

The 4-fold shutter actuator is a DIN rail mounted device for insertion in the distribution board. It is connected to the EIB via a bus connecting terminal.

It is suitable for controlling four independent direct current drive mechanisms. Typical applications are the control of skylights, smoke extractors, curtains or vertical blinds.

The following functions can be implemented using the parameter settings:

- Pause on change in direction
- Monitoring period for wind sensor
- Safety in event of wind alarm
- Operating time of the blind
- Period for lamella adjustment
- Operation of ventilation flaps
- Movement into position (2 presets per channel)

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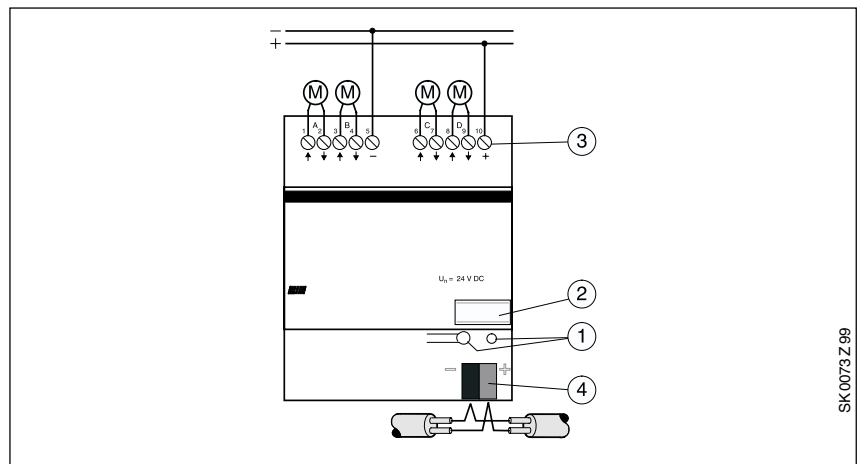
Technical data

Power supply	- EIB	24 V DC, via the bus line
Outputs	- Number	4 independent channels, each with 2 switch contacts for Up/Down
	- Switching voltage	24 V DC (12 V DC ... 48 V DC)
	- Switching current	6 A per switch contact
Operating and display elements	- Red LED and push button	for assigning the physical address
Connections	- Direct voltage	1 screw terminal each for + and -
	- Per channel	2 screw terminals (Up, Down)
		Wire range: 0.2 ... 2.5 mm ² finely-stranded 0.2 ... 4.0 mm ² single core
	- EIB	Bus connecting terminal
Type of protection	- IP 20, DIN 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 50 022	
Dimensions	- 90 x 72 x 64 mm (H x W x D)	
Mounting depth/width	- 68 mm / 4 modules at 18 mm	
Weight	- 0.250 kg	
Certification	- EIB-certified	
CE norm	- in accordance with the EMC guideline and the low voltage guideline	

Application programs	Number of communication objects	Max. number of group addresses	Max. number of associations
Shutter Position /3	20	26	28
Shutter Block /1	16	32	32

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Circuit diagram



- 1 Programming LED, push button
- 2 Marker tag

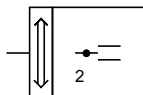
- 3 Connecting terminals
- 4 Bus terminal

Note

When installing the device, switch the bus voltage on first. The neutral position is then set. Only then should the 24 V direct voltage be switched on.

Caution: Prior to programming, service release A of ETS2 V1.1 or higher must be installed on the commissioning-PC. If this is not carried out, the device cannot function and can no longer be programmed.

Shutter Position /3



Selection in ETS2

- ABB
 - └ Shutter
 - └ Switch

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The application program enables four blind, shutter or ventilation flap drive mechanisms to be controlled independently. The corresponding operation mode can be set separately.

Blinds

There are two communication objects available for operating the blinds with the functions “Move blind Up-Down” and “Lamella adj. / Stop Up-Down”.

If the object “Move blind Up-Down” receives a telegram with the value “1”, the motor travels downwards until it reaches the limit position or until the “duration Up-Down” has elapsed. This period is set using a factor and a time base. After a telegram with the value “0”, the motor travels upwards.

