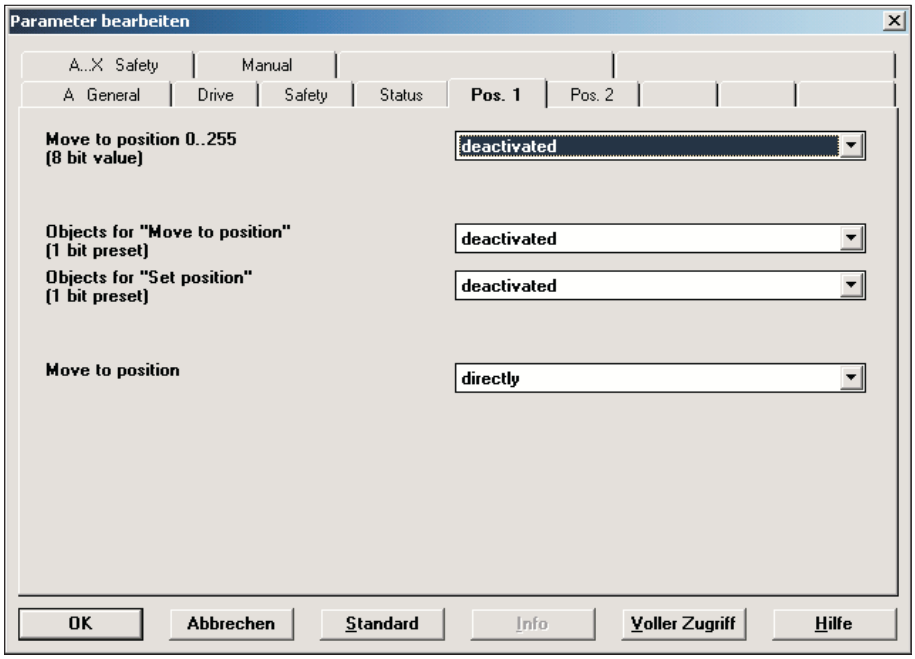


Diagram 32: "Pos. 1" parameter window

Move to position 0...255
Options: – activated
– deactivated

If the option "activated" is selected, the communication objects "Move to position 0...255" (in "Shutter" and "Blinds" operating modes) as well as "Move louvres 0...255" (only in "Blinds" operating mode).

Objects for "Move to position" (1 bit preset)
Objects for "Set position" (1 bit preset)
Options: – activated
– deactivated

If the option "activated" is selected, the communication objects "Move to position 1/2" and "Set position 1/2" or "Move to position 3/4" and "Set position 3/4".

Move to position
Options: – directly
– indirectly via top
– indirectly via bottom
– indirectly via shortest way

If the option "directly" is selected, the shutter/blind moves directly from the current position to the new target position.

If the option "indirectly via top" or "indirectly via bottom" is selected, the shutter/blind first moves completely up or completely down and then into the target position.

If the option "indirectly via shortest way" is selected, the shutter/blind first moves completely up or completely down, depending on which detour is the shortest, and then into the target position.

4.3.8 “Pos. 2” parameter window

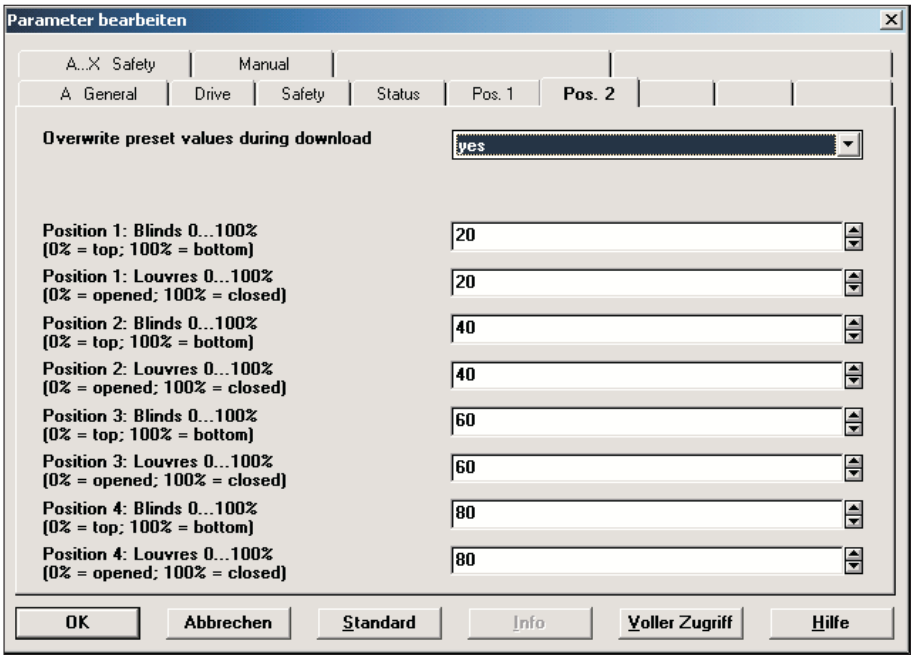


Diagram 33: “Pos. 2” parameter window

Overwrite preset values during download
Options: – yes
– no

This parameter defines whether the preset values stored in the Shutter Actuator should be overwritten during a download with the parameterised preset values. If the option “yes” is selected, the communication objects *Position X: Blinds 0…100 %* and *Position X: Louvres 0…100 % appear.*

If individual preset values have already been specified by the user during operation, this parameter should be set to “no” so that these individual positions are retained. The adjusting of preset position via EIB / KNX is described in detail in chapter 3.3.4.

