1-fold shutter actuator, SM
Type: 6172 AG-101-500

The 1-fold shutter actuator is a surface-mounted device for switching two groups of electrical consumer devices that are independent of each other or for controlling a shutter drive mechanism.

Local operation is also possible using conventional push buttons.
This can also be done without the need for programming as long as the bus voltage and power supply are available.

Should the bus voltage fail, the preferred state of the relays is established via two plug-in jumpers.

The device requires a power supply of 230 V.

In addition a bus connecting terminal is necessary.

Technical Data

Power supply	– EIB	24 VDC, via the bus line
	– Auxiliary supply	230 VAC +/– 10 %, 50 Hz
Inputs	– 2, for external input operation	
	– Signal voltage	230 VAC +/– 10 %, 50 Hz
Outputs	– Switching voltage	230 VAC +/– 10 %, 50 Hz
	– Switching current	10 A, cos φ
Operating and display elements	– red LED and push button	for assigning the physical address
Connections	– 230 V power supply	Screw terminals Wire range 1 … 2.5 mm²
	– Load circuit	Screw terminals Wire range 1 … .2.5 mm²
	– External input	Screw terminals Wire range 1 … 2.5 mm²
	– EIB	Plug for bus connecting terminal
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	– Surface-mounted	
Housing, colour	– Plastic housing, grey	
Mounting	– Screw fixing	
Dimensions	– 80 x 160 x 55 mm (H x W x D)	
Weight	– 0.40 kg	
Certifcation	– EIB-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

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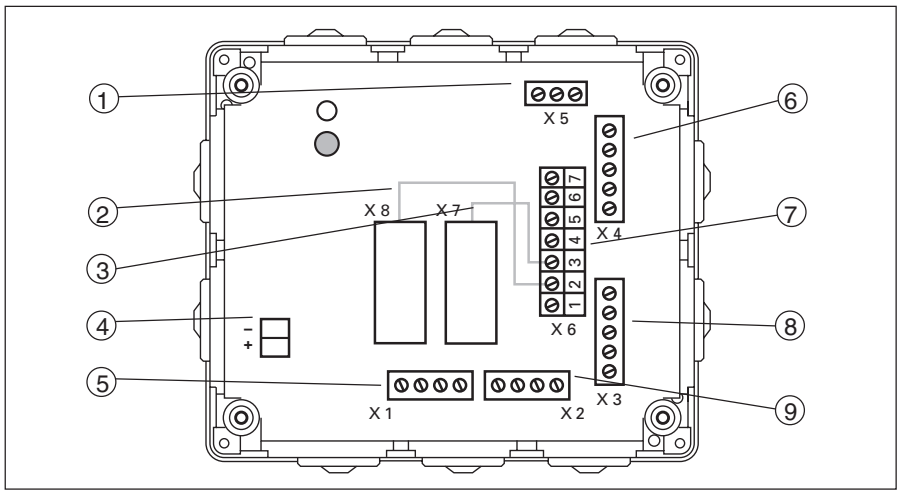
Application programs	Number of communication objects	Max. number of group addresses	Max. number of associations
Shutter Ext. input Up /1	3	6	6
Shutter Ext. input Stop /1	3	6	6
Switch Logic Stairc.fct Ext. input /3	4	8	8
Switch Priority Status Ext. input /3	4	8	8
Heat 2Point /3	4	12	12

Circuit diagram



1 Extension input
2 Phases selector Output 1
3 Phases selector Output 2
4 Bus terminal
5 Output terminal 1
6 Phase connector
7 Phase selector terminal
8 Mains power
9 Output terminal 2

Note

The push button input and the power supply must be connected to the same external conductor. The control of several actuators simultaneously using an extension input push button is not permitted.

When it is used as a shutter actuator, only one motor may be connected.

Even if the actuator is only used during extension input operation (conventional push button) you should still assign a group address to the relevant communication objects.

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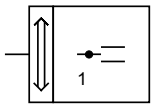
Shutter Ext. input Up /1



Selection in ETS2

– ABB
  └Shutter
    └Switch

It is necessary for the function of this application program to set the plug-in jumpers in the device as follows:
– Jumper A in position 1
  (relay 2 = ON)
– Jumper B in position 2
  (relay 1 = OFF)

Shutter

The application program makes it possible to control a drive mechanism for shutters, blinds, awnings or similar electrical drive mechanisms.
Two communication objects are available with the functions “Move shutter Up-Down” and “Lamella adj. / Stop Up-Down”.