If the object “Lamella adj. / Stop Up-Down” receives a telegram during this period, the motor stops. As soon as the motor is stationary, further telegrams for lamella adjustment can be sent to the same object. Also In this case, the value “1” indicates downwards movement and “0” indicates upwards movement. The duration of lamella adjustment can likewise be set using a factor and time base.

So that there is no damage to the drive mechanisms due to sudden changes in direction, there is the parameter “Factor for reversing time”. This parameter has a fixed time base for determining the pause between changes in direction (please observe the technical data of the motor manufacturer!)

Shutters

In this mode, there is an object “Move shutter Up-Down” available for each output for raising and lowering the shutter. Objects no. 4 to 7, “Stop”, are used to halt the motors during shutter movement. The duration of upwards and downwards movement is also set in this mode using a time base and factor.

Ventilation flap

If the shutter actuator is set to this operation mode, the communication object “Open-Close ventilation flaps” is made available for each output. If the

value changes from “0” to “1”, the ventilation flap opens and the channel is permanently switched on. A time setting is not required in this mode.

Bus voltage failure

The behaviour of the drive mechanisms on bus voltage failure can be set individually for each channel. If for the output the operation mode “blind operation” or “shutter operation” is set, the drive mechanism can go downward or upward or it can be stopped. If for the output the operation mode “ventilation flap operation” is set, the drive mechanism can go downward or upward resp. remain unchanged (“no reaction”).

In case of bus voltage recovery the channel contacts during blind- and shutter operation are open. During ventilation flap operation the contacts are open at first (in case of bus voltage recovery) for the duration of the reverse time and then hold the position which was set for the bus voltage failure.

Wind alarm

In order to move the blind to a defined safety position in the event of a storm, the actuator has the object “Output A ... D (wind alarm)” available if the parameter “Wind alarm” is set to “yes”. If the wind alarm is activated for the respective output, the motors travel in the set direction or are stopped as soon as the wind alarm object receives a telegram with the value “1”. Any further operation is blocked until the object receives a telegram with the value “0”. The function of the wind alarm is monitored over a period of time. If the corresponding communication object does not receive a telegram within the monitoring time, the drive mechanisms likewise travel in the set direction or are stopped.

Note: The cyclical sending time of the sensor should be adjusted considerably less than the monitoring time at the actuator.

After download of the application and after a bus voltage recovery the monitoring time is started anew at once.

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Position

Up to two defined positions can be used during operation of blinds or shutters. The positions are specified using the time settings and start position.

The times that are selected are dependent on the respective drive mechanism and must be adapted to local conditions.

If an "On" telegram is sent to the object "Move to position ..." the actuator at first travels to the starting position and then to the desired position when the "duration Up-Down" has elapsed.

If the blind is inactive and the blind actuator receives an "Off" telegram on the object "Move to position ...", the drive mechanism travels to the set "Position when set back" (Up/Down).

If during the positioning an "Off" telegram is sent to the position object, the positioning is stopped.

So that no drive mechanisms are unintentionally put in motion by a read request (e.g. via a visualisation terminal or a display), the read flag may not be set for the communication objects in the shutter sensor and actuators.

If the actuator receives a "move" telegram on the same output while the action "Move to position" is on, it interrupts the action "Move to position". Then the "move" order is done and is followed by the lamella adjustment of the action "Move to position" which had been interrupted before.

