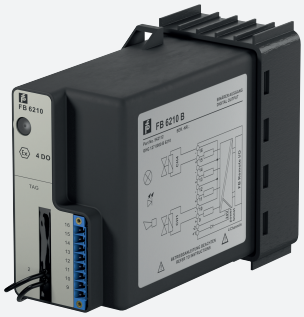


Digital Output with Shutdown Input

FB6210ER

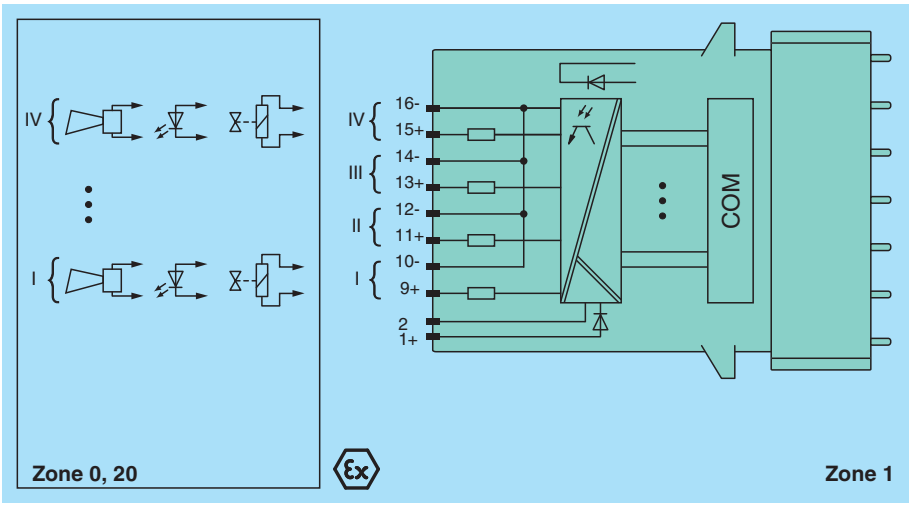
- 4-channel
- Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog
- Output with bus-independent safety shutdown input

CE Ex SIL 2

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.

Connection



Technical Data

Slots		
Occupied slots		2
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 2
Supply		
Connection		backplane bus / booster terminals
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Input voltage range	U	18.5 ... 32 V DC (SELV/PELV) booster voltage
Power dissipation		3 W
Power consumption		0.15 W
Internal bus		

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Technical Data

Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		
Number of channels		4
Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 9+, 10-; channel II: 11+, 12-; channel III: 13+, 14-; channel IV: 15+, 16-
Internal resistor	R_i	max. 370 Ω
Current limit	I_{max}	37 mA
Open loop voltage	U_s	24.5 V
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		< 100 Ω
Open-circuit		> 15 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Reaction time		10 s
Indicators/settings		
LED indication		LED green: supply LED red: line fault , red flashing: communication error
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		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 60068-2-78
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 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level 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. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC Gb ⟨Ex⟩ II (1) D [Ex ia Da] IIIC

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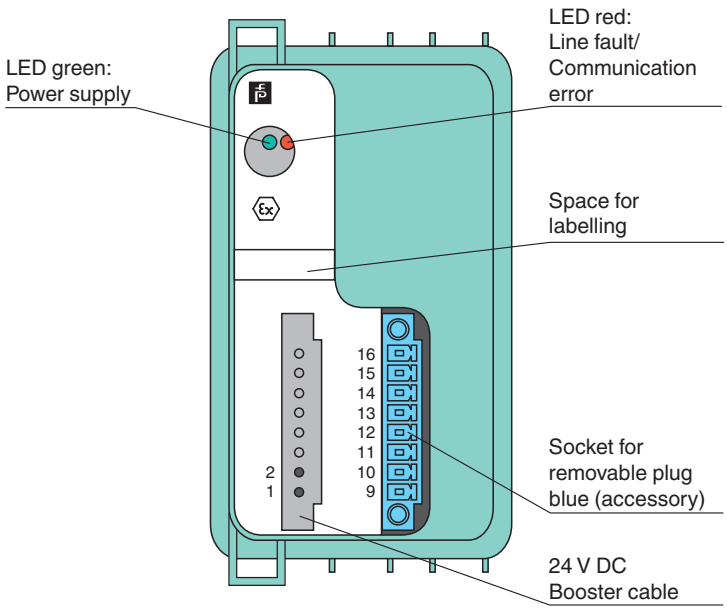
Technical Data

Output		
Voltage	U_o	27.8 V
Current	I_o	90.4 mA
Power	P_o	629 mW
Internal capacitance	C_i	2.5 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals		
ATEX approval		PTB 97 ATEX 1075 PTB 97 ATEX 1074U
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, observe the corresponding EC-type examination certificate.
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.

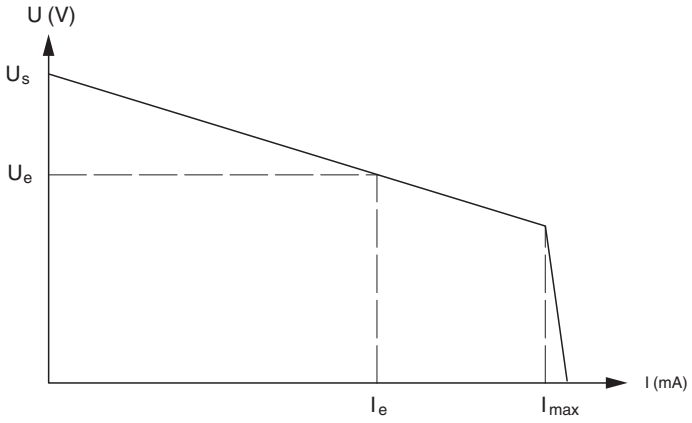
Assembly

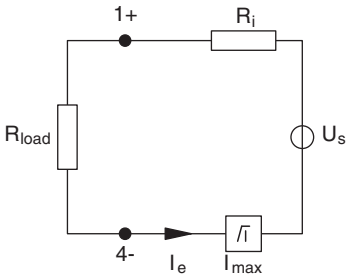
Front view



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

Characteristic Curve





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