Position 1: Shutter 0...100 % or Position 1: Blinds 0...100 %
Position 2: Shutter 0...100 % or Position 2: Blinds 0...100 %
Position 3: Shutter 0...100 % or Position 3: Blinds 0...100 %
Position 4: Shutter 0...100 % or Position 4: Blinds 0...100 %
Options: – 0...100
“0”: Top
“...”: Intermediate position
“100”: Bottom

For setting the preset value for the height of the shutter/blind when moving into a preset position.

Position 1: Louvres 0...100 % (only in “Shutter” operating mode)
Position 2: Louvres 0...100 % (only in “Shutter” operating mode)
Position 3: Louvres 0...100 % (only in “Shutter” operating mode)
Position 4: Louvres 0...100 % (only in “Shutter” operating mode)
Options: – 0...100
“0”: Open
“...”: Intermediate position
“100”: Closed

For setting the preset value for louvre adjustment when moving into a preset position.

4.3.9 "Auto 1" parameter window

This parameter window is only visible, if the option "activated" is selected for the parameter Automatic control in the "General" parameter window.

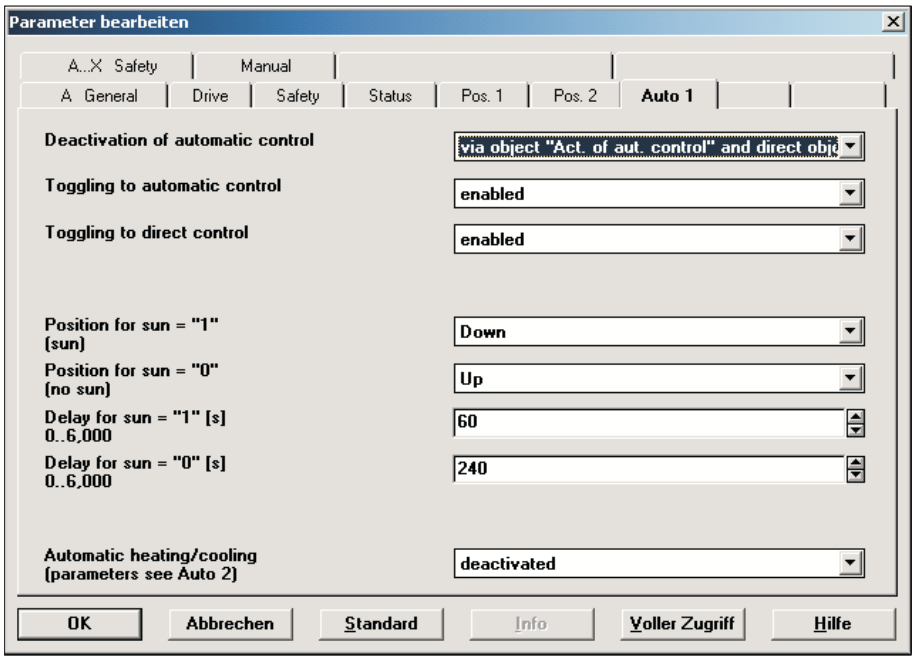


Diagram 34: "Auto 1" parameter window

Deactivation of automatic control
Options:
- via object "Activation of automatic control"
- via object "Activation of automatic control" and direct objects

This parameter defines whether automatic control should only be deactivated via the communication object "Activation of automatic control" or via the "direct" communication objects in addition.

If the second option is selected and a telegram is received at a "direct" communication object when automatic control is activated, automatic control is deactivated and the direct movement command is carried out.

Toggling to automatic control
Toggling to direct operation
Options:
- enabled
- enable/disable via communication object

This parameter specifies whether toggling to automatic control or direct operation is enabled or disabled. If the option "enable/disable via communication object" is selected, the communication object "Enable/disable automatic control or "Enable/block direct operation" appears.

Position for sun = "1" (sun)
Position for sun = "0" (no sun)
Options:
- no reaction
- Up
- Down
- Stop
- Position 1 to Position 4
- receive position via 8 bit value

For setting the behaviour if the sun = “1” (sun) or the sun = “0” (no sun) in automatic sun protection mode. If the option “receive position via 8 bit value” is selected, the communication objects “Move to position for sun 0...255” and “Adjust louvres for sun 0..255” appear.

If the option “no reaction” is set, the current movement is carried out in full. In the option “Stop”, the shutter/blind is halted immediately. The output contact reverts to the neutral position.

Delay for sun = “1” [s]
Delay for sun = “0” [s]
Options: – 0...6,000

For setting the delay in seconds when activating the *Position for sun = “1” or Position for sun = “0”.*

Automatic heating/cooling
Options: – activated
– deactivated

If the option “activated” is selected, the communication objects “Presence”, “Heating” and “Cooling” appear as well as the parameter window “Auto 2”.