Communication objects
for operation of blinds

No.	Type	Object name	Function
0	1 bit	Output A	Move blind Up-Down
1	1 bit	Output B	Move blind Up-Down
2	1 bit	Output C	Move blind Up-Down
3	1 bit	Output D	Move blind Up-Down
4	1 bit	Output A	Lamella adj. / Stop Up-Down
5	1 bit	Output B	Lamella adj. / Stop Up-Down
6	1 bit	Output C	Lamella adj. / Stop Up-Down
7	1 bit	Output D	Lamella adj. / Stop Up-Down

Communication objects
for shutter operation

No.	Type	Object name	Function
0	1 bit	Output A	Move shutter Up-Down
1	1 bit	Output B	Move shutter Up-Down
2	1 bit	Output C	Move shutter Up-Down
3	1 bit	Output D	Move shutter Up-Down
4	1 bit	Output A	Stop
5	1 bit	Output B	Stop
6	1 bit	Output C	Stop
7	1 bit	Output D	Stop

Communication objects
for operation of ventilation flaps

No.	Type	Object name	Function
0	1 bit	Output A	Open-Close ventilation flap
1	1 bit	Output B	Open-Close ventilation flap
2	1 bit	Output C	Open-Close ventilation flap
3	1 bit	Output D	Open-Close ventilation flap

Communication objects
for active wind alarm

No.	Type	Object name	Function
...			
16	1 bit	Output A (wind alarm)	Up/Down/Stop - Operation block
17	1 bit	Output B (wind alarm)	Up/Down/Stop - Operation block
18	1 bit	Output C (wind alarm)	Up/Down/Stop - Operation block
19	1 bit	Output D (wind alarm)	Up/Down/Stop - Operation block

6 **Communication objects**
for operation of blinds and shutters
with position 1 activated

No.	Type	Object name	Function
...			
8	1 bit	Output A	Move to position 1
9	1 bit	Output B	Move to position 1
10	1 bit	Output C	Move to position 1
11	1 bit	Output D	Move to position 1
...			

Communication objects
for operation of blinds and shutters
with position 2 activated

No.	Type	Object name	Function
...			
12	1 bit	Output A	Move to position 2
13	1 bit	Output B	Move to position 2
14	1 bit	Output C	Move to position 2
15	1 bit	Output D	Move to position 2
...			

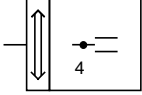
Parameters
The default setting for the values
is **printed in bold type**.

Common for all channels:		
- Time base for reversing time and lamella adjustment		5 ms / 10 ms / 20 ms
Wind alarm channel A...D:		
- Channel ... - Wind alarm		activated / deactivated
only if wind alarm is active:		
- Factor for monitoring time (1 ... 126)		60
- Time base for monitoring time		130 ms / ... / 1 s / ... / 1.2 h
only at blind and shutter operation:		
- Channel ... - Reaction in case of wind alarm		no reaction / stop / up / down

Separate for each channel:

- Operation mode	blind operation shutter operation ventilation flap operation
- Time base for reversing time and lamella adjustment	Settings -> General
- Factor for reversing time (20...254)	50
only for blind operation:	
- Factor for duration lamella adjustment (1 ... 254)	35
only for blind and shutter operation:	
- Time base for duration Up-Down (1 ... 126)	130 ms / ... / 1 s / ... / 1.2 h
- Factor for duration Up-Down (1 ... 126)	60
- Move to Position	activated / deactivated
only if position is activated:	
- Starting position (value 1)	up / down
- Position when set back (value 0)	up / down
- Position 1	activated
- Factor for duration Up-Down (1 ... 126)	20
only for blind operation:	
- Factor for duration lamella adjustment (1 ... 254)	40
- Position 2	activated / deactivated
only if position 2 is activated:	
- Factor for duration Up-Down (1 ... 126)	20
only for blind operation:	
- Factor for duration lamella adjustment (1 ... 254)	40
only at blind and shutter operation:	
- Preferred position in case of bus voltage failure	no reaction / stop / up / down
only at ventilation flap operation:	
- Preferred position in case of bus voltage failure	no reaction / up / down

Shutter Block/1



Selection in ETS2

- ABB
 - └ Shutter
 - └ Switch

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The application program enables four blind, shutter and/or ventilation flap drive mechanisms to be controlled independently. The corresponding operation mode can be set separately for all the outputs.

Blinds

Communication objects with the functions “Move blind Up-Down” and “Lamella adj. / Stop Up-Down” are available for operating the blinds.

