

RTD Converter

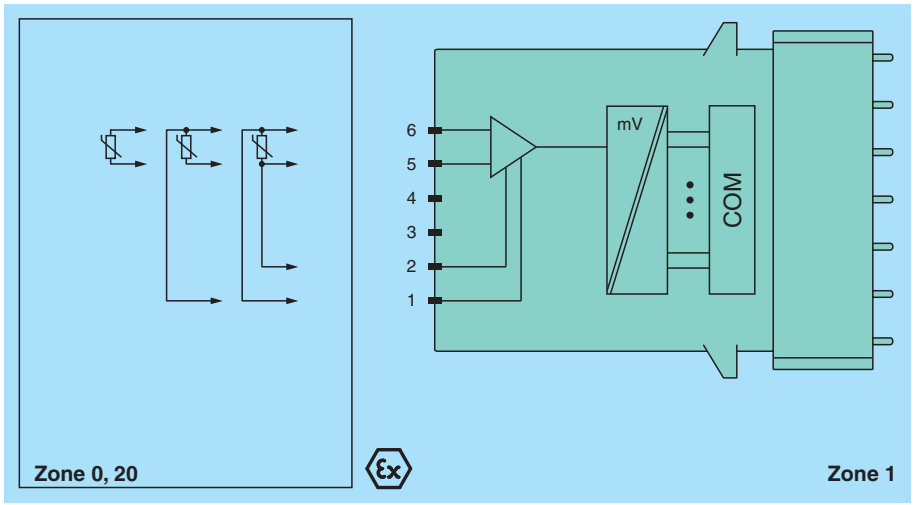
FB5201B

- 1-channel
- Input Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Converter for 2-, 3- and 4-wire Pt100, slide wire sensors
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring

Function

The RTD converter accepts 2-, 3-, 4-wire RTD signals (Pt100) from the hazardous area.
Open and short-circuit line faults are detected.
The intrinsically safe input is galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		0.4 W
Power consumption		0.4 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
temperature input		
Number of channels		1

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Technical Data

Suitable field devices	
Field device	resistance thermometer
Field device [3]	slide-wire sensors
Field device interface	
Connection	2-wire sensor
Connection [2]	3-wire sensor
Connection [3]	4-wire sensor
Connection	2-wire connection: 5, 6 3-wire connection: 1, 5, 6 4-wire connection: 1, 2, 5, 6
Measurement range	10 ... 400 Ω (500 Ω incl. line resistance)
Slide-wire sensor	10 ... 400 Ω
Measuring current	200 µA
Smallest span	20 Ω for 0.1 % accuracy
Linearity error	0.1 %
Conversion time	max. 20 ms without LFD max. 150 ms with LFD
Lead resistance	max. 50 Ω per strand
Line fault detection	can be switched on/off for each channel via configuration tool
Short-circuit	< 10 Ω
Open-circuit	> 1 kΩ
Transfer characteristics	
Deviation	
Influence of ambient temperature	max. 0,1 %/10 K
Indicators/settings	
LED indication	LED green: supply LED red: line fault
Coding	optional mechanical coding via front socket
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013
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 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. 350 g
Dimensions	28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)

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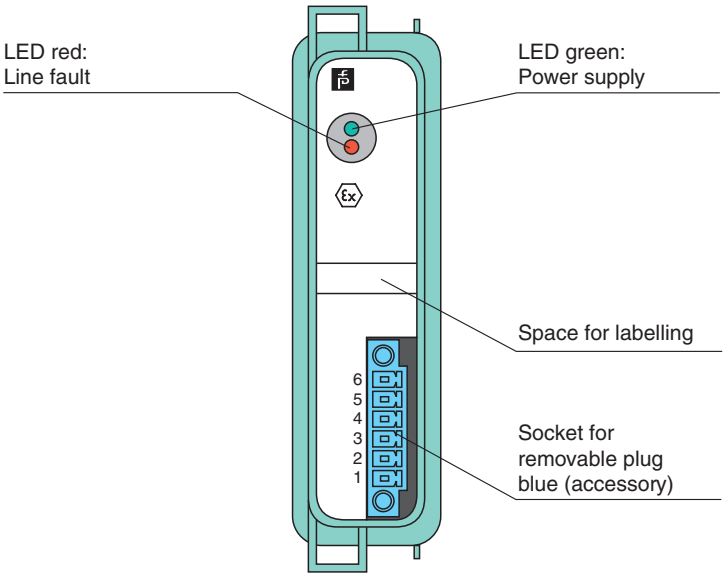
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		Ⓔx II 2(1) G Ex d [ia Ga] IIC Gb Ⓔx II (1) D [Ex ia Da] IIIC
Input		
Voltage	U_o	2.7 V
Current	I_o	43 mA
Power	P_o	93 mW (trapezoid characteristic curve)
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-11:2012
International approvals		
ATEX approval		PTB 97 ATEX 1075 ; PTB 97 ATEX 1074 U
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



Accessories

	FB9224*	Field Unit
	FB9225*	
	FB9248*	

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