



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

Using four floating contacts, it switches four groups of electrical consumer devices that are independent of each other.

Should the bus voltage fail, the actuator can activate the load circuit (e.g. for functional or emergency lighting). The output states are displayed at the front. Manual operation is also possible at any time, even without bus voltage.

The device does not require an additional power supply.

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Technical Data

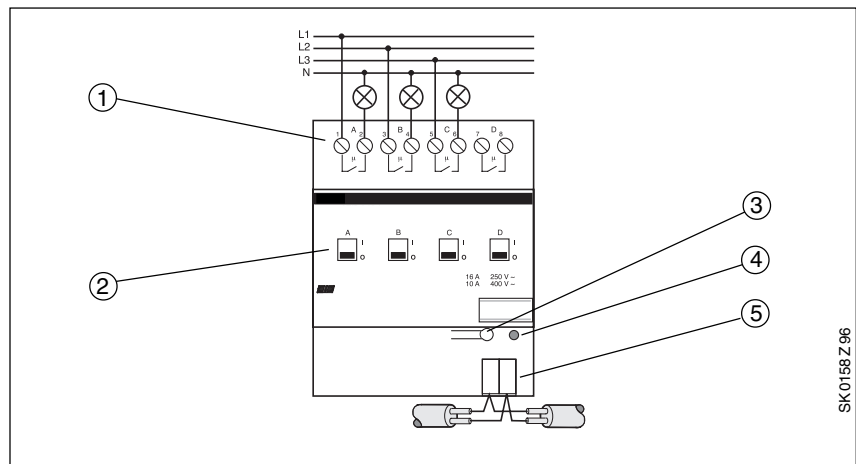
Power supply	– EIB	24 VDC, via the bus line
Outputs	– 4 floating contacts	
	– Switching voltage	230 VAC 400 VAC
	– Switching current	16 A/AC1 10 A/AC1
		10 A/AC3 6 A/AC3
	– Basic time delay on single operation	typically 20 ms per relay
	– Mechanical contact endurance	> 10 ⁷
Operating and display elements	– Electrical contact endurance	> 10 ⁵ (at 230 VAC, 16 A/AC 1)
	– red LED and push button	for assigning the physical address
Connections	– 4 switch position indicators	also used for manual operation
	– Load circuit	two screw terminals each, Wire range
		0.5 ... 2.5 mm ² finely-stranded 0.5 ... 4.0 mm ² single-core
	– EIB	Bus 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	– modular installation device, proM	
Housing, colour	– Plastic housing, grey	
Mounting	– on 35 mm mounting rail, DIN EN 50022	
Dimensions	– 90 x 72 x 64 mm (H x W x D)	
Mounting depth/width	– 68 mm / 4 modules at 18 mm	
Weight	– 0.24 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
Switch Logic Default Time /2	8	14	15
Switch Logic Default Stairc.fct /2	8	19	19
Switch Logic Status Default /4	12	18	18
Switch Priority Status Default /5	8	23	23
Switch Status Default Stairc.fct /1	8	22	22
Switch Stairc.fct Operation Mode /1	8	22	23

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Wiring diagram



- 1 Connecting terminals
- 2 Switch position indicator

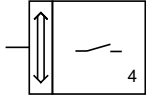
- 3 Programming push button
- 4 Programming LED
- 5 Bus terminal

Note

In order to avoid the danger of electric shock due to feedback from various external conductors, an all-pole disconnection must be complied with.

If the outputs are switched several times shortly after each other, the basic time delay is extended.

Switch Logic Default Time /2



Selection in ETS2

- ABB
 - └ Output
 - └ Binary output, 4-fold

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The application program offers each output 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 4 for output A, objects 1 and 5 for output B, objects 2 and 6 for output C or objects 3 and 7 for output D and switches the relay according to the result.

Normally all communication objects have the value "0" after bus voltage recovery. If a logical connection has been assigned, it is possible to set a defined function using the parameters "Value of object no. 4 / no. 5 / no. 6 / no. 7 on bus voltage recovery". The logical connection is evaluated immediately after bus voltage recovery.

Default

It is possible to assign parameters for each output to the default position on bus voltage failure.