If the object “Move blind Up-Down” receives a telegram with the value “1”, the motor travels downwards until it reaches the limit position or until the “Duration Up-Down” has elapsed. The period is set using a factor and a time base. After a telegram with the value “0”, the motor travels upwards.

If the object “Lamella adj. / Stop Up-Down” receives a telegram during this period, the motor stops. As soon as the motor is stationary, further telegrams for lamella adjustment can be sent to the same object. Also in this case, the value “1” indicates downwards movement and the value “1” indicates upwards movement. The duration of lamella adjustment can likewise be set using a factor and time base.

So that there is no damage to the drive mechanisms due to sudden changes in direction, there is the parameter “Factor for reversing time”. This parameter has a fixed time base for determining the pause between changes in direction (please observe the technical data of the motor manufacturer!).

Shutters

In this mode, there is an object “Move shutter Up-Down” available for each output for raising and lowering the shutter. Objects no. 4 to 7, “Stop”, are used to halt the motors during shutter movement. The duration of upwards and downwards movement is also set in this mode using a time base and factor.

Ventilation flap

If the shutter actuator is set to this operation mode, the communication object “Open-Close ventilation flaps” is made available for each output. If the

value changes from “0” to “1”, the ventilation flap opens and the channel is permanently switched on. Time settings cannot be carried out for this mode.

Bus voltage failure / recovery

The behaviour of the drive mechanisms on bus voltage failure can be set individually for each channel. If “blind operation” or “shutter operation” is selected as the operating mode for the output, the drive can move downwards or upwards or can be stopped. If “ventilation flap operation” is selected as the operating mode for the output, the drive can move upwards or downwards or remain unchanged (“no reaction”).

On bus voltage recovery, the output contacts remain open during the operation of the shutters and blinds. In “ventilation flap operation”, the contacts are open first of all on bus voltage recovery for the duration of the reversing time and are then set to the position specified for bus voltage failure.

Wind alarm

The actuator can move the blinds to a defined safety position in the event of a storm. If the parameter “Channel ... - Wind alarm” is set to “activated”, the actuator has the object “Output ... (wind alarm)”. If the wind alarm is activated for the respective output, the motors move in the set direction or are stopped as soon as the wind alarm object receives a telegram with the value “1”. Further operation is blocked until the object receives a telegram with the value “0”. The function of the wind alarm is monitored timewise. If the corresponding communication object does not receive a telegram within the monitoring period, the drive mechanisms likewise move in the set direction or are stopped.

Note: The selected cyclical sending time of the sensor should be significantly shorter than the monitoring time at the sensor.

The monitoring time is restarted immediately after downloading the application and after a bus voltage recovery.

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Block

The application program offers a separate communication object "Output ... (blocking) - Up/Down/Stop - Operation blocked" for each channel. This object is activated as soon as the parameter "Channel ... - Blocking" is set to "activated".

If an "On" telegram is received at the object above, the corresponding channel should be disabled until an "Off" telegram is received.

On activation of the blocking function, the corresponding channel can either stop, move up, move down or show no reaction. The behaviour is defined via the parameter "Channel ... - Reaction in case of blocking".

The reaction on receipt of a blocking telegram should ideally be set to avoid undesired movement. If e.g. the blind is half lowered and the user would like to leave the blind in this position for a longer period, the setting "stop" should be selected. The blocking function can however also enable cleaning staff for example to lock the blinds in the upper limit position. In this case, the setting "up" should be selected.

If a wind alarm telegram should be triggered while the blocking function is active, the shutter actuator immediately switches to the wind alarm operating mode and selects the preset position in the event of a wind alarm.

