

## Features

- 8-channel
- Outputs Ex ib
- Galvanic group isolation
- Installation in suitable enclosures in Zone 1 or Zone 21
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Up to SIL2 acc. to IEC 61508
- Output with watchdog
- Output with bus-independent safety shutdown input
- Module can be exchanged under voltage (hot swap)

## Function

The device features 8 independent channels.

The device can be used to drive low power solenoids, sounders, or LEDs.

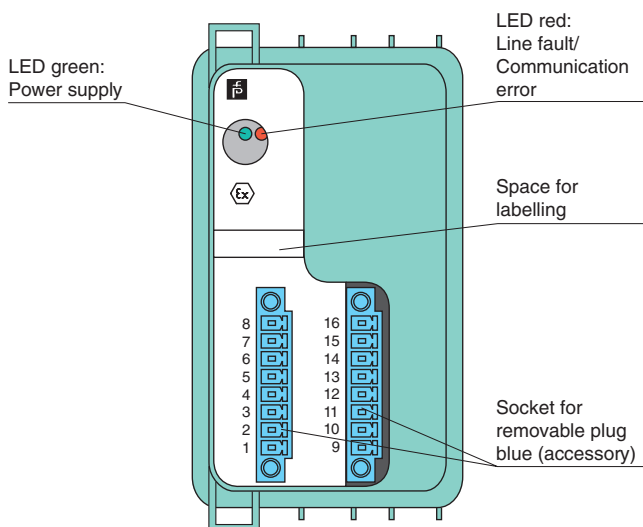
Open and short-circuit line faults are detected.

The outputs are galvanically isolated from the bus and the power supply.

The outputs can be switched off via a contact. This can be used for bus-independent safety applications.

