

Digital Output with Shutdown Input

FB6217E3

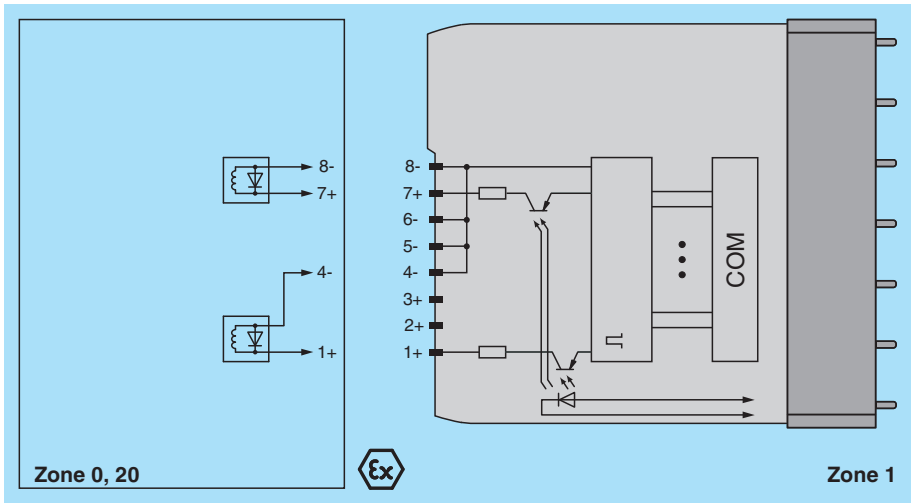
SIL2

- 2-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

Function

The digital output features 2 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

Supply		
Connection		backplane bus / booster terminals
Rated voltage	U_r	Use only in connection with the power supplies FB92**
Power dissipation		1.7 W
Power consumption		2.7 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		
Number of channels		2

Release date: 2021-12-01 Date of issue: 2021-12-01 Filename: 281081_eng.pdf

Technical Data

Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 1+, 4/5/6/8-; channel II: 7+, 4/5/6/8-
Current limit	I_{max}	50 mA both channels parallel 100 mA
Internal resistor	R_i	131 Ω , both channels parallel 66 Ω
Open loop voltage		16.5 V , both channels parallel 16.5 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		< 50 Ω
Open-circuit		> 10 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
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1, 2) red: line fault (lead breakage or short circuit) , yellow: state of digital I/O (0/1) Mode LED (M) white: Parallel operation of outputs
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 60068-2-56
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 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. 420 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14054U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Output		
Voltage	U_o	17.8 V

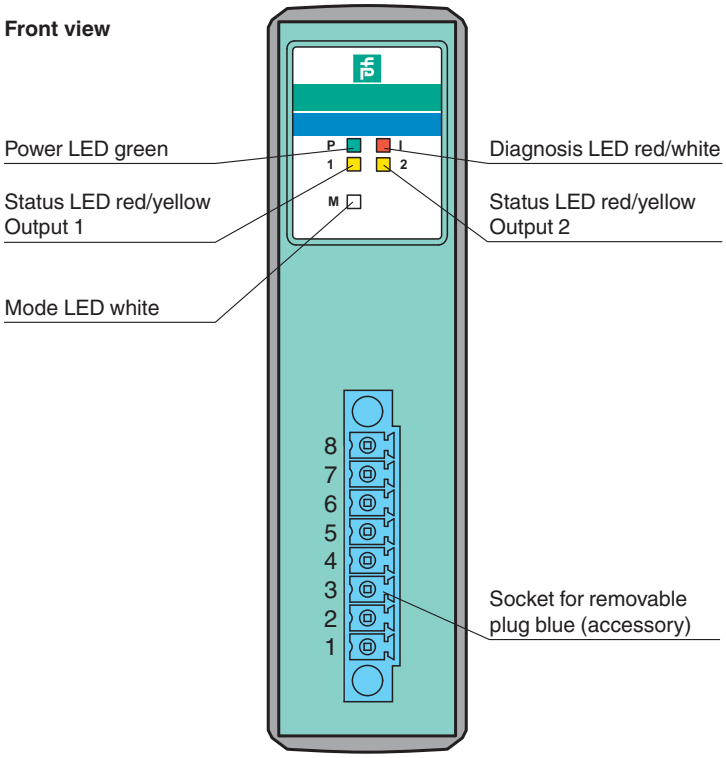
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Current	I_o	162 mA
Power	P_o	721 mW
Internal capacitance	C_i	12 nF
Internal inductance	L_i	0 mH
Output (both channels parallel)		
Voltage	U_o	17.8 V
Current	I_o	324 mA
Power	P_o	1442 mW
Internal capacitance	C_i	24 nF
Internal inductance	L_i	0 mH
Galvanic 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 60079-0:2012+A11:2013 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14054U
IECEx approval		IECEx PRE 19.0009U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
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

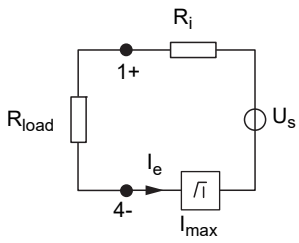
Front view



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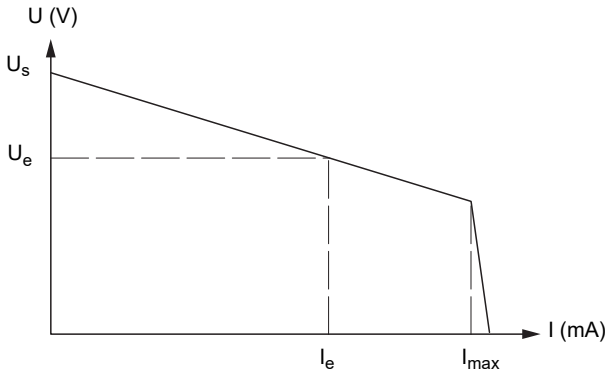
Characteristic Curve

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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