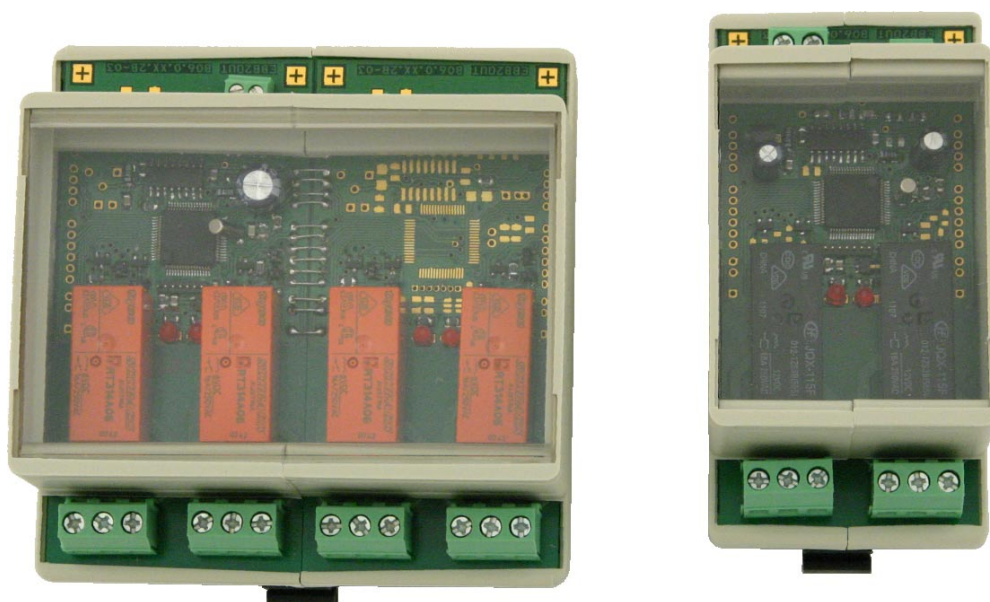


EASYBus – Switch Module

Operating Manual

EBB 2 OUT / BP
EBB 4 OUT / BP
EBB 2 OUT / 12V
EBB 4 OUT / 12V



1. Intended use

The **EBB ... OUT / ...** are switching modules for the EASYBus.

The setting of the 2 or 4 relays will be done via the alarm monitoring module EBUW 232 A or via a PC-software (e.g. EASYControl)

The modules are available in 2 design types:

... / **BP** = Bus Power (supply from the Bus)

Advantage: no separate power supply is required

... / **12V** = for separate 12V-power supply

Advantage: faster switching reaction time,

upper operating safety by defined relay state at system failure.

2. Safety instructions

This device has been designed and tested in accordance with the safety regulations for electronic devices.

However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advises given in this manual will be adhered to when using the device.

1. Trouble-free operation and reliability of the device can only be guaranteed if the device is not subjected to any other climatic conditions than those stated under "Specification".
2. General instructions and safety regulations for electric, light and heavy current plants, including domestic safety regulations (e.g. VDE), have to be observed.
3. If device is to be connected to other devices (e.g. via PC) the circuitry has to be designed most carefully. Internal connection in third party devices (e.g. connection GND and earth) may result in not-permissible voltages impairing or destroying the device or another device connected.
4. If there is a risk whatsoever involved in running it, the device has to be switched off immediately and to be marked accordingly to avoid re-starting.

Operator safety may be a risk if:

- there is visible damage to the device
- the device is not working as specified
- the device has been stored under unsuitable conditions for a longer time