4.3.10 "Auto 2" parameter window

This parameter window is only visible, if the option "activated" is selected for the parameter Automatic heating/cooling in the "Auto 1" parameter window.

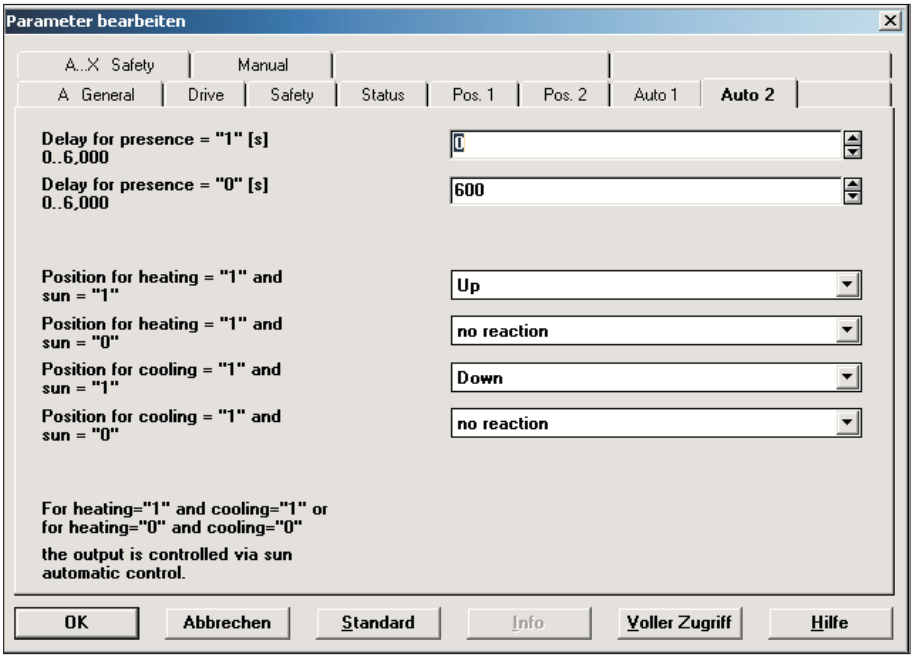


Diagram 35: "Auto 2" parameter window

Delay for presence = "0" [s]
Delay for presence = "1" [s]
Options: – 0...6,000

For setting the delay in seconds when toggling between automatic sun protection and automatic heating/cooling.

Position for heating = "1" and sun = "1"
Position for heating = "1" and sun = "0"
Position for cooling = "1" and sun = "1"
Position for cooling = "1" and sun = "0"
Options: – no reaction
– Up
– Down
– Stop
– Position 1 to Position 4

For setting the behaviour when the sun = "1" (sun) or sun = "0" (no sun) in heating mode (Heating = "1") or in cooling mode (Cooling = "1").

If the option "no reaction" is set, the outputs remain in their current position. In the option "Stop", the shutter/blind is halted immediately. The output contact reverts to the neutral position.

4.3.11 “Scene” parameter window

This parameter window is only visible, if the option “activated” is selected for the parameter 8-bit-scene in the “General” parameter window.

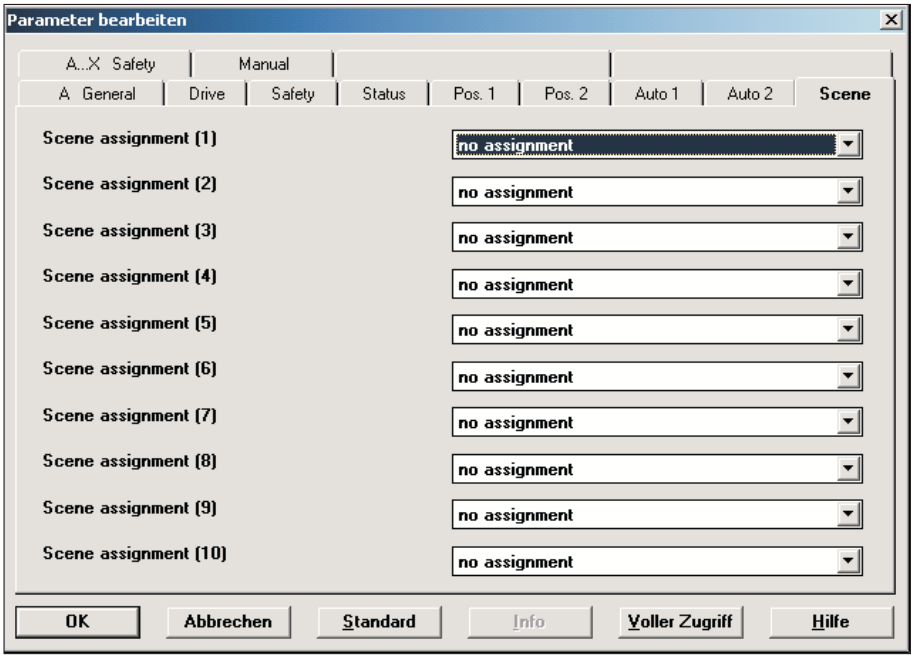


Diagram 36: “Scene” parameter window

Scene assignment (1)
Scene assignment (2)
etc.
Options: – no assignment
– scene 0 to scene 63

This parameter defines into which scenes the shutter/blind should be integrated. Each shutter/blind can be integrated in up to 10 out of a total of 64 scenes per group address.

