

Thermocouple Converter

FB5202B



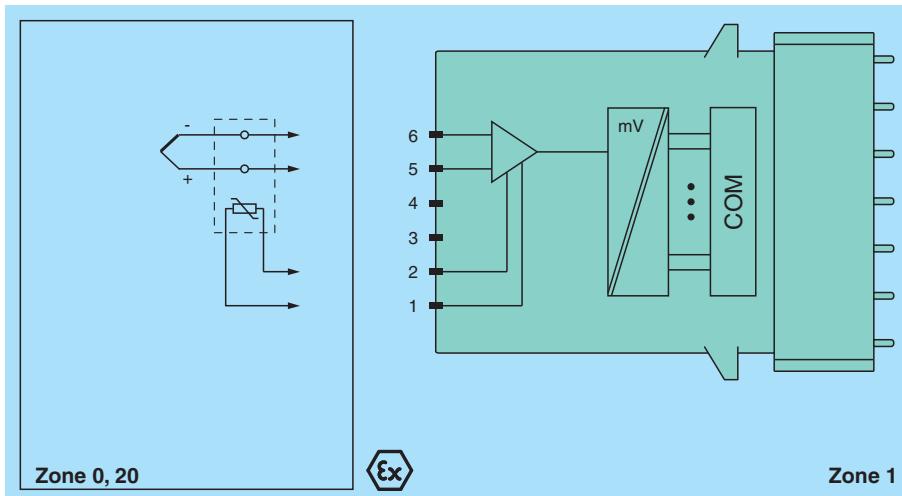
- 1-channel
- Input Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Converter for thermocouples and mV-signals
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring



Function

The mV input accepts thermocouple or mV signals from the hazardous area. Open circuit line fault alarms are detected. The input is galvanically isolated from the bus and the power supply (EN 60079-11).

Connection



Technical Data

Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 542106_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 | | 0.45 W |
| Power consumption | | 0.45 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

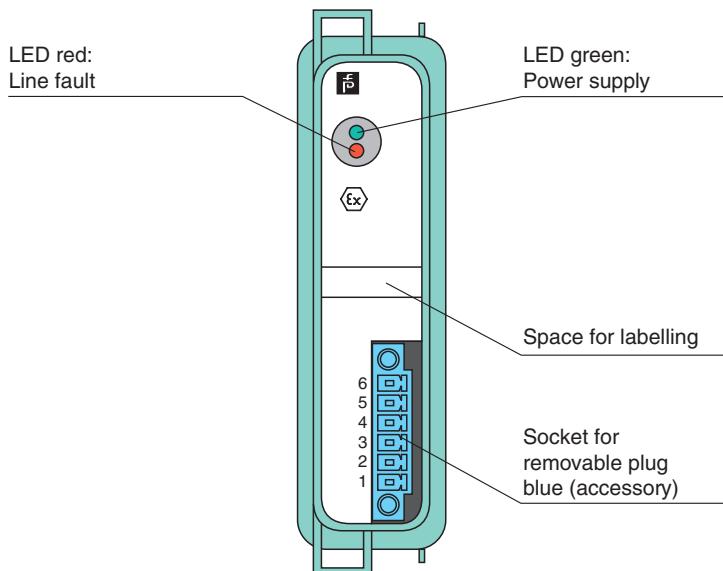
| | |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of channels | 1 |
| 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 | cold junction: 1, 2 thermocouple: 5+, 6- |
| Measurement range | -75 ... mV ... 75 mV |
| Smallest span | 5 mV for 0.1 % accuracy |
| Linearity error | 0.1 % |
| Conversion time | internal cold junction: max. 120 ms without LFD max. 240 ms with LFD external cold junction: max. 20 ms without LFD max. 80 ms 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 |
| 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. 350 g |
| Dimensions | 28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch) |
| Data for application in connection with hazardous areas | |
| EU-type examination certificate | PTB 97 ATEX 1074 U |

Technical Data

| | | |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Marking | Ex II 2(1) G Ex d [ia Ga] IIC Gb Ex II (1) D [Ex ia Da] III C | |
| Input | | |
| Voltage | U_o | 1.8 V |
| Current | I_o | 43 mA |
| Power | P_o | 67 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* | Redundancy Field Unit |
| FB9248* | Field Unit |