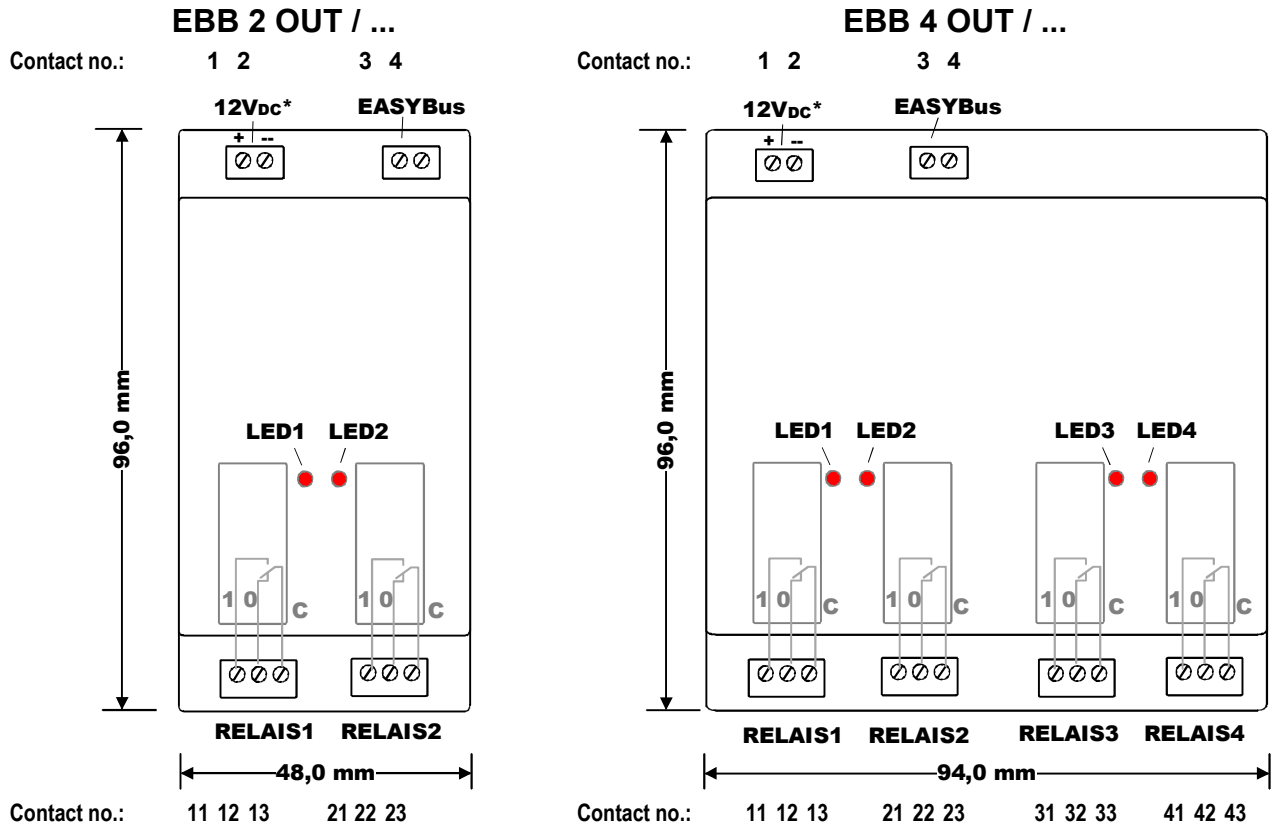
In case of doubt, please return device to manufacturer for repair or maintenance.

5. Warning:

Do not use this product as safety or emergency stop devices, or in any other application where failure of the product could result in personal injury or material damage.

Failure to comply with these instructions could result in death or serious injury and material damage!

3. Design types, dimensions



* = only available at design type EBB ... OUT / 12V

| Contact number: | Meaning | Available at type | | | |
|-----------------|------------------------------|-------------------|-------------|------------|-------------|
| | | 2 OUT / BP | 2 OUT / 12V | 4 OUT / BP | 4 OUT / 12V |
| 1 | Power supply + | - | X | - | X |
| 2 | Power supply - | - | X | - | X |
| 3 | EASYBus-connection | X | X | X | X |
| 4 | EASYBus-connection | X | X | X | X |
| 11 | Relay 1: 1 (closing contact) | X | X | X | X |
| 12 | Relay 1: 0 (opening contact) | X | X | X | X |
| 13 | Relay 1: C (input) | X | X | X | X |
| 21 | Relay 2: 1 (closing contact) | X | X | X | X |
| 22 | Relay 2: 0 (opening contact) | X | X | X | X |
| 23 | Relay 2: C (input) | X | X | X | X |
| 31 | Relay 3: 1 (closing contact) | - | - | X | X |
| 32 | Relay 3: 0 (opening contact) | - | - | X | X |
| 33 | Relay 3: C (input) | - | - | X | X |
| 41 | Relay 4: 1 (closing contact) | - | - | X | X |
| 42 | Relay 4: 0 (opening contact) | - | - | X | X |
| 43 | Relay 4: C (input) | - | - | X | X |

4. Status indication (LED displays)

After successful power up the LED1 is flashing once

| Display | Description |
|--------------|--|
| LED on | assigned contact 1-C closed, assigned contact 0-C open |
| LED off | assigned contact 1-C open, assigned contact 0-C closed or: device is not connected to supply (EASYBus or power supply) |
| LED blinking | System fault |

5. Interface function

The modules can be driven in two operating modes (switching module or alarm module). The selection of the operating modes can be done via the software EASYBus-Configurator (as of Version V2.1).

The relays are set via the EASYBus-command „Set display value“ = 1.

Operating modes

Switching module: The relays are direct set with a binary logic.