4.3.12 "A - General" parameter window in the operating mode "Ventilation flaps/ switch mode"

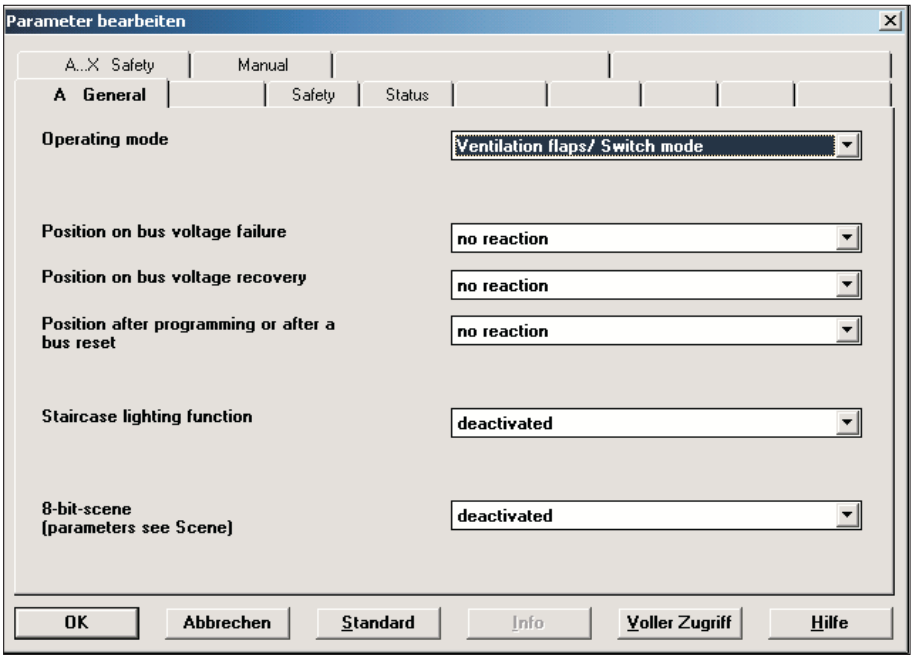


Diagram 37: "A - General" operating mode (operating mode "Ventilation flaps/switch mode")

Operating mode
Options:
- Shutter
- Blinds
- Ventilation flaps/switch mode

The operating mode is set via this parameter. The communication objects and the parameters for the respective output differ according to the operating mode. The parameters for the "Shutter" and "Blinds" operating modes are similar and are described in chapters 4.3.3 to 4.3.11. The following section describes the parameters for the operating mode "Ventilation flaps/ switch mode" (chapters 4.3.12 to 4.3.15).

Position on bus voltage failure
Options:
- Closed-Off
- Open-On
- no reaction

For setting the behaviour on bus voltage failure. In the option "Closed-Off", the output contact reverts to the neutral position.

Position on bus voltage recovery
Options:
- Closed-Off
- Open-On
- no reaction

For setting the behaviour on bus voltage recovery. In the option "Closed-Off", the output contact reverts to the neutral position.

If the option "Open/on" is selected and the staircase lighting function was activated (that means: flaps are opened or contact is closed) when a security alarm is received, the "Duration/ opening time for staircase lighting function" will be started anew when the security alarm is deactivated.

Position after programming and bus reset
Options: – Closed-Off
– Open-On
– no reaction

For setting the behaviour after programming or bus reset. In the option “Closed-Off”, the output contact reverts to the neutral position.

If the option “Open/on” is selected and the staircase lighting function was activated (that means: flaps are opened or contact is closed) when a security alarm is received, the “Duration/ opening time for staircase lighting function” will be started anew when the security alarm is deactivated.

Staircase lighting function
Options: – activated
– deactivated

The staircase lighting function is activated via this parameter. If “activated” is selected, the parameter *Duration/opening time for staircase lighting appears.*

Duration/opening time for staircase lighting function [s]
Options: – 0...30,000

For setting the duration/opening time for staircase lighting in seconds.

