Thermocouple Converter

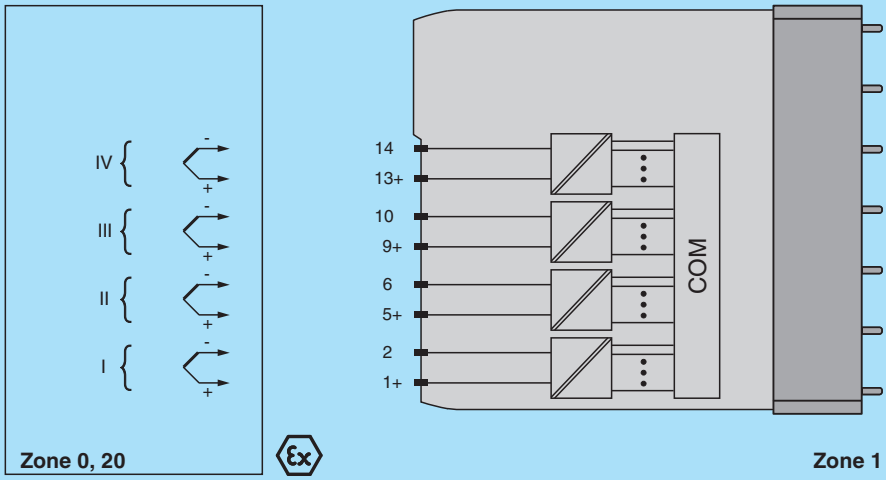
FB5205B3

- 4-channel
- Inputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Converter for thermocouples and mV-signals
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring

Function

The thermocouple converter accepts thermocouple or mV signals from the field.
Open circuit line fault alarms are detected.
The inputs are galvanically isolated from the bus and the power supply (EN 60079-11). There is a functional isolation between the channels.

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		0.75 W
Power consumption		0.75 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
temperature input		
Number of channels		4
Suitable field devices		

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Technical Data

Field device [2]		Thermocouple
Field device [4]		mV source
Suitable sensors		
Sensor		thermocouples U, B, E, T, K, S, R, L, J, N, Pallaplat and mV sources
Connection		channel I: 1+, 2-; channel II: 5+, 6-; channel III: 9+, 10-; channel IV: 13+, 14-
Measurement range		-65 ... 75 mV with LFD , -75 ... 75 mV without LFD
Smallest span		5 mV for 0.1 % accuracy
Linearity error		0.1 %
Conversion time		max. 300 ms (4 channels) without LFD max. 600 ms (4-channel) with LFD
Compensation (reference junction CJC)		internal cold junction compensation or external cold junction
Line fault detection		can be switched on/off for each channel via configuration tool ,
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
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 mm²) or screw terminals (0.08 ... 1.5 mm²)
Mass		approx. 955 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		⟨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
Input		
Voltage	U_o	1 V
Current	I_o	71 mA

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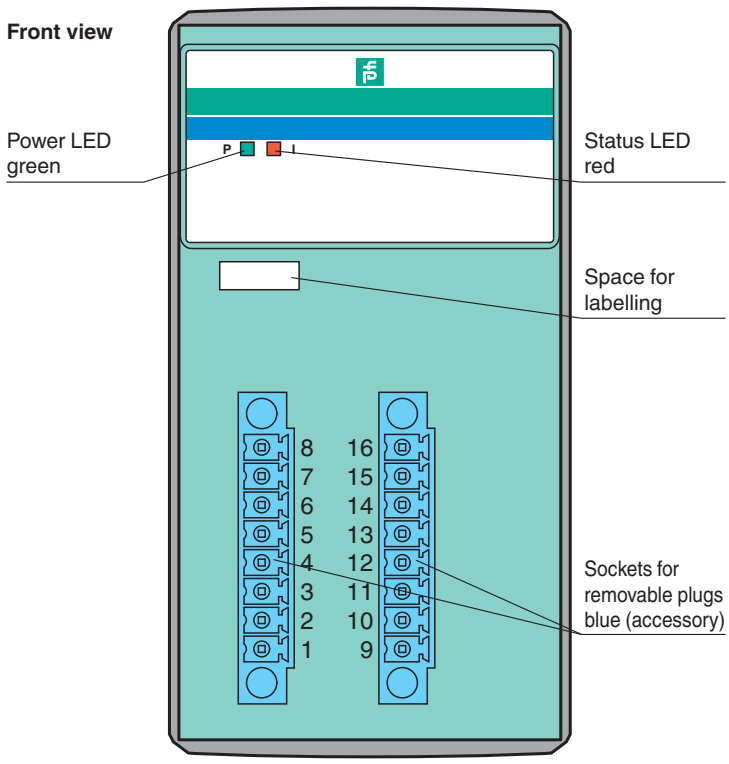
Power	P_o	62 mW (trapezoid characteristic curve)
Galvanic isolation		
Input/input		functional insulation acc. to IEC 60664-1:2007, rated insulation voltage 50 V, testing voltage 500 V
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
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 PRE 19.0013U
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



Accessories

	FB9224*	Field Unit
	FB9225*	Redundancy Field Unit
	FB9248*	Field Unit

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