Alarm module: The module converts the alarming function of supporting busmasters/modules. The alarming function currently is supported from
 * PC with EASYControl-software
 * any level converter in combination with a EBUW 232 **A** – module
 (not EBUW 232 !)

The EBB 2 OUT will set the 4 control bits to the relays as shown in the table below.

At the EBB 4 OUT the behaviour will be the same as switching- or alarm module.

EBB 4 OUT / ...

Each of the 4 possible binary bits represents a alarm function and a relay.

Note: the behaviour as switching or alarm module is identical.

| Display value | Relay state | | | | | | | |
|--------------------------|---------------|-----------|-----------|------------------------|--------------------------|-----------------|-----------------|---------|
| | Bit 0 | Bit 1 | Bit 2 | Bit 3 | Relay 1 | Relay 2 | Relay 3 | Relay 4 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 3 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 4 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| :: | | | | | | | | |
| 15 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Meaning as alarm module: | General alarm | Alarm Min | Alarm Max | Communication error *) | Alarm in general - Relay | Alarm Min-Relay | Alarm Max-Relay | |

*) Communication error: currently only supported by EBUW232 A

EBB 2 OUT / ...**Switching module**

| Display value | Relay state | |
|---------------|-------------|-------|
| | Bit 0 | Bit 1 |
| 0 | 0 | 0 |
| 1 | 1 | 0 |
| 2 | 0 | 1 |
| 3 | 1 | 1 |

Alarm module

| Display value | Relay state | | | | | |
|--------------------------|---------------|-----------|-----------|------------------------|-----------------|-----------------|
| | Bit 0 | Bit 1 | Bit 2 | Bit 3 | | |
| 0 | 0 | 0 | 0 | 0 | | |
| 1 | 1 | 0 | 0 | 0 | | |
| 2 | 0 | 1 | 0 | 0 | | |
| 3 | 1 | 1 | 0 | 0 | | |
| 4 | 0 | 0 | 1 | 0 | | |
| 5 | 1 | 0 | 1 | 0 | | |
| 6 | 0 | 1 | 1 | 0 | | |
| 7 | 1 | 1 | 1 | 0 | | |
| 8 | 0 | 0 | 0 | 1 | | |
| 9 | 1 | 0 | 0 | 1 | | |
| 10 | 0 | 1 | 0 | 1 | | |
| 11 | 1 | 1 | 0 | 1 | | |
| 12 | 0 | 0 | 1 | 1 | | |
| 13 | 1 | 0 | 1 | 1 | | |
| 14 | 0 | 1 | 1 | 1 | | |
| 15 | 1 | 1 | 1 | 1 | | |
| Meaning as alarm module: | General alarm | Alarm Min | Alarm Max | Communication error *) | Alarm Min-Relay | Alarm Max-Relay |

*) currently only supported by EBUW232 A

6. Specification

| | EBB ... OUT / BP | EBB ... OUT / 12V |
|---------------------------|--|---|
| Power supply | Device taps power from EASYBus | 12 V _{DC} ± 10% / 150 mA |
| Switching outputs | | |
| EBB 2 OUT / ... | 2 change-over contacts, switching reaction time < 1 s | 2 change-over contacts, switching reaction time < 0.1 s |
| EBB 4 OUT / ... | 4 change-over contacts, switching reaction time < 2 s | 4 change-over contacts, switching reaction time < 0.1 s |
| Switching capacity | max. 250V AC, 16A ohmic load | |
| Input signal | EASYBus -protocol | |
| Connection | 2-wire EASYBus, polarity free | |
| Bus load | 2 EASYBus-standard loads | 1 EASYBus-standard load |
| Display | Relay state indication via LED | |
| Ambient condition | | |
| Nominal temperature | 25°C | |
| Operating temperature | -25 to 50°C | |
| Relative humidity | 0 to 95 %RH (non-condensing) | |
| Storage temperature | -25 to 70°C | |
| Housing | | |
| Dimensions | EBB 2 OUT: 48 x 96 x 42 mm (plus snap on foot) EBB 4 OUT: 94 x 96 x 42 mm (plus snap on foot) | |
| Mounting | Snap on DIN-rail | |
| Electr. connection | Screw type terminal | |
| EMC | <p>The device corresponds to the essential protection ratings established in the Regulations of the Council for the Approximation of Legislation for the member countries regarding electromagnetic compatibility (2004/108/EG).</p> <p>In accordance with EN61326 +A1 +A2 (appendix A, class B)</p> <p><i>When connecting long leads adequate measures against voltage surges have to be taken.</i></p> | |

7. Disposal instructions

The device must not be disposed in the regular domestic waste!

Send the device directly to us (sufficiently stamped), if it should be disposed. We will dispose the device appropriate and environmentally sound.