4.3.13 "Safety" parameter window in the operating mode "Ventilation flaps/ switch mode"

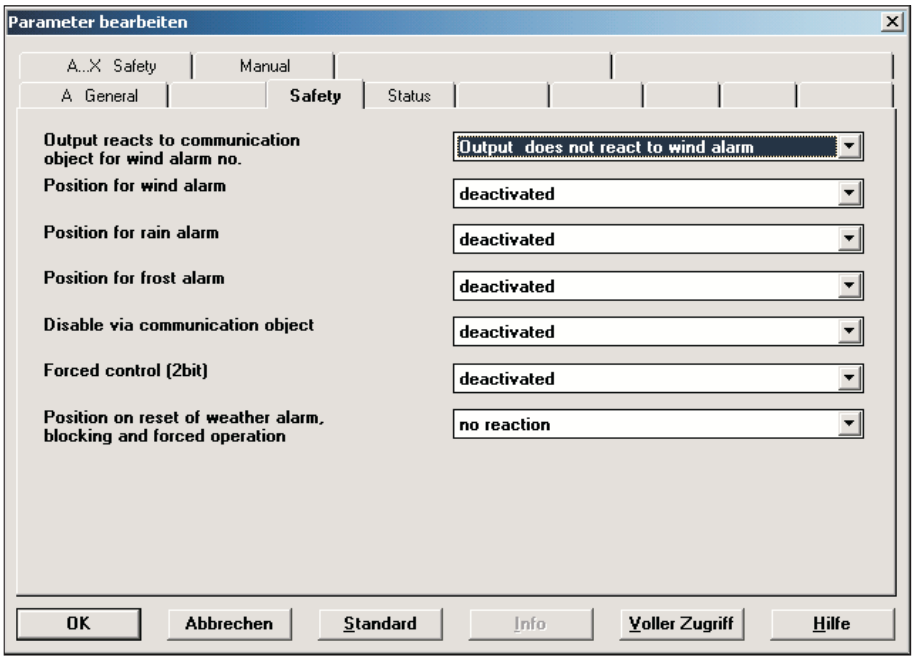


Diagram 38: "Safety" parameter window (operating mode "Ventilation flaps/switch mode")

Output reacts to communication object no. for wind alarm
Options: – Output does not react on wind alarm
– 1/ 2/ 3/ 1+2/ 1+3/ 2+3/ 1+2+3

This parameter defines which wind alarm objects the output reacts to. The values of the linked communication objects are connected via an OR function.

Position for wind alarm
Position for rain alarm
Position for frost alarm
Options: – activated – closed-Off
– activated – open-On
– activated – no reaction
– deactivated

For setting the behaviour in the event of a weather alarm. In the option "Closed-Off", the output contact reverts to the neutral position.

If the option "no reaction" is set, the current movement is carried out in full.

If the option "deactivated" is selected, this output does not react to an alarm or to the monitoring period.

Disable via communication object
Options: – activated
– deactivated

If the option "activated" is selected, the communication object "Block" appears as well as the parameter Position for blocking.

Position for blocking
Options: – Closed-Off
– Open-On
– no reaction

For setting the behaviour during disable mode. If the option “no reaction” is set, the output contacts remain in their current position. In the option “Closed-Off”, the output contact reverts to the neutral position.

Forced operation (2 bit)
Options: – activated
– deactivated

The communication object “Forced operation” appears if the option “activated” is selected.

Position on reset of weather alarm, blocking and forced operation
Options: – Open-On
– Closed-Off
– no reaction

This parameter defines how the output behaves after a safety alarm. If the option “no reaction” is set, the output contacts remain in their current position. In the option “Closed”, the output contact reverts to the neutral position.

If the option “Open/on” is selected and the staircase lighting function was activated (that means: flaps are opened or contact is closed) when a security alarm is received, the “Duration/ opening time for staircase lighting function” will be started anew when the security alarm is deactivated.

4.3.14 "Status" parameter window in the operating mode "Ventilation flaps/ switch mode"

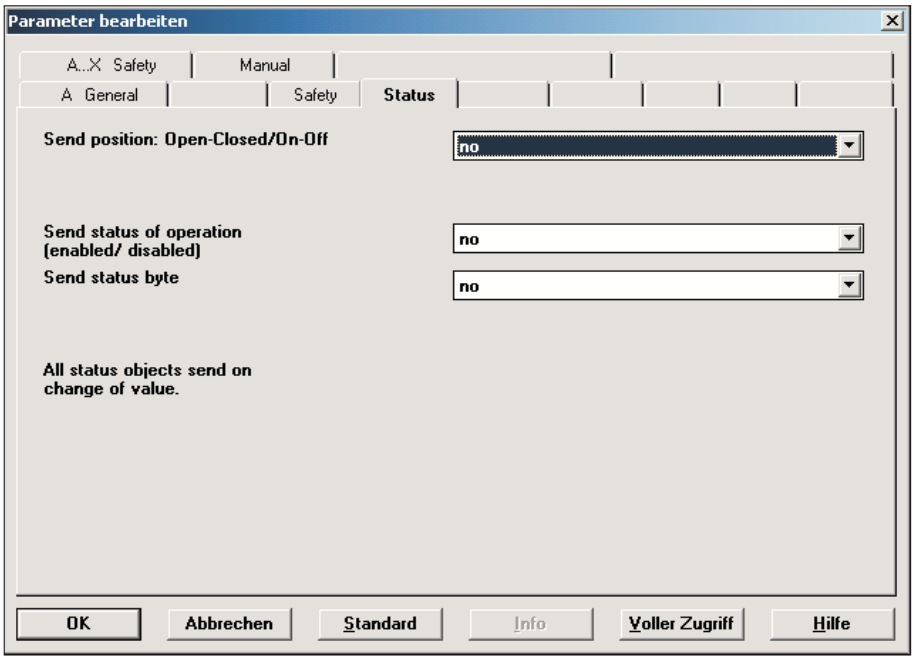


Diagram 39: "Status" parameter window (operating mode "Ventilation flaps/switch mode")

Send position: Open-Closed/On-Off
Options: – yes
– no

If the option "yes" is selected, the communication object "Telegr. status Open-Closed/On-Off" appears.

