## Features

- 4-channel
- Outputs Ex ia
- Installation in Zone 2, Zone 22, Div. 2, or safe area
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog
- Output with bus-independent safety shutdown
- Up to SIL2 acc. to IEC 61508

## Function

The digital output features 4 independent channels.

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

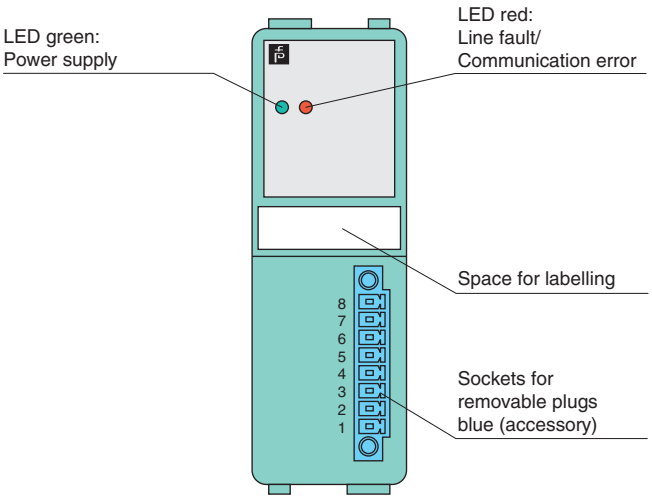
Open and short-circuit line faults are detected.

