

Features

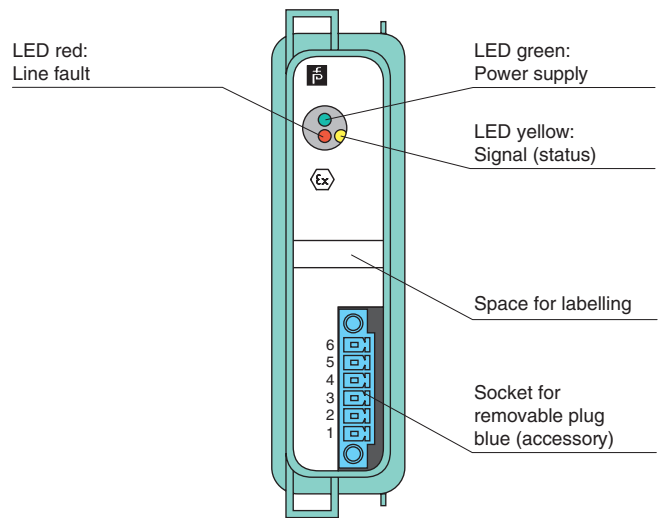
- 1 digital output, 2 digital inputs
- Inputs and output Ex ia
- Installation in suitable enclosures in Zone 1 or Zone 21
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring
- Output with watchdog
- Output with bus-independent safety input
- Up to SIL2 acc. to IEC 61508
- Module can be exchanged under voltage (hot swap)

Function

The digital output features 1 output with 2 feedback inputs. The device can be used to switch solenoids, sounders, or indicators (without line fault detection) in the field. Furthermore, the device accepts digital input signals of NAMUR sensors or mechanical contacts from the field. The output can be switched off via a contact. This can be used for bus-independent safety applications. Open and short-circuit line faults are detected. The intrinsically safe inputs and the output are galvanically isolated from the bus and the power supply.

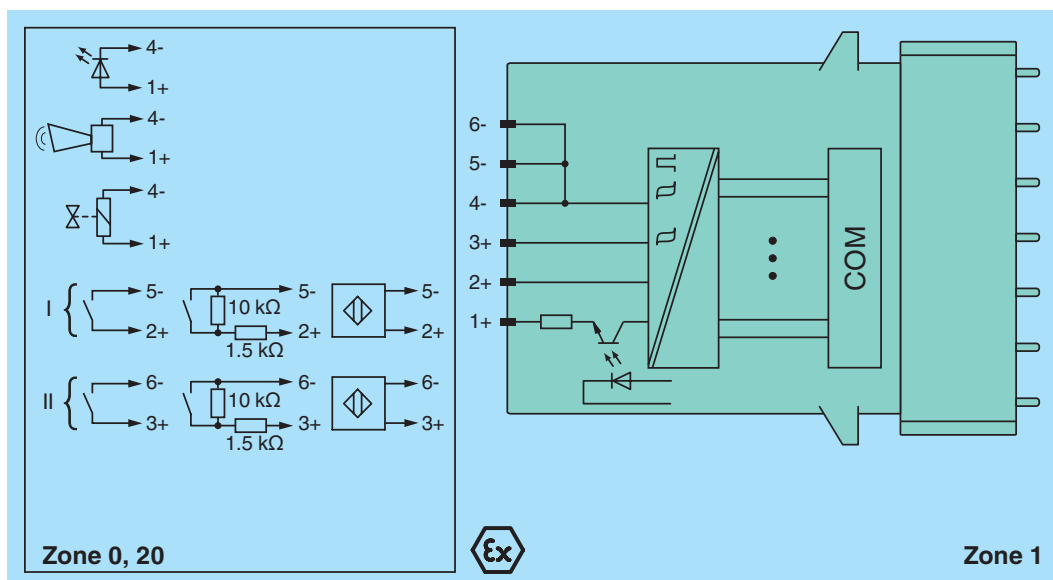
Assembly

Front view



SIL2

Connection



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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

