

# RTD Converter

## FB5201B



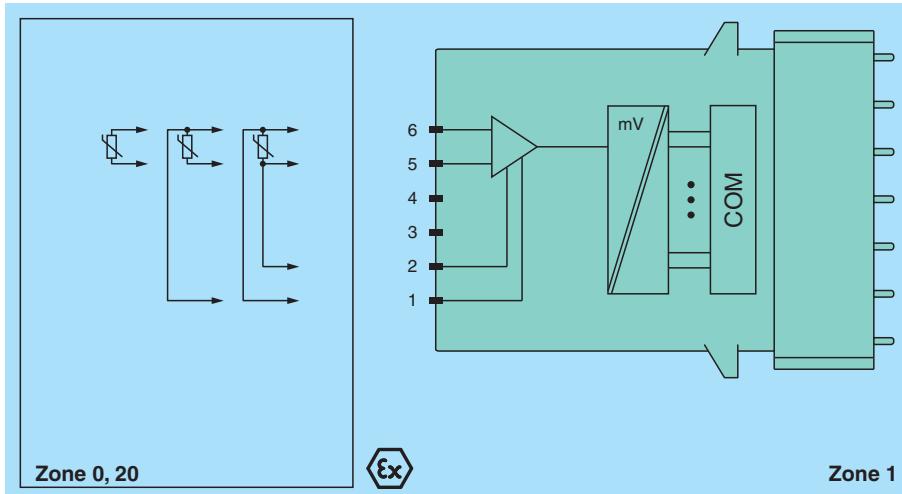
- 1-channel
- Input Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Converter for 2-, 3- and 4-wire Pt100, slide wire sensors
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring



### 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

Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 542104\_eng.pdf

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
Suitable field devices		

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com

 PEPPERL+FUCHS

## Technical Data

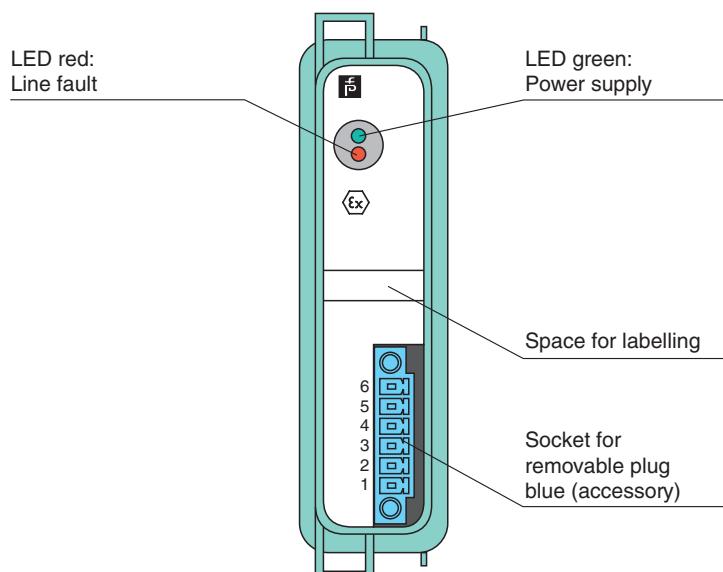
Field device	resistance thermometer
Field device [3]	slide-wire sensors
Field device interface	
Connection	2-wire sensor
Connection [2]	3-wire sensor
Connection [3]	4-wire sensor
Connection	2-wire connection: 5, 6 3-wire connection: 1, 5, 6 4-wire connection: 1, 2, 5, 6
Measurement range	10 ... 400 Ω (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
<b>Transfer characteristics</b>	
Deviation	
Influence of ambient temperature	max. 0,1 %/10 K
<b>Indicators/settings</b>	
LED indication	LED green: supply LED red: line fault
Coding	optional mechanical coding via front socket
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013
<b>Conformity</b>	
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
<b>Ambient conditions</b>	
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
<b>Mechanical specifications</b>	
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 <sup>2</sup> ) or screw terminals (0.08 ... 1.5 mm <sup>2</sup> )
Mass	approx. 350 g
Dimensions	28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
<b>Data for application in connection with hazardous areas</b>	

## Technical Data

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
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 <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .	

## Assembly

### Front view



## Accessories

<b>FB9224*</b>	Field Unit
<b>FB9225*</b>	Redundancy Field Unit
<b>FB9248*</b>	Field Unit