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

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

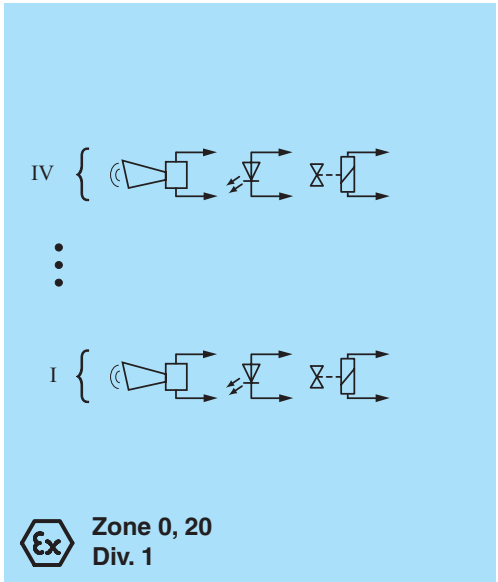
## Assembly

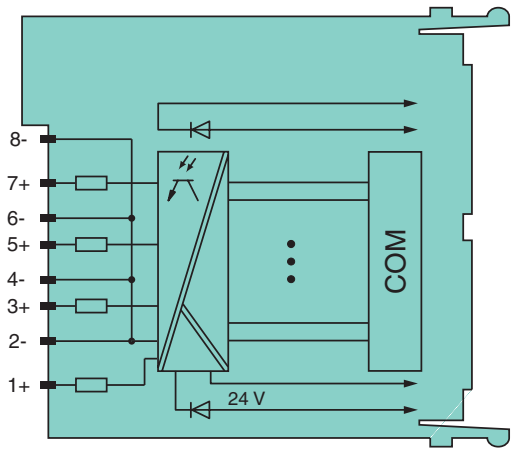
**Front view**




SIL2

## Connection




Zone 2
Div. 2

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| | | |
|---|---|---|
| **Supply** | | |
| Connection | | backplane bus / booster terminals |
| Rated voltage | | 12 V DC , only in connection with the power supplies LB9*** |
| Power consumption | | 0.6 W at power supply<br>5 W if 24 V booster voltage |
| **Internal bus** | | |
| Connection | | backplane bus |
| Interface | | manufacturer-specific bus to standard com unit |
| **Output** | | |
| Number of channels | | 4 |
| Connection | | channel I: 1+, 2-; channel II: 3+, 4-; channel III: 5+, 6-; channel IV: 7+, 8- |
| Internal resistor | $R_i$ | 290 Ω |
| Open loop voltage | $U_s$ | 23 V |
| Current limit | $I_{max}$ | 60 mA |
| Response time | | 10 ms (depending on bus cycle time) |
| Line fault detection | | can be switched on/off for each channel via configuration tool , also when turned off (every 2.5 s the valve is turned on for 2 ms) |
| Short-circuit | | < 180 Ω |
| Open-circuit | | > 6 kΩ |
| Watchdog | | within 0.5 s the device goes in safe state, e.g. after loss of communication |
| Reaction time | | 10 s |
| **Indicators/settings** | | |
| LED indicator | | LED green: supply<br>LED red: line fault , red flashing: communication error |
| Coding | | optional mechanical coding via front socket |
| **Directive conformity** | | |
| Electromagnetic compatibility | | |
| Directive 2004/108/EC | | EN 61326-1 |
| **Conformity** | | |
| 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 |
| **Ambient conditions** | | |
| 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 $m/s^2$, number of shock directions 6, number of shocks per direction 100 |
| Vibration resistance | | frequency range 5 ... 500 Hz, amplitude 5 ... 13.2 Hz ± 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 $SO_2$, at 25 °C and 75 % rel. humidity, device G3 |
| **Mechanical specifications** | | |
| Degree of protection | | IP20 when mounted on backplane |
| Connection | | removable front connector with screw flange (accessory)<br>wiring connection via spring terminals (0.14 ... 1.5 $mm^2$) or screw terminals (0.08 ... 1.5 $mm^2$) |
| Mass | | approx. 150 g |
| Dimensions | | 32 x 100 x 103 mm (1.26 x 3.9 x 4 in) |
| **Data for application in connection with Ex-areas** | | |
| EC-Type Examination Certificate | | PTB 03 ATEX 2042 , for additional certificates see www.pepperl-fuchs.com |
| Group, category, type of protection | | ⟨Ex⟩ II (1) G [Ex ia] IIC<br>⟨Ex⟩ II (1) D [Ex ia] IIIC |
| Output | | |
| Voltage | $U_o$ | 26 V |
| Current | $I_o$ | 110 mA |
| Power | $P_o$ | 714 mW |
| Internal capacitance | $C_i$ | 1.65 nF |
| Internal inductance | $L_i$ | 0 mH |
| Statement of conformity | | PF 08 CERT 1234 X |
| Group, category, type of protection | | ⟨Ex⟩ II 3 G Ex nA IIC T4 Gc |
| Electrical isolation | | |
| Output/power supply, internal bus | | safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V |

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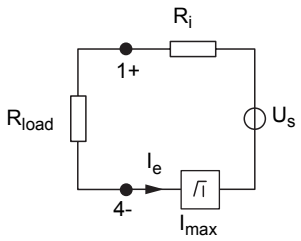
| | |
|---|---|
| Directive conformity | |
| Directive 94/9/EC | EN 60079-0:2009<br>EN 60079-11:2007<br>EN 60079-15:2010<br>EN 61241-11:2006 |
| **International approvals** | |
| IECEx approval | BVS 09.0037X |
| Approved for | Ex nAc [ia] IIC T4<br>[Ex iaD] IIIC |
| **General information** | |
| System information | The module has to be mounted in appropriate backplanes (LB9***) in Zone 2 or outside hazardous areas. Here, the corresponding declaration of conformity has to be observed.<br>For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure. |
| 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 www.pepperl-fuchs.com. |

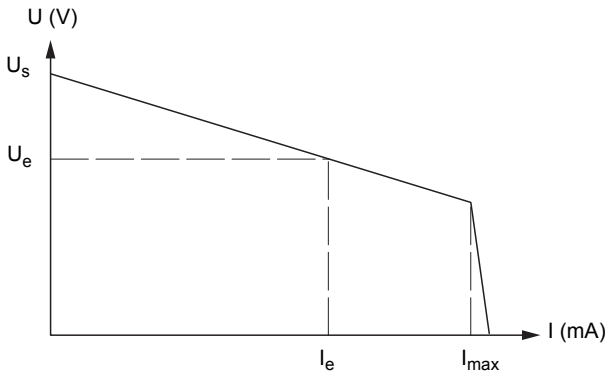
## Output data

### Load calculation




$R_{load}$ = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

### Output characteristics

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