

Thermocouple Converter

FB5205B



- 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



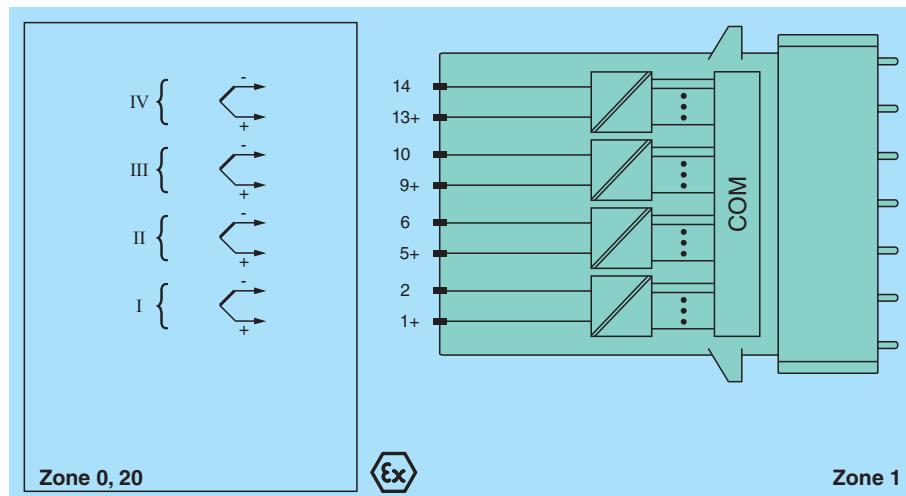
Function

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



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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
Input		
Compensation (reference junction CJC)		internal cold junction compensation or external cold junction
temperature input		

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

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Technical Data

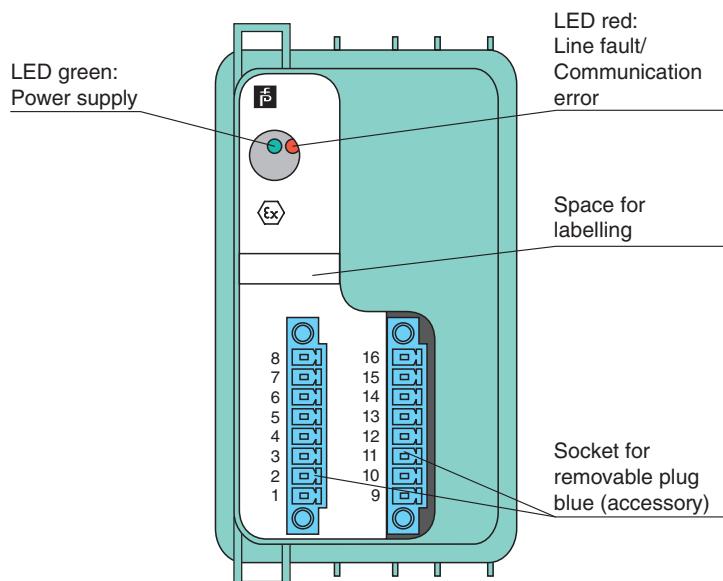
Number of channels	4
Suitable field devices	
Field device [2]	Thermocouple
Field device [4]	mV source
Suitable sensors	
Sensor	thermocouples U, B, E, T, K, S, R, L, J, N, Pallaplat and mV sources
Connection	channel I: 1+, 2-; channel II: 5+, 6-; channel III: 9+, 10-; channel IV: 13+, 14-
Measurement 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	-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. 750 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	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	

Technical Data

Voltage	U_o	1 V
Current	I_o	71 mA
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 60079-11:2012	
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*	Redundancy Field Unit
FB9248*	Field Unit