| | | |
|--------------------------------------|-----------|--|
| Supply | | |
| Connection | | backplane bus |
| Rated voltage | U_n | 12 V DC , only in connection with the power supplies FB92** |
| Power loss | | 1.4 W |
| Power consumption | | 1.7 W |
| Internal bus | | |
| Connection | | backplane bus |
| Interface | | manufacturer-specific bus to standard com unit |
| Input | | |
| Number of channels | | 2 |
| Suitable sensors | | mechanical contacts, NAMUR proximity switches, 2-wire initiators |
| Connection | | channel I: 2+, 5-; channel II: 3+, 6- |
| Rated values | | acc. to EN 60947-5-6 (NAMUR) |
| Switching point/switching hysteresis | | 1.2 ... 2.1 mA / \pm 0.2 mA |
| Voltage | | 8.2 V |
| Internal resistor | | 1 k Ω |
| Line fault detection | | can be switched on/off for each channel via configuration tool |
| Connection | | mechanical switch with additional resistors (see connection diagram) , proximity switches without additional wiring |
| Short-circuit | | < 360 Ω |
| Open-circuit | | < 0.35 mA |
| Minimum pulse duration | | 1 ms |
| Output | | |
| Number of channels | | 1 |
| Suitable field devices | | solenoid valves, acoustic alarms and LED indicators (without line fault detection) |
| Connection | | channel I: 1+, 4- |
| Internal resistor | R_i | 360 Ω |
| Open loop voltage | U_s | 24 V |
| Current limit | I_{max} | 50 mA |
| Response time | | 20 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 | | < 70 Ω |
| Open-circuit | | > 2 k Ω |
| Watchdog | | within 0.5 s the device goes in safe state, e.g. after loss of communication |
| Indicators/settings | | |
| LED indicator | | LED green: supply LED red: output line fault LED yellow: status output |
| 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 \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 ₂ , at 25 °C and 75 % rel. humidity, device G3 |
| Mechanical specifications | | |
| Degree of protection | | IP20 (module) , a separate housing is required acc. to the system description |
| Connection | | removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm ²) or screw terminals (0.08 ... 1.5 mm ²) |
| Mass | | approx. 350 g |
| Dimensions | | 28 x 107 x 132 mm (1.1 x 4.2 x 5.2 in) |

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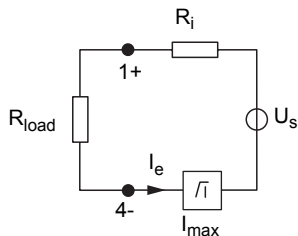
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| | | |
|---|-------|--|
| Data for application in connection with Ex-areas | | |
| EC-Type Examination Certificate | | |
| Group, category, type of protection | | PTB 97 ATEX 1074 U , PTB 97 ATEX 1075 (system) , for additional certificates see www.pepperl-fuchs.com Ex II 2(1) G Ex d [ia Ga] IIC Gb Ex II (1) D Ex [ia] IIIC Da |
| Input | | |
| Voltage | U_o | 14 V |
| Current | I_o | 16 mA |
| Power | P_o | 55 mW (linear characteristic) |
| Output | | |
| Voltage | U_o | 27.8 V |
| Current | I_o | 91.5 mA |
| Power | P_o | 636 mW |
| Electrical isolation | | |
| Input/power supply, internal bus | | safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V |
| Output/power supply, internal bus | | safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V |
| Directive conformity | | |
| Directive 94/9/EC | | EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006 |
| General information | | |
| 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 www.pepperl-fuchs.com . |

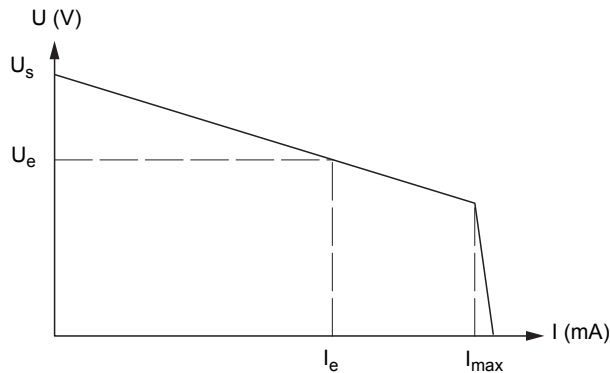
Output data

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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