This setting refers to the relay contact and is independent of the parameter setting "Switch function".

Time

A delay for switching on and off can be set for the outputs. For both delays there is a common "Time base" parameter and a separate "Factor" parameter.

If both a logical connection and a time function have been assigned, the time setting only applies if the outputs are switched via objects 0 to 3.

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Communication objects

No.	Type	Name	Function
0	1 bit	Output A	Switch
1	1 bit	Output B	Switch
2	1 bit	Output C	Switch
3	1 bit	Output D	Switch

Communication objects for OR connection

No.	Type	Name	Function
0	1 bit	Output A	OR connection
1	1 bit	Output B	OR connection
2	1 bit	Output C	OR connection
3	1 bit	Output D	OR connection
4	1 bit	Output A	OR connection
5	1 bit	Output B	OR connection
6	1 bit	Output C	OR connection
7	1 bit	Output D	OR connection

Communication objects for AND connection

No.	Type	Name	Function
0	1 bit	Output A	AND connection
1	1 bit	Output B	AND connection
2	1 bit	Output C	AND connection
3	1 bit	Output D	AND connection
4	1 bit	Output A	AND connection
5	1 bit	Output B	AND connection
6	1 bit	Output C	AND connection
7	1 bit	Output D	AND connection

Parameters

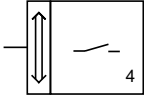
The default setting for the values is **printed in bold type**.

Separate for each output:	
- Switch function	normally closed contact normally opened contact
- Logical connection	no logical connection AND connection OR connection
only if a logical connection is selected:	
- Value of object no. ... on bus voltage recovery	logic '0' logic '1'
- Time base for ON and OFF delay	130 ms / ... / 1.2 h
- Factor for switch ON delay (0 ... 127)	0
- Factor for switch OFF delay (0 ... 127)	0
- Delay time applies	only to object no. 0
- Default position in case of bus voltage failure	contact unchanged contact closed contact opened

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Switch Logic Default Stairc.fct /2



Selection in ETS2

- ABB
 - └ Output
 - └ Binary output, 4-fold

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The application program offers each output the same parameters and communication objects

Switch

In the mode “normal operation”, 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 4 for output A, objects 1 and 5 for output B, objects 2 and 6 for output C or objects 3 and 7 for output D and switches the relay according to the result.

Normally all communication objects have the value “0” after bus voltage recovery. If a logical connection has been assigned, it is possible to set a defined function using the parameters “Value of object no. 4 / no. 5 / no. 6 / no. 7 on bus voltage recovery”. The logical connection is evaluated immediately after bus voltage recovery.

Default

It is possible to assign parameters for each output to the default position on bus voltage failure. This setting refers to the relay contact and is independent of the parameter setting “Switch function”.

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 a logical connection and a time function have been assigned, the time setting only applies if the outputs are switched via objects 0 to 3.

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Communication objects

No.	Type	Name	Function
0	1 bit	Output A	Switch
1	1 bit	Output B	Switch
2	1 bit	Output C	Switch
3	1 bit	Output D	Switch

Communication objects
for OR connection

No.	Type	Name	Function
0	1 bit	Output A	OR connection
1	1 bit	Output B	OR connection
2	1 bit	Output C	OR connection
3	1 bit	Output D	OR connection
4	1 bit	Output A	OR connection
5	1 bit	Output B	OR connection
6	1 bit	Output C	OR connection
7	1 bit	Output D	OR connection

Communication objects
for AND connection

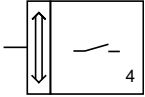
No.	Type	Name	Function
0	1 bit	Output A	AND connection
1	1 bit	Output B	AND connection
2	1 bit	Output C	AND connection
3	1 bit	Output D	AND connection
4	1 bit	Output A	AND connection
5	1 bit	Output B	AND connection
6	1 bit	Output C	AND connection
7	1 bit	Output D	AND connection

Parameters

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

Separate for each output:	
- Switch function	normally closed contact normally opened contact
- Logical connection	no logical connection AND connection OR connection
only if a logical connection is selected:	
- Value of object no. ... on bus voltage recovery	logic '0' logic '1'
- 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 (1 ... 127)	100
- Delay time applies	only to object no. 0
- Default position in case of bus voltage failure	contact unchanged contact closed contact opened

Switch Logic Status Default /4



Selection in ETS2

- ABB
 - └ Output
 - └ Binary output, 4-fold

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The application program offers each output 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 4 for output A, objects 1 and 5 for output B, objects 2 and 6 for output C or objects 3 and 7 for output D and switches the relay according to the result.

