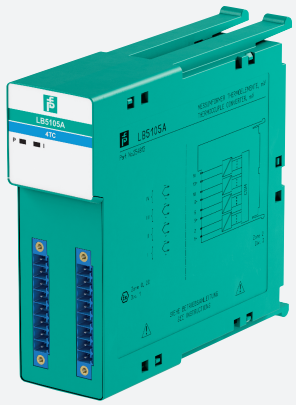


Thermocouple Converter

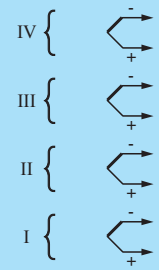
LB5105A

- 4 channels
- Inputs Ex ia
- Mounting in Zone 2, Class I/Div.2 or in the safe area
- Converter for thermocouples and mV-signals
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring
- Module can be exchanged under voltage

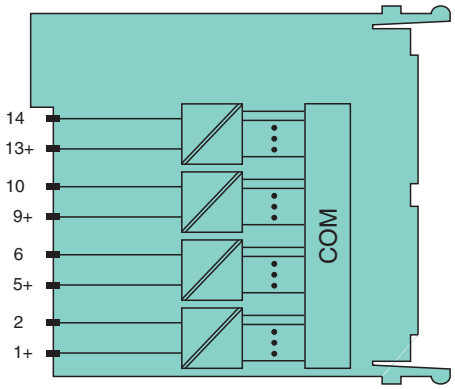
Function

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

Wiring Diagram



Zone 0, 20
Div. 1



Zone 2
Div. 2

Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies LB9***
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

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Technical Data

temperature input	
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-
Measuring 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	Power LED (P) green: supply Status LED (I) red: line fault (collective alarm) , red 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	-40 ... 85 °C (-40 ... 185 °F)
Relative humidity	95 % non-condensing
Altitude	max. 2000 m
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 when mounted on backplane
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. 150 g
Dimensions	32.5 x 100 x 102 mm (1.28 x 3.9 x 4 inch)
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 03 ATEX 2042 X

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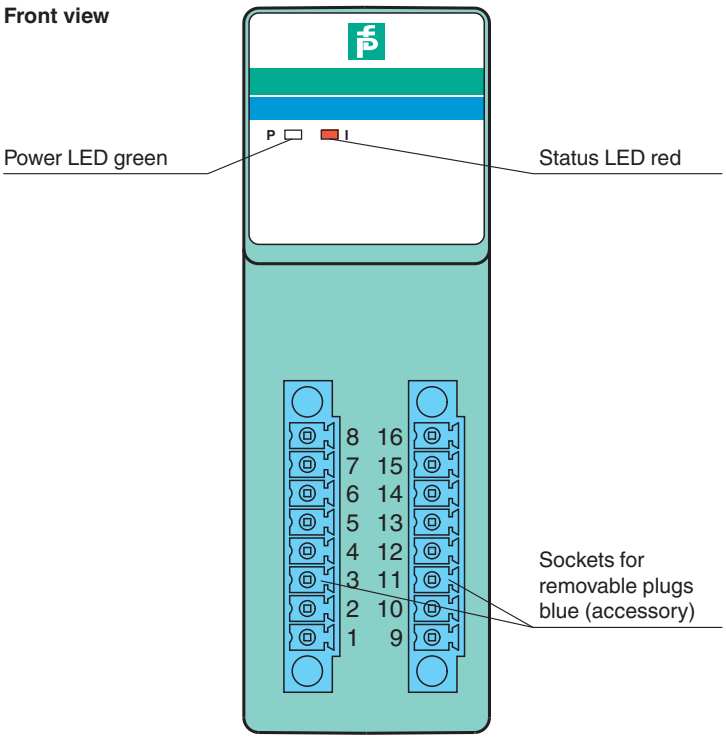
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Input		
Voltage	U_o	1 V
Current	I_o	71 mA
Power	P_o	62 mW (trapezoid characteristic curve)
Certificate		PF 08 CERT 1234 X
Marking		⟨Ex⟩ II 3 G Ex nA IIC T4 Gc
Galvanic isolation		
Input/input		functional insulation 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 60079-11:2012 EN 60079-15:2010
International approvals		
ATEX approval		PTB 03 ATEX 2042 X
UL approval		E106378
IECEx approval		
IECEx certificate		IECEx BVS 09.0037X
IECEx marking		Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes (LB9***) in Zone 2 or outside hazardous areas. Here, observe the corresponding declaration of conformity. For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure.
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



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