Send status of operation
Options: – yes
– no

If the option "yes" is selected, the communication object "Telegr. status of operation" appears.

Send status byte
Options: – yes
– no

The communication object "Telegr. status byte" appears if the option "yes" is selected.

5 Appendix

5.1 Status byte key table

5.1.1 “Shutter” and “Blinds” operating modes

Bit no.		7	6	5	4	3	2	1	0		
Status byte value	Hexadecimal	Automatic sun protection	Automatic heating/cooling	Wind alarm	Rain alarm	Frost alarm	Forced operation	Block	Manual operation	Current status	Operation
0	00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	Direct positioning	Communication objects: – UP/DOWN – STOP/louvre adjustment – move into position – scene
1	01	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	Manual operation	Push buttons
2	02	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	Block	disabled
4	04	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	Forced operation	disabled
8	08	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	Frost alarm	disabled
16	10	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	Rain alarm	disabled
32	20	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	Wind alarm	disabled
64	40	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	Automatic sun protection	Communication objects: – Sun – Move to position for sun – Adjust louvres for sun
128	80	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	Automatic heating/cooling	Communication objects: – Heating – Cooling
Other	Other	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Not defined	

5.1.2 "Ventilation flaps/ switch mode" operating mode

Bit no.		7	6	5	4	3	2	1	0		
Status byte value	Hexadecimal	Free	Free	Wind alarm	Rain alarm	Frost alarm	Forced operation	Block	Manual operation	Current status	Operation
0	00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	Direct positioning	Communication objects: – OPEN/CLOSED – Scene
1	01	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	Manual operation	Push buttons
2	02	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	Block	disabled
4	04	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	Forced operation	disabled
8	08	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	Frost alarm	disabled
16	10	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	Rain alarm	disabled
32	20	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	Wind alarm	disabled
64	40	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	Not defined	
128	80	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	Not defined	
Other	Other	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Not defined	