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Communication objects
for operation of the blinds

No.	Type	Object name	Function
0	1 bit	Output A	Move blind Up-Down
1	1 bit	Output B	Move blind Up-Down
2	1 bit	Output C	Move blind Up-Down
3	1 bit	Output D	Move blind Up-Down
4	1 bit	Output A	Lamella adj. / Stop Up-Down
5	1 bit	Output B	Lamella adj. / Stop Up-Down
6	1 bit	Output C	Lamella adj. / Stop Up-Down
7	1 bit	Output D	Lamella adj. / Stop Up-Down

Communication objects
for shutter operation

No.	Type	Object name	Function
0	1 bit	Output A	Move shutter Up-Down
1	1 bit	Output B	Move shutter Up-Down
2	1 bit	Output C	Move shutter Up-Down
3	1 bit	Output D	Move shutter Up-Down
4	1 bit	Output A	Stop
5	1 bit	Output B	Stop
6	1 bit	Output C	Stop
7	1 bit	Output D	Stop

Communication objects
for operation of ventilation flaps

No.	Type	Object name	Function
0	1 bit	Output A	Open-Close ventilation flaps
1	1 bit	Output B	Open-Close ventilation flaps
2	1 bit	Output C	Open-Close ventilation flaps
3	1 bit	Output D	Open-Close ventilation flaps

Communication objects
for activated wind alarm and blind or shutter operation

No.	Type	Object name	Function
...			
12	1 bit	Output A (wind alarm)	Up/Down/Stop - Operation block
13	1 bit	Output B (wind alarm)	Up/Down/Stop - Operation block
14	1 bit	Output C (wind alarm)	Up/Down/Stop - Operation block
15	1 bit	Output D (wind alarm)	Up/Down/Stop - Operation block

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Communication objects
for activated wind alarm and ventilation flap operation

No.	Type	Object name	Function
...			
12	1 bit	Output A (wind alarm)	Up/Down - Operation block
13	1 bit	Output B (wind alarm)	Up/Down - Operation block
14	1 bit	Output C (wind alarm)	Up/Down - Operation block
15	1 bit	Output D (wind alarm)	Up/Down - Operation block

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Communication objects
for activated blocking function and blind or shutter operation

No.	Type	Object name	Function
...			
8	1 bit	Output A (blocking)	Up/Down/Stop - Operation block
9	1 bit	Output B (blocking)	Up/Down/Stop - Operation block
10	1 bit	Output C (blocking)	Up/Down/Stop - Operation block
11	1 bit	Output D (blocking)	Up/Down/Stop - Operation block
...			

Communication objects
for activated blocking function and ventilation flap operation

No.	Type	Object name	Function
...			
8	1 bit	Output A (blocking)	Up/Down - Operation block
9	1 bit	Output B (blocking)	Up/Down - Operation block
10	1 bit	Output C (blocking)	Up/Down - Operation block
11	1 bit	Output D (blocking)	Up/Down - Operation block
...			

Common for all channels:

- Time base for reversing time and lamella adjustment **5 ms / 10 ms / 20 ms**

Separate for each channel:

- Operation mode **blind operation**
shutter operation
ventilation flap operation

- Time base for reversing time and lamella adjustment **Setting -> General**

- Factor for reversing time (20...254) **50**

See also the technical data for the motor

Only for "blind operation":

- Factor for duration lamella adjustment (1 ... 254) **65**

Only for "blind operation" and "shutter operation":

- Time base for duration Up-Down **130 ms / ... / 1 s / ... / 1.2 h**

- Factor for duration Up-Down (1 ... 126) **60**

- Preferred position in case of bus voltage failure **no reaction / stop / up / down**

Only for "ventilation flap operation":

- Preferred position in case of bus voltage failure **no reaction / up / down**

- Channel ... - Blocking **activated**
deactivated

Only if blocking is "activated":

- Channel ... - Reaction in case of blocking **no reaction**
stop
up
down

Wind alarm output ...:

Separate for each channel:

- Channel... - Wind alarm **activated / deactivated**

Only if wind alarm is "activated":

- Factor for monitoring time (1 ... 126) **60**

Monitoring time has to be longer than telegram frequency of wind sensor

- Time base for monitoring time **130 ms / ... / 1 s / ... / 1.2 h**

Only for "blind operation" or "shutter operation":

- Channel... - Reaction in case of wind alarm **no reaction / stop / up / down**

Only for "ventilation flap operation":

- Channel ... - Reaction in case of wind alarm **no reaction / up / down**