ABB i-bus® EIB

2-fold switch actuator, 16 A, LF
Type: 6152EB-101-500

602003

The 2-fold switch actuator is a built-in device for use e.g. in conventional luminaires, trunking or false ceilings.

It is used for switching two lamps and other electrical consumer devices or for controlling a shutter driver mechanism.

Local operation is also possible using a conventional push button.
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 actuator can activate the load circuit (e.g. for functional or emergency lighting).

The device requires a 230 V power supply.

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 extension input operation	
	– Signal voltage	230 VAC +/– 10 %, 50 Hz
	– Max. cable length	100 m
Outputs	– Switching voltage	230 VAC +/– 10 %, 50 Hz
	– Switching capacity	16 A, cos φ = 1 10 A, cos φ = 0,5
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
	– Extension 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	– Built-in device	
Housing, colour	– Plastic housing, white	
Mounting	– Screw fixing in trunking, false ceilings, …	
Dimensions	– 42 x 240 x 32 mm (H x W x D)	
Weight	– 0.27 kg	
Certification	– 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
Switch Logic Stairc.fct Ext. In. /2	4	8	8
Switch Priority Status Ext. input /2	4	8	8
Heat 2Point /2	4	12	12
Shutter Ext. input /1	3	6	6

Circuit diagram

A602003
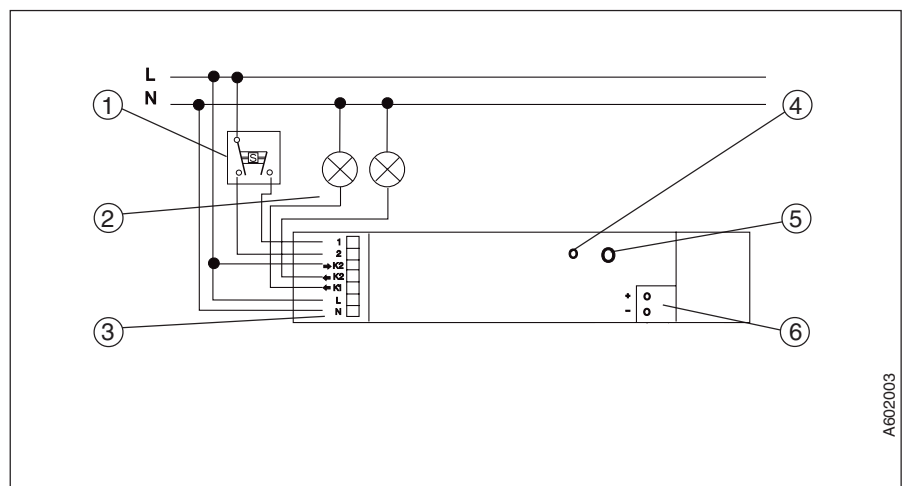
1 Extension input push button   **4** Programming LED
2 Consumer device   **5** Programming push button
3 Terminals   **6** Bus terminal

Note

The device has passed the x test in accordance with EN 60669-1, i.e. capacitive loads can be switched with nominal current at the same level as with a conventional switch.

The phases of the extension input and the load circuit power supply (L) must be identical. The simultaneous control of several actuators via an extension input push button is not permitted.

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.

Electronic devices must be protected against overvoltage. The noise and surge immunity of the EIB devices against transient overvoltage is far beyond the limits required in European standards.

The disconnection of inductive loads e.g. contactors, conventional ballasts, low-loss ballasts etc. can however produce voltage peaks in excess of 4 kV which can destroy other electronic devices.

Suitable protective measures must be carried out such as the installation of surge arresters.

Switch Logic Stairc.fct
Ext. In. /2
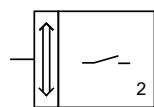
Selection in ETS2

– ABB
└Output
  └Binary output, 2-fold

The application program offers each of 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 objects 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 period, the period restarts each time.

If both the "staircase lighting function" and the "Logical connection" are active, the time setting only applies if the outputs 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 1 in this case send a telegram with the current status.

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	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:		
– Switch function	**normally closed contact** normally opened contact	3-11
– Operation mode	**normal operation** staircase lighting function	
– Time base for staircase lighting function	130 ms / … / **520 ms** / … / 1.2 h	
– Factor for staircase lighting function (2 … 127)	8	
– Delay time applies	**only to object no. 1**	
– Ext. input sends	**only ON telegrams**	
– Logical connection	**no logical connection** OR connection AND connection	
– Default position at bus voltage failure	**contact opened** contact closed	

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**Switch Priority Status
Ext. input /2**

Selection in ETS2

– ABB
  └Output
    └Binary output, 2-fold

The application program offers each of 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, the 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 the actuator 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 status of the output 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 the output is priority controlled".

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".
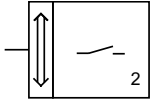
Communication objects

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:

– Switch function	**normally closed contact**
	normally opened contact
– Ext. input sends also, if the output is priority controlled	**yes**
	no
– Default position at bus voltage failure	**contact opened**
	contact closed

ABB i-bus® EIB

Heat 2Point /2

Selection in ETS2

– ABB
  └Heating
    └Binary output, 2-fold

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 used 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 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 closed.

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:	
– Mode	**normal operation**
	test mode
Separate for both outputs:	
– Characteristic of drive	**de-energized closed**
	de-energized opened
– Operation	**enabled**
	disabled
– Default position at bus voltage failure	**contact opened**
	contact closed

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Shutter Ext. input /1
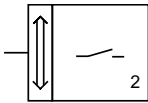
Selection in ETS2

– ABB
 └Shutter
  └Switch

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 upwards 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 actuator 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 by 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.

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