If the object “Move shutter Up-Down” receives a telegram with the value “1”, the motor moves downwards until it reaches the limit switch or until the period specified in the parameter “Duration Up/Down” has elapsed. After a telegram with the value “0”, the motor moves upwards.

If the object “Lamella adj. / Stop Up-Down” receives a telegram during this period, the motor stops. Once the motor has come to a stop, it can be switched on by further telegrams to the same object for the time specified in the parameter “Duration lamella adjustment”. In this case value “1” means to move downwards and value “0” to travel upwards.

Both of these adjustable periods depend on the respective drive mechanism and must be adapted to the local conditions.

Extension input

The actuator can be operated locally via a conventional shutter switch.
If the switch is pressed for a short period, the actuator carries out the function “Move shutter Up-Down” and when it is pressed for a long period, it carries out the function “Lamella adj. / Stop Up-Down”.

In both cases the corresponding communication object sends the required telegram. It is thus possible to control further drive mechanisms simultaneously.

To enable a shutter to be moved into a more secure defined position for example during a storm, the actutator has the object “Output (wind alarm)”. Once it receives a telegram with the value “1”, the motor moves upwards to the final position. Further operation is blocked until the object receives a telegram with the value “0”.

So that a drive is not put in motion unintentionally be a read request (e.g. by visualisation or a display), the communication objects in the shutter sensors and actuators are not able to set the read flag.

Up

On bus voltage failure, the motor moves into the defined default position “UP” until it reaches the limit switch. On bus voltage recovery, the relays are switched off so that the motor does not move.

If the 230 V power supply fails, the objects can continue to receive telegrams. On voltage recovery, the relays carry out switching operations according to the values of the communication objects.

Communication objects

No.	Type	Name	Function
0	1 bit	Output / Ext. input	Move shutter Up-Down
1	1 bit	Output / Ext. input	Lamella adj. / Stop Up-Down
2	1 bit	Output (wind alarm)	UP and operation blocked

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

Duration Up/Down	2 min / … / **5 min** / … / 20 min
Duration lamella adjustment	136 ms / … / **528 ms** / … / 1304 ms
Reaction at bus voltage failure	**UP**

1-fold shutter actuator, SM
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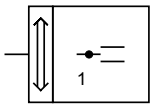
Shutter Ext. input Stop /1



Selection in ETS2

– ABB
  └Shutter
    └Switch

It is necessary for the function of this application program to set the plug-in jumpers in the device as follows:
– Jumper A in position 2
  (relay 2 = OFF)
– Jumper B in position 2
  (relay 1 = OFF)

Shutter

The application program makes it possible to control a drive mechanism for shutters, blinds, awnings or similar electrical drive mechanisms.
Two communication objects are available with the functions “Move shutter Up-Down” and “Lamella adj. / Stop Up-Down”.

If the object “Move shutter Up-Down” receives a telegram with the value “1”, the motor moves downwards until it reaches the limit switch or until the period specified in the parameter “Duration Up/Down” has elapsed. After a telegram with the value “0”, the motor moves upwards.

If the object “Lamella adj. / Stop Up-Down” receives a telegram during this period, the motor stops. Once the motor has come to a stop, it can be switched on by further telegrams to the same object for the time specified in the parameter “Duration lamella adjustment”. In this case value “1” means to move downwards and value “0” to travel upwards.

Both of these adjustable periods depend on the respective drive mechanism and must be adapted to the local conditions.

Extension input

The actuator can be operated locally via a conventional shutter switch.
If the switch is pressed for a short period, the actuator carries out the function “Move shutter Up-Down” and when it is pressed for a long period, it carries out the function “Lamella adj. / Stop Up-Down”.

In both cases the corresponding communication object sends the required telegram. It is thus possible to control further drive mechanisms simultaneously.

To enable a shutter to be moved into a more secure defined position for example during a storm, the actutator has the object “Output (wind alarm)”. Once it receives a telegram with the value “1”, the motor moves upwards to the final position. Further operation is blocked until the object receives a telegram with the value “0”.

So that a drive is not put in motion unintentionally be a read request (e.g. by visualisation or a display), the communication objects in the shutter sensors and actuators are not able to set the read flag.