5.2 8-bit-scene key table

Bit-no		7	6	5	4	3	2	1	0		
8 bit value	Hexadecimal	Recall/store	Not defined	Scene number						**Scene number**	**Recall (R)/ Store (S)**
0	00	0	0	0	0	0	0	0	0	1	A
1	01	0	0	0	0	0	0	0	1	2	A
2	02	0	0	0	0	0	0	1	0	3	A
3	03	0	0	0	0	0	0	1	1	4	A
4	04	0	0	0	0	0	1	0	0	5	A
5	05	0	0	0	0	0	1	0	1	6	A
6	06	0	0	0	0	0	1	1	0	7	A
7	07	0	0	0	0	0	1	1	1	8	A
8	08	0	0	0	0	1	0	0	0	9	A
9	09	0	0	0	0	1	0	0	1	10	A
10	0A	0	0	0	0	1	0	1	0	11	A
11	0B	0	0	0	0	1	0	1	1	12	A
12	0C	0	0	0	0	1	1	0	0	13	A
13	0D	0	0	0	0	1	1	0	1	14	A
14	0E	0	0	0	0	1	1	1	0	15	A
15	0F	0	0	0	0	1	1	1	1	16	A
16	10	0	0	0	1	0	0	0	0	17	A
17	11	0	0	0	1	0	0	0	1	18	A
18	12	0	0	0	1	0	0	1	0	19	A
19	13	0	0	0	1	0	0	1	1	20	A
20	14	0	0	0	1	0	1	0	0	21	A
21	15	0	0	0	1	0	1	0	1	22	A
22	16	0	0	0	1	0	1	1	0	23	A
23	17	0	0	0	1	0	1	1	1	24	A
24	18	0	0	0	1	1	0	0	0	25	A
25	19	0	0	0	1	1	0	0	1	26	A
26	1A	0	0	0	1	1	0	1	0	27	A
27	1B	0	0	0	1	1	0	1	1	28	A
28	1C	0	0	0	1	1	1	0	0	29	A
29	1D	0	0	0	1	1	1	0	1	30	A
30	1E	0	0	0	1	1	1	1	0	31	A
31	1F	0	0	0	1	1	1	1	1	32	A
32	20	0	0	1	0	0	0	0	0	33	A
33	21	0	0	1	0	0	0	0	1	34	A
34	22	0	0	1	0	0	0	1	0	35	A
35	23	0	0	1	0	0	0	1	1	36	A
36	24	0	0	1	0	0	1	0	0	37	A
37	25	0	0	1	0	0	1	0	1	38	A
38	26	0	0	1	0	0	1	1	0	39	A
39	27	0	0	1	0	0	1	1	1	40	A
40	28	0	0	1	0	1	0	0	0	41	A
41	29	0	0	1	0	1	0	0	1	42	A
42	2A	0	0	1	0	1	0	1	0	43	A
43	2B	0	0	1	0	1	0	1	1	44	A
44	2C	0	0	1	0	1	1	0	0	45	A
45	2D	0	0	1	0	1	1	0	1	46	A
46	2E	0	0	1	0	1	1	1	0	47	A
47	2F	0	0	1	0	1	1	1	1	48	A
48	30	0	0	1	1	0	0	0	0	49	A
49	31	0	0	1	1	0	0	0	1	50	A
50	32	0	0	1	1	0	0	1	0	51	A
51	33	0	0	1	1	0	0	1	1	52	A
52	34	0	0	1	1	0	1	0	0	53	A
53	35	0	0	1	1	0	1	0	1	54	A
54	36	0	0	1	1	0	1	1	0	55	A
55	37	0	0	1	1	0	1	1	1	56	A
56	38	0	0	1	1	1	0	0	0	57	A
57	39	0	0	1	1	1	0	0	1	58	A
58	3A	0	0	1	1	1	0	1	0	59	A
59	3B	0	0	1	1	1	0	1	1	60	A
60	3C	0	0	1	1	1	1	0	0	61	A
61	3D	0	0	1	1	1	1	0	1	62	A
62	3E	0	0	1	1	1	1	1	0	63	A
63	3F	0	0	1	1	1	1	1	1	64	A
128	80	1	0	0	0	0	0	0	0	1	S
129	81	1	0	0	0	0	0	0	1	2	S
130	82	1	0	0	0	0	0	1	0	3	S
131	83	1	0	0	0	0	0	1	1	4	S
132	84	1	0	0	0	0	1	0	0	5	S
133	85	1	0	0	0	0	1	0	1	6	S
134	86	1	0	0	0	0	1	1	0	7	S
135	87	1	0	0	0	0	1	1	1	8	S
136	88	1	0	0	0	1	0	0	0	9	S
137	89	1	0	0	0	1	0	0	1	10	S
138	8A	1	0	0	0	1	0	1	0	11	S
139	8B	1	0	0	0	1	0	1	1	12	S
140	8C	1	0	0	0	1	1	0	0	13	S
141	8D	1	0	0	0	1	1	0	1	14	S
142	8E	1	0	0	0	1	1	1	0	15	S
143	8F	1	0	0	0	1	1	1	1	16	S
144	90	1	0	0	1	0	0	0	0	17	S
145	91	1	0	0	1	0	0	0	1	18	S
146	92	1	0	0	1	0	0	1	0	19	S
147	93	1	0	0	1	0	0	1	1	20	S
148	94	1	0	0	1	0	1	0	0	21	S
149	95	1	0	0	1	0	1	0	1	22	S
150	96	1	0	0	1	0	1	1	0	23	S
151	97	1	0	0	1	0	1	1	1	24	S
152	98	1	0	0	1	1	0	0	0	25	S
153	99	1	0	0	1	1	0	0	1	26	S
154	9A	1	0	0	1	1	0	1	0	27	S
155	9B	1	0	0	1	1	0	1	1	28	S
156	9C	1	0	0	1	1	1	0	0	29	S
157	9D	1	0	0	1	1	1	0	1	30	S
158	9E	1	0	0	1	1	1	1	0	31	S
159	9F	1	0	0	1	1	1	1	1	32	S
160	A0	1	0	1	0	0	0	0	0	33	S
161	A1	1	0	1	0	0	0	0	1	34	S
162	A2	1	0	1	0	0	0	1	0	35	S
163	A3	1	0	1	0	0	0	1	1	36	S
164	A4	1	0	1	0	0	1	0	0	37	S
165	A5	1	0	1	0	0	1	0	1	38	S
166	A6	1	0	1	0	0	1	1	0	39	S
167	A7	1	0	1	0	0	1	1	1	40	S
168	A8	1	0	1	0	1	0	0	0	41	S
169	A9	1	0	1	0	1	0	0	1	42	S
170	AA	1	0	1	0	1	0	1	0	43	S
171	AB	1	0	1	0	1	0	1	1	44	S
172	AC	1	0	1	0	1	1	0	0	45	S
173	AD	1	0	1	0	1	1	0	1	46	S
174	AE	1	0	1	0	1	1	1	0	47	S
175	AF	1	0	1	0	1	1	1	1	48	S
176	B0	1	0	1	1	0	0	0	0	49	S
177	B1	1	0	1	1	0	0	0	1	50	S
178	B2	1	0	1	1	0	0	1	0	51	S
179	B3	1	0	1	1	0	0	1	1	52	S
180	B4	1	0	1	1	0	1	0	0	53	S
181	B5	1	0	1	1	0	1	0	1	54	S
182	B6	1	0	1	1	0	1	1	0	55	S
183	B7	1	0	1	1	0	1	1	1	56	S
184	B8	1	0	1	1	1	0	0	0	57	S
185	B9	1	0	1	1	1	0	0	1	58	S
186	BA	1	0	1	1	1	0	1	0	59	S
187	BB	1	0	1	1	1	0	1	1	60	S
188	BC	1	0	1	1	1	1	0	0	61	S
189	BD	1	0	1	1	1	1	0	1	62	S
190	BE	1	0	1	1	1	1	1	0	63	S
191	BF	1	0	1	1	1	1	1	1	64	S

