

RTD Converter FB5204B3

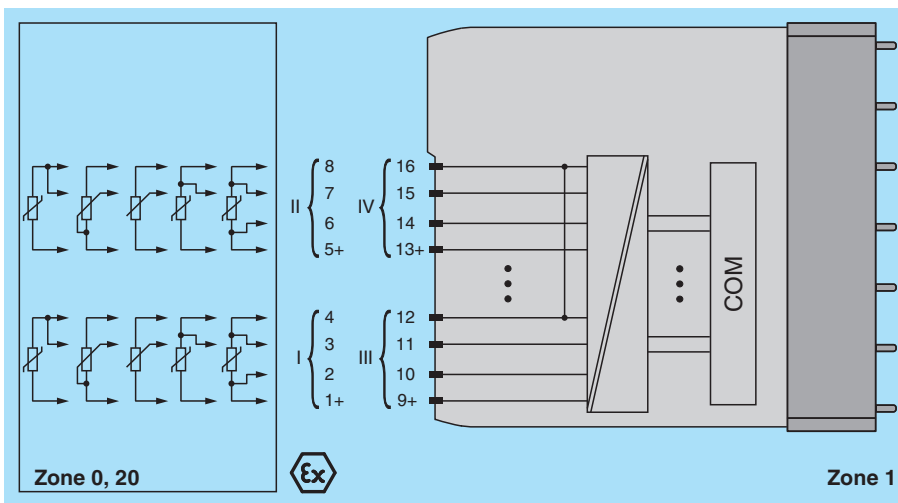
- 4-channel
- Inputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Converter for 2-, 3- and 4-wire RTDs (Pt100 ... Pt1000), slide wire sensors etc.
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring



Function

The RTD converter accepts 2-, 3-, 4-wire RTD signals (Pt100 ... Pt1000) and slide-wire sensors from the field. Ni100 through Ni1000 can also be connected. Open and short-circuit line faults are detected. The intrinsically safe inputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots	
Occupied slots	2
Supply	
Connection	backplane bus
Rated voltage	U_r 12 V DC , only in connection with the power supplies FB92**
Power dissipation	0.35 W
Power consumption	0.35 W
Internal bus	
Connection	backplane bus
Interface	manufacturer-specific bus to standard com unit
temperature input	
Number of channels	4

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Technical Data

Suitable field devices	
Field device	resistance thermometer
Field device [2]	slide-wire sensors
Field device [3]	potentiometer
Field device interface	
Connection	2-wire sensor
Connection [2]	3-wire sensor
Connection [3]	4-wire sensor
Connection	channel I: resistance/potentiometer input 1 ... 4 channel II: resistance/potentiometer input 5 ... 8 channel III: resistance/potentiometer input 9 ... 12 channel IV: resistance/potentiometer input 13 ... 16
Measuring range	Pt100 (18-390 Ω) (500 Ω incl. line resistance) Pt200 (37-780 Ω) Pt500 (92-1952 Ω) Pt1000 (185-3905 Ω) Ni100 (69-270 Ω) Ni500 (345-1350 Ω) Ni1000 (690-2700 Ω)
Slide-wire sensor	0 ... 10 kΩ
Measuring current	200 μA
Smallest span	50 Ω for 0.1 % accuracy
Linearity error	0.1 %
Conversion time	max. 500 ms (4 channels) max. 1 s (for 4x 3-wire Pt100)
Busy after download	5 ... 15 s
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, collective alarm, flashing: communication error
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 60068-2-78
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

Technical Data

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. 950 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	Presafe 19 ATEX 14058U		
Marking	Ⓜ 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		
Input			
Voltage	U _o	7.14 V	
Current	I _o	70 mA	
Power	P _o	123 mW (linear characteristic)	
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 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012		
International approvals			
ATEX approval	Presafe 19 ATEX 14058U		
IECEX approval			
IECEX certificate	IECEX PRE 19.0013U		
IECEX marking	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

Power LED green

Status LED red

Space for labelling

Sockets for removable plugs blue (accessory)