Stop

On bus voltage failure, the motor stays in its current position. On bus voltage recovery, the relays are switched off so that the motor does not move.

If the 230 V power supply fails, the objects can continue to receive telegrams. On voltage recovery, the relays carry out switching operations according to the values of the communication objects.

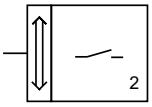
Communication objects

No.	Type	Name	Function
0	1 bit	Output / Ext. input	Move shutter Up-Down
1	1 bit	Output / Ext. input	Lamella adj. / Stop Up-Down
2	1 bit	Output (wind alarm)	UP and operation blocked

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

Duration Up/Down	2 min / … / **5 min** / … / 20 min
Duration lamella adjustment	136 ms / … / **528 ms** / … / 1304 ms
Reaction at bus voltage failure	**stop**

Switch Logic Stairc.fct
Ext. In. /3



Selection in ETS2

– ABB
  └Output
    └Binary output, 2-fold

It is necessary for the function of this application program to set the plug-in jumpers in the device as follows:
– Jumper A in position 1
  (relay 2 = ON)
– Jumper B in position 2
  (relay 1 = OFF)
or
– Jumper A in position 1
  (relay 2 = ON)
– Jumper B in position 1
  (relay 1 = ON)

The application program offers the two outputs the same parameters and communication objects.

Switch

In the default setting, the actuator switches the relay on when it receives a telegram with the value “1” and switches it off on receipt of a telegram with the value “0”. If the parameter “Switch function” is set to “normally opened contact”, the actuator switches the relay on when it receives a telegram with the value “0” and switches it off on receipt of a telegram with the value “1”.

Logic

Using the parameter “Logical connection”, it is possible to specify an AND or an OR connection.
In both cases the ETS2 program displays an additional communication object for the output. The actuator then links the values of communication objects 0 and 2 for output A or 1 and 3 for output B and switches the relay according to the result.

Staircase lighting function

In the operation mode “staircase lighting function”, the actuator switches on immediately on receipt of an “On” telegram. Once the time specified in the two parameters “Time base” and “Factor” has elapsed, the actuator automatically switches off.
If the actuator receives further “On” telegrams during this interval, the period restarts each time.

If both the “staircase lighting function” and the “Logical connection” are active, the time setting only applies if the objects are switched via objects 0 or 1.

Extension input

The actuator can be switched on and off via a conventional push button. Objects 0 or 1in this case send a telegram with the current status.

The default position on bus voltage failure that is set using the plug-in jumpers, refers to the relay contact and is independent of the selected “Switching characteristic”.
On bus voltage recovery, the relay contacts are opened and the communication objects are set to the value “0”.

Communication objects

No.	Type	Name	Function
0	1 bit	Output A / Ext. input A	Switch / Telegr. ext. input
1	1 bit	Output B / Ext. input B	Switch / Telegr. ext. input

Communication objects
for OR connection

No.	Type	Name	Function
0	1 bit	Output A / Ext. input A	OR connection / Telegr. ext. input
1	1 bit	Output B / Ext. input B	OR connection / Telegr. ext. input
2	1 bit	Output A	OR connection
3	1 bit	Output B	OR connection

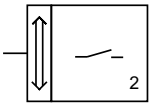
Communication objects
for AND connection

No.	Type	Name	Function
0	1 bit	Output A / Ext. input A	AND connection / Telegr. ext. input
1	1 bit	Output B / Ext. input B	AND connection / Telegr. ext. input
2	1 bit	Output A	AND connection
3	1 bit	Output B	AND connection

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

Separate for both outputs:	
– Switching characteristic	**normally closed contact** normally opened contact
– Operation mode	**normal operation** staircase lighting function
only applies to “staircase lighting function”:	
– Time base for staircase lighting function	**130 ms** / … / 1.2 h
– Factor for staircase lighting function (2 … 127)	**10**
– Delay time applies	**only to object no. 0**
– Ext. input sends	**only ON telegrams**
– Logical connection	**no logical connection** OR connection AND connection
– Default position at bus voltage failure	**dependent on plug-in jumpers**

Switch Priority Status Ext. In. /3



Selection in ETS2

– ABB
  └Output
    └Binary output, 2-fold

It is necessary for the function of this application program to set the plug-in jumpers in the device as follows:
– Jumper A in position 1
  (relay 2 = ON)
– Jumper B in position 2
  (relay 1 = OFF)
or
– Jumper A in position 1
  (relay 2 = ON)
– Jumper B in position 1
  (relay 1 = ON)

The application program offers the two outputs the same parameters and communication objects.