5.3 Special operating modes

Bus voltage	Auxiliary voltage*	Reaction Output/hangings	Object value	Positions	Status response
Failure* (no movement)	**OK**	According *Parameter Position on bus voltage failure*	unchanged	remain	None
Recovery	**OK**	According P*arameter Position on bus voltage recovery* [1)]	unchanged	remain	Status response after approx. 18 sec.
OK	**Failure**	unchanged	unchanged	remain	Status auxiliary voltage
OK	**Recovery**	unchanged	unchanged	remain	Status auxiliary voltage
Failure*	**None**	According Parameter *Position on bus voltage failure*	–	–	None
Recovery	**None**	According *Position on bus voltage recovery* [1)]	erased	Unknown [2)]	Status response after approx. 18 sec.
None	**Failure**	–	–	–	None
None	**Recovery**	According Parameter *Position on bus voltage recovery* [1)]	erased	Unknown [2)]	None

* In operating mode “Shutter” and “Blinds” a change on travel direction during a movement on bus voltage failure can only be carried out at JA/S with manual operation (JA/S 4.230.1M and JA/S 8.230.1M) and applied auxiliary voltage. The parameter settings (Up, Down) will be carried out.

Behaviour of the outputs at JA/S without auxiliary voltage on bus voltage failure during movement:

Current status output/hanging	**Parameter setting „Position on bus voltage failure“**	**Reaction output/hanging**
Moves “Up”	Up	Up
Moves “Down”	Down	Down
Moves “Up”	Down	Stop
Moves “Down”	Up	Stop

In operating mode “ventilation flaps” the parameter settings will be carried out according to the settings of parameter *Position on bus voltage failure*.

[1] If the option “Position X” is set as the *Position on bus voltage recovery*, the shutter/blind is moved via one of the end positions on the shortest way into the target position in order to determine the current positions. Once the action has been completed, the “status response” communication objects are updated and send their status on the EIB / KNX.
If the option “no reaction” or “Stop” has been set as the *Position on bus voltage recovery*, the Shutter Actuator does not detect the current position of the shutter/blind (only after a previous failure of bus voltage **and** auxiliary voltage). The communication objects “Telegr. status of position” have the value “1” or “129” and are not sent on the EIB / KNX.

[2] The position will be determined once the hanging has moved in one direction for the parameterized total travel time.

Status response
The following status response messages will be send approx. 18 sec. after programming, bus reset and bus voltage recovery:

- Telegr. status of position (only if position is determined)
- Telegr. status of louvres (only if position is determined)
- Telegr. status of upper position (only if position is determined; value “1” if unknown)
- Telegr. status of lower position (only if position is determined; value “1” if unknown)
- Telegr. status of operation
- Telegr. status of automatic control
- Telegr. status byte
- Telegr. status of auxiliary voltage
- Telegr. status of man. Operation (only JA/S 4.230.1M and JA/S 8.230.1M)

During these 18 sec. a status response won’t occur even when a value of the following communication objects is changing:

- Telegr. status byte
- Telegr. status of auxiliary voltage
- Telegr. status of upper position
- Telegr. status of lower position

5.4 Ordering information

5.4.1 Shutter Actuators

Description	**Ordering info.** **Short code**	Order no.	**bbn 40 16779 EAN**	Price group	**Unit price**	Unit weight [kg]	Pack units
Shutter Actuator, 2-fold, 230 VAC, MDRC	**JA/S 2.230.1**	GHQ6 310 071 R0111	**57552 2**	26		0,25	1
Shutter Actuator, 4-fold, 230 VAC, MDRC	**JA/S 4.230.1**	GHQ6 310 072 R0111	**57555 3**	26		0,25	1
Shutter Actuator, 8-fold, 230 VAC, MDRC	**JA/S 8.230.1**	GHQ6 310 063 R0111	**57560 7**	26		0,5	1
Shutter Actuator with manual operation, 4-fold, 230 VAC, MDRC	**JA/S 4.230.1M**	GHQ6 310 064 R0111	**57556 0**	26		0,26	1
Shutter Actuator with manual operation, 8-fold, 230 VAC, MDRC	**JA/S 8.230.1M**	GHQ6 310 078 R0111	**57562 1**	26		0,52	1
Shutter Actuator, 4-fold 24 VDC, MDRC	**JA/S 4.24.1**	GHQ6 310 073 R0111	**57558 4**	26		0,25	1

5.4.2 Control system

Description	**Ordering info.** **Short code**	Order no.	**bbn 40 16779 EAN**	Price group	**Unit price**	Unit weight [kg]	Pack units
Shutter Control Unit	**JSB/S 1.1**	GHQ6 310 084 R0111	**57993 3**	26		0,1	1
Brightness Sensor	**HS/S 3.1**	GHQ6 050 063 R0111	**50098 2**	26		0,18	1

Switch sensors and other EIB / KNX products can be found in the current ABB i-bus® EIB / KNX price list.

The information in this leaflet is subject to change without further notice.

Pub. No. 2CDC 506 017 D0204
replaces 2CDC 506 017 D0203

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