Normally all communication objects have the value "0" after bus voltage recovery. If a logical connection has been assigned, it is possible to set a defined function using the parameters "Value of object no. 4 / no. 5 / no. 6 / no. 7 on bus voltage recovery". The logical connection is however only evaluated when one of the two connection objects of an output receives a telegram.

Status

For objects 8 to 11, the actuator sends the current state of the relevant output. This status response takes the parameter setting "Switch function" into account. So that status responses, which indicate the state of the contact, can also be received when the "normally opened contact" setting is selected, it is possible to set the "Status response" parameter to "inverted".

As the status response option cannot be disabled, objects 8 to 11 must be linked with group addresses as otherwise the relays cannot carry out switching operations.

Default

It is possible to assign parameters for each output to the default position on bus voltage failure. This setting refers to the relay contact and is independent of the parameter setting "Switch function". On bus voltage recovery the relays maintain their current state.

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Communication objects

No.	Type	Name	Function
0	1 bit	Output A	Switch
1	1 bit	Output B	Switch
2	1 bit	Output C	Switch
3	1 bit	Output D	Switch
8	1 bit	Output A	Teleg. status
9	1 bit	Output B	Teleg. status
10	1 bit	Output C	Teleg. status
11	1 bit	Output D	Teleg. status

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Communication objects for OR connection

No.	Type	Name	Function
0	1 bit	Output A	OR connection
1	1 bit	Output B	OR connection
2	1 bit	Output C	OR connection
3	1 bit	Output D	OR connection
4	1 bit	Output A	OR connection
5	1 bit	Output B	OR connection
6	1 bit	Output C	OR connection
7	1 bit	Output D	OR connection
8	1 bit	Output A	Teleg. status
9	1 bit	Output B	Teleg. status
10	1 bit	Output C	Teleg. status
11	1 bit	Output D	Teleg. status

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Communication objects for AND connection

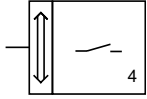
No.	Type	Name	Function
0	1 bit	Output A	AND connection
1	1 bit	Output B	AND connection
2	1 bit	Output C	AND connection
3	1 bit	Output D	AND connection
4	1 bit	Output A	AND connection
5	1 bit	Output B	AND connection
6	1 bit	Output C	AND connection
7	1 bit	Output D	AND connection
8	1 bit	Output A	Teleg. status
9	1 bit	Output B	Teleg. status
10	1 bit	Output C	Teleg. status
11	1 bit	Output D	Teleg. status

Parameters

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

Separate for each input:	
- Switch function	normally closed contact normally opened contact
- Logical connection	no logical connection AND connection OR connection
only if a logical connection is selected:	
- Value of object no. ... on bus voltage recovery	logic '0' logic '1'
- Status response	normal inverted
- Default position in case of bus voltage failure	contact unchanged contact closed contact opened

Switch Priority Status Default /5



Selection in ETS2

- ABB
 - └ Output
 - └ Binary output, 4-fold

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The application program offers each output 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 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 status of the output with the values "0" or "1".

The status response option cannot be disabled. To ensure that the application program functions correctly, it is necessary for objects 4 to 7 to receive a unique group address. The relays are unable otherwise to carry out switching operations.

Default

It is possible to assign parameters for each output to the default position on bus voltage failure. This setting refers to the relay contact and is independent of the parameter setting "Switch function". On bus voltage recovery the relays maintain their current state.