Switch

In the default setting, the actuator switches the relay on when it receives a telegram with the value “1” and switches it off on receipt of a telegram with the value “0”. If the parameter “Switch function” is set to “normally opened contact”, the actuator switches the relay on when it receives a telegram with the value “0” and switches it off on receipt of a telegram with the value “1”.

Priority

Using the 2 bit communication object, an output can be positively driven by a primary control (e.g. application controller). There are three different states:

– The priority object has the value “3”. The value of the switching object is not important. The output is switched off through priority control.
– The priority object has the value “2”. The value of the switching object is not important. The output is switched on through priority control.
– The priority object has the value “1” or “0”. The output is not priority controlled. It is operated via the switching object.

If an output is priority controlled, changes to the 1 bit object are stored, even if the current switching state has not been directly changed as a result. When the priority controlled operation has finished, a switching operation takes place according to the current value of the switching object.

Status

If priority control is disabled and the output is being controlled via the switching object, the priority sends a telegram with the value “0” or “1”.

Extension input

An output can be switched on or off via a conventional push button, provided that it is not controlled by the priority object. Both the switching object and the priority object then send in addition a telegram with the status of the output.

If the output is being controlled by the priority object, the priority object does not send a telegram when the external input push button is operated. Whether the 1 bit object sends a telegram is dependent on the setting in the parameter “Ext. input sends also, if output is under priority control”.

The defined default position on bus voltage failure refers to the relay contact and is independent of the switching function that has been assigned. On bus voltage recovery, the relay contact is opened and the communication objects are set to the value “0“.

Communication objects

No.	Type	Name	Function
0	1 bit	Output A / Ext. input A	Switch / Telegr. ext. input
1	2 bit	Output A	Priority / Telegr. status
2	1 bit	Output B / Ext. input B	Switch / Telegr. ext. input
3	2 bit	Output B	Priority / Telegr. status

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

Separate for both outputs:	
– Switching characteristic	**normally closed contact**
	normally opened contact
– Ext. input sends also, if output is under priority control	**yes**
	no
– Default position on bus voltage failure	**dependent on the plug-in jumpers**

1-fold shutter actuator, SM
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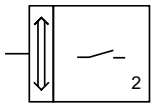
Heat 2Point /3



Selection in ETS2

– ABB
  └Heating
    └Binary output, 2-fold

It is necessary for the function of this application program to set the plug-in jumpers in the device as follows:
– Jumper A in position 2 (relay 2 = OFF)
– Jumper B in position 2 (relay 1 = OFF)

Heat

The application program has been specially developed for heat control using electrothermal drives.
It offers each of the two outputs the same parameters and the communication objects “Switch” and “Telegr. fault indication”.

An output expects the switching object to receive telegrams cyclically at intervals of at least 10 minutes. If there have been no telegrams in the space of 24 minutes, the output assumes that there is a fault in the room thermostat. The object “Telegr. fault indication” sends telegrams cyclically in 12 minute intervals with the values “0” (= no fault) or “1” (= fault).

In the setting “test mode”, the monitoring time is reduced for test purposes from 12 minutes to 3 seconds.

2 Point

The actuator can either control drives that are “de-energized closed” or “de-energized opened”. The type of drive is specified in the parameter “Characteristic of drive”. This determines whether the relay is switched on or off on receipt of a telegram with the value “1” (= heat).

The default position of the relays on bus voltage failure is determined by the plug-in jumpers. With the plug-in jumpers in the position described above, relay contacts are switched to de-energized. For this reason the parameter “Default position on bus voltage failure” is set automatically dependent on the “Characteristic of drive”.

Communication objects

No.	Type	Name	Function
0	1 bit	Output A	Switch
1	1 bit	Output B	Switch
2	1 bit	Output A	Telegr. fault indication
3	1 bit	Output B	Telegr. fault indication

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

Common for both outputs:	
– Operation mode	**normal operation** test mode
Separate for both outputs:	
– Operation	**enabled** disabled
– Characteristic of drive	**de-energized closed** de-energized opened
Dependent on the drive characteristic:	
– Default position on bus voltage failure	**OFF (no heating)** ON (always heating)