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.

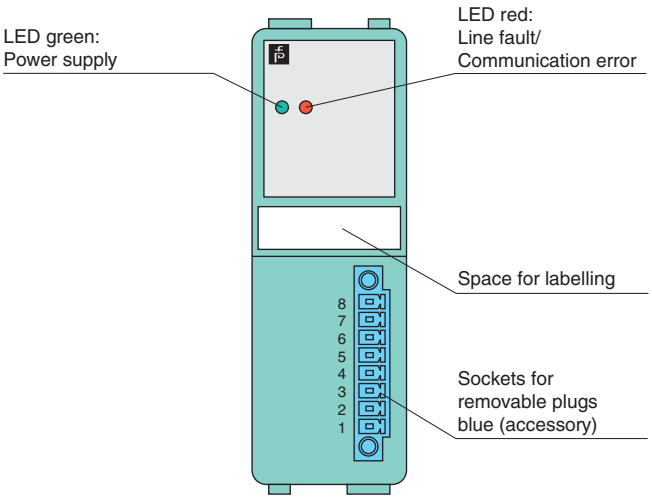
Open and short-circuit line faults are detected.

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.

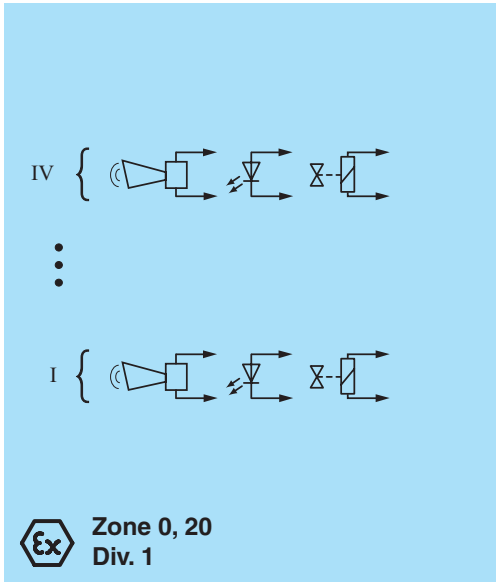
Assembly

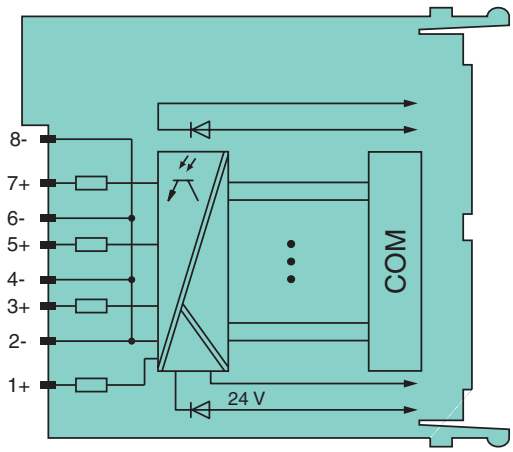
Front view



SIL2

Connection





Zone 2
Div. 2

Release date 2014-08-13 08:41 Date of issue 2014-08-13 208498_eng.xml

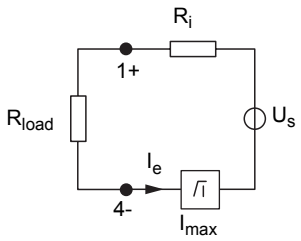
Supply		
Connection		backplane bus / booster terminals
Rated voltage		12 V DC , only in connection with the power supplies LB9***
Power consumption		0.6 W at power supply 5 W if 24 V booster voltage
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Output		
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	185 Ω
Open loop voltage	U_s	17 V
Current limit	I_{max}	70 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		< 120 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 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) 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 ⟨Ex⟩ II (1) D [Ex ia] IIIC
Output		
Voltage	U_o	19.8 V
Current	I_o	142 mA
Power	P_o	705 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

Release date 2014-08-13 08:41 Date of issue 2014-08-13 208498_eng.xml

Directive conformity	
Directive 94/9/EC	EN 60079-0:2009 EN 60079-11:2007 EN 60079-15:2010 EN 61241-11:2006
International approvals	
IECEx approval	BVS 09.0037X
Approved for	Ex nAc [ia] IIC T4 [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. 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.

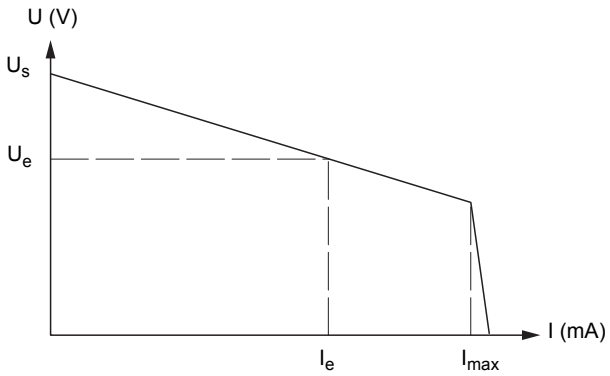
Output data

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



Release date 2014-08-13 08:41 Date of issue 2014-08-13 208498_eng.xml