## Assembly

Front view

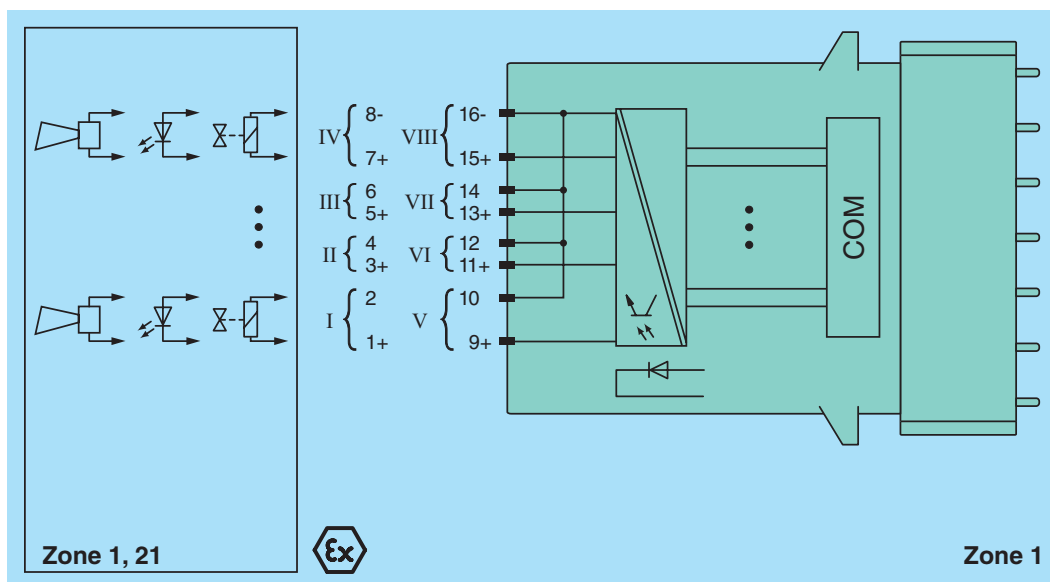


CE



SIL2

## Connection



|                                                         |       |                                                                                                                                                                                                                             |
|---------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supply</b>                                           |       |                                                                                                                                                                                                                             |
| Connection                                              |       | backplane bus                                                                                                                                                                                                               |
| Rated voltage                                           | $U_n$ | 12 V DC , only in connection with the power supplies FB92**                                                                                                                                                                 |
| Power consumption                                       |       | 2.2 W                                                                                                                                                                                                                       |
| <b>Internal bus</b>                                     |       |                                                                                                                                                                                                                             |
| Connection                                              |       | backplane bus                                                                                                                                                                                                               |
| Interface                                               |       | manufacturer-specific bus to standard com unit                                                                                                                                                                              |
| <b>Output</b>                                           |       |                                                                                                                                                                                                                             |
| Number of channels                                      |       | 8                                                                                                                                                                                                                           |
| Connection                                              |       | channel I: 1+, 2-; channel II: 3+, 4-; channel III: 5+, 6-; channel IV: 7+, 8-; channel V: 9+, 10-; channel VI: 11+, 12-; channel VII: 13+, 14-; channel VIII: 15+, 16-                                                     |
| Response time                                           |       | 20 ms (depending on bus cycle time)                                                                                                                                                                                         |
| Line fault detection                                    |       | can be switched on/off for each channel via configuration tool                                                                                                                                                              |
| Test current                                            |       | 0.33 mA                                                                                                                                                                                                                     |
| Short-circuit                                           |       | < 300 $\Omega$                                                                                                                                                                                                              |
| Open-circuit                                            |       | > 50 k $\Omega$                                                                                                                                                                                                             |
| Watchdog                                                |       | within 0.5 s the device goes in safe state, e.g. after loss of communication                                                                                                                                                |
| Digital signals (active/short-protected)                |       | 20 V, 8 mA per channel                                                                                                                                                                                                      |
| <b>Indicators/settings</b>                              |       |                                                                                                                                                                                                                             |
| LED indicator                                           |       | LED green: supply<br>LED red: line fault , communication error red flashing                                                                                                                                                 |
| Coding                                                  |       | optional mechanical coding via front socket                                                                                                                                                                                 |
| <b>Directive conformity</b>                             |       |                                                                                                                                                                                                                             |
| Electromagnetic compatibility                           |       |                                                                                                                                                                                                                             |
| Directive 2004/108/EC                                   |       | EN 61326-1                                                                                                                                                                                                                  |
| <b>Conformity</b>                                       |       |                                                                                                                                                                                                                             |
| Electromagnetic compatibility                           |       | NE 21                                                                                                                                                                                                                       |
| Degree of protection                                    |       | IEC 60529                                                                                                                                                                                                                   |
| Environmental test                                      |       | EN 60068-2-14                                                                                                                                                                                                               |
| Shock resistance                                        |       | EN 60068-2-27                                                                                                                                                                                                               |
| Vibration resistance                                    |       | EN 60068-2-6                                                                                                                                                                                                                |
| Damaging gas                                            |       | EN 60068-2-42                                                                                                                                                                                                               |
| Relative humidity                                       |       | EN 60068-2-56                                                                                                                                                                                                               |
| <b>Ambient conditions</b>                               |       |                                                                                                                                                                                                                             |
| Ambient temperature                                     |       | -20 ... 60 °C (-4 ... 140 °F)                                                                                                                                                                                               |
| Storage temperature                                     |       | -25 ... 85 °C (-13 ... 185 °F)                                                                                                                                                                                              |
| Relative humidity                                       |       | 95 % non-condensing                                                                                                                                                                                                         |
| Shock resistance                                        |       | shock type I, shock duration 11 ms, shock amplitude 50 m/s <sup>2</sup> , number of shock directions 6, number of shocks per direction 100                                                                                  |
| Vibration resistance                                    |       | frequency range 5 ... 500 Hz, amplitude 5 ... 13.2 Hz $\pm$ 1.5 mm, 13.2 ... 100 Hz 1g, sweep rate 1 octave/min, duration 10 sweeps 5 Hz - 100 Hz - 5 Hz                                                                    |
| Damaging gas                                            |       | for plugs: 21 days in 25 ppm SO <sub>2</sub> , at 25 °C and 75 % rel. humidity, device G3                                                                                                                                   |
| <b>Mechanical specifications</b>                        |       |                                                                                                                                                                                                                             |
| Degree of protection                                    |       | IP20 (module) , a separate housing is required acc. to the system description                                                                                                                                               |
| Connection                                              |       | removable front connector with screw flange (accessory)<br>wiring connection via spring terminals (0.14 ... 1.5 mm <sup>2</sup> ) or screw terminals (0.08 ... 1.5 mm <sup>2</sup> )                                        |
| Mass                                                    |       | approx. 750 g                                                                                                                                                                                                               |
| Dimensions                                              |       | 57 x 107 x 132 mm (2.2 x 4.2 x 5.2 in)                                                                                                                                                                                      |
| <b>Data for application in connection with Ex-areas</b> |       |                                                                                                                                                                                                                             |
| EC-Type Examination Certificate                         |       | PTB 97 ATEX 1074 U , PTB 97 ATEX 1075 (system) , for additional certificates see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a>                                                                           |
| Group, category, type of protection                     |       |  II 2 G Ex d [ib] IIC Gb<br> II (2) D Ex [ib] IIIC Db |
| <b>Output</b>                                           |       |                                                                                                                                                                                                                             |
| Voltage                                                 | $U_o$ | 28 V                                                                                                                                                                                                                        |
| Current                                                 | $I_o$ | 13.5 mA                                                                                                                                                                                                                     |
| Power                                                   | $P_o$ | 376 mW (characteristic curve rectangular type)                                                                                                                                                                              |
| <b>Electrical isolation</b>                             |       |                                                                                                                                                                                                                             |
| Output/power supply, internal bus                       |       | safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V                                                                                                                                                     |
| <b>Directive conformity</b>                             |       |                                                                                                                                                                                                                             |
| Directive 94/9/EC                                       |       | EN 60079-0:2009<br>EN 60079-1:2007<br>EN 60079-11:2007<br>EN 60079-26:2007<br>EN 61241-11:2006                                                                                                                              |
| <b>General information</b>                              |       |                                                                                                                                                                                                                             |

|                           |                                                                                                                                                                                                                                                              |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System information        | The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, the corresponding EC-Type Examination Certificate has to be observed.                                      |
| Supplementary information | EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> . |