Communication objects

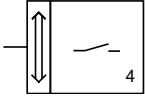
No.	Type	Name	Function
0	1 bit	Output A	Switch
1	1 bit	Output B	Switch
2	1 bit	Output C	Switch
3	1 bit	Output D	Switch
4	2 bit	Output A	Priority / Teleg. status
5	2 bit	Output B	Priority / Teleg. status
6	2 bit	Output C	Priority / Teleg. status
7	2 bit	Output D	Priority / Teleg. status

Parameters

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

Separate for each output:	
- Switch function	normally closed contact normally opened contact
- Default position in case of bus voltage failure	contact unchanged contact closed contact opened
- A group address has to be allocated to the object Priority / ...status	NOTE

Switch Status Default Stairc.fct /1



Selection in ETS2

- ABB
 - └ Output
 - └ Binary output, 4-fold

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The application program offers each output the same parameters and communication objects.

Switch

If the parameter "Switch function" is set to "normally open contact", the actuator closes the relay when it receives a telegram with the value "1" and opens it on receipt of a telegram with the value "0". If the parameter "Switch function" is set to "normally closed contact", the actuator closes the relay when it receives a telegram with the value "0" and opens it on receipt of a telegram with the value "1".

Status

With objects 4 to 7, the actuator sends the current status of the relevant output each time. This status display takes the settings in the parameter "Switch function" into consideration. In order to preserve the status display of the contact even in the setting "normally closed contact", the parameter "Status display" can be set to "inverted".

As the status display cannot be switched off, objects 4 to 7 must be linked with group addresses.

Staircase lighting function

The actuator operates in the mode "Staircase lighting function". The actuator switches on immediately after receiving 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.

Default

The default position of the outputs on bus voltage failure can be set in the parameters. This setting refers to the relay contact and is independent of the selected switch function.

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Communication objects

No.	Type	Object name	Function
0	1 bit	Output A	Switch
1	1 bit	Output B	Switch
2	1 bit	Output C	Switch
3	1 bit	Output D	Switch
4	1 bit	Output A	Telegr. status
5	1 bit	Output B	Telegr. status
6	1 bit	Output C	Telegr. status
7	1 bit	Output D	Telegr. status

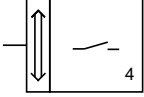
Parameters

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

Separate for each output:

- Switch function **normally open contact**
normally closed contact
- Default position in case of bus voltage failure **contact unchanged**
contact opened
contact closed
- Time base for staircase lighting function **130 ms** / ... / 1.2 h
- Factor for staircase lighting function **5**
(5 ... 127)

Switch Stairc.fct Operation Mode /1



Selection in ETS2

- ABB
 - └ Output
 - └ Binary output, 4-fold

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The application program offers each output the same parameters and communication objects.

Switch

If the parameter "Switch function" is set to "normally open contact", the actuator closes the relay when it receives a telegram with the value "1" and opens it on receipt of a telegram with the value "0". If the parameter "Switch function" is set to "normally closed contact", the actuator closes the relay when it receives a telegram with the value "0" and opens it on receipt of a telegram with the value "1".

Staircase lighting function

In the operation mode "Staircase lighting function", the actuator switches on immediately after receiving any 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 telegrams during this interval, the period restarts each time.

Operation mode

The operation mode of the outputs can be changed with objects 4 to 7. If one of these objects has the value "1", the output operates with a staircase lighting function. With an object value of "0", the output operates in normal mode. The operation mode can be assigned parameters after bus voltage recovery.

The default position on bus voltage failure can be set for the outputs. This setting refers to the relay contact and is independent of the selected switch function.

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Communication objects

No.	Type	Object name	Function
0	1 bit	Output A	Switch
1	1 bit	Output B	Switch
2	1 bit	Output C	Switch
3	1 bit	Output D	Switch
4	1 bit	Output A	Operation mode
5	1 bit	Output B	Operation mode
6	1 bit	Output C	Operation mode
7	1 bit	Output D	Operation mode

Parameters

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

Separate for each output:

- Switch function	normally open contact normally closed contact
- Default position in case of bus voltage failure	contact unchanged contact opened contact closed
- Initialisation value of operation mode	normal operation staircase lighting function
- Time base for staircase lighting function	130 ms / ... / 1.2 h
- Factor for staircase lighting function (5 ... 127)	5

ABB i-bus® EIB

Switch Actuator, 4-fold, 16 A, MDRC
AT/S 4.16.1, GH Q631 0021 R0111

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