

RTD Converter LB5101A

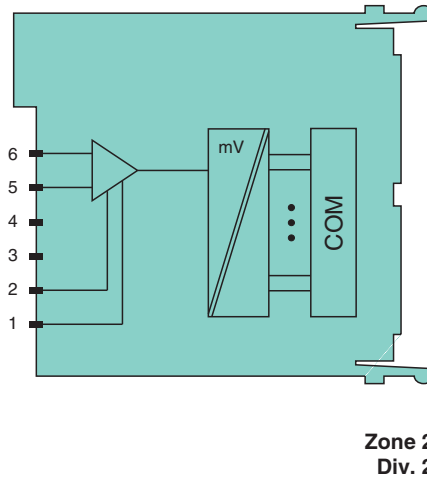
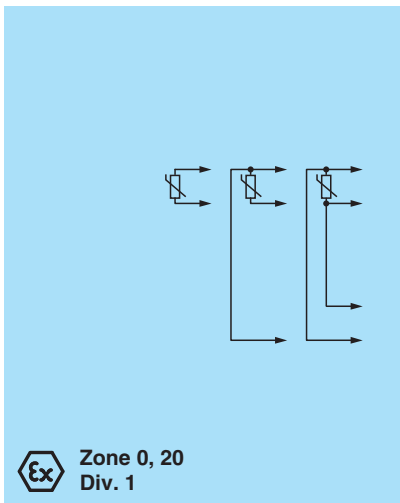
- 1-channel
- Input Ex ia
- Mounting in Zone 2, Class I/Div.2 or in the safe area
- Converter for 2-, 3- and 4-wire Pt100, slide wire sensors
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring
- Module can be exchanged under voltage



Function

The RTD converter accepts 2-, 3-, 4-wire RTD signals (Pt100) from the hazardous area. Open and short-circuit line faults are detected. The intrinsically safe input is galvanically isolated from the bus and the power supply.

Wiring Diagram



Technical Data

Slots	
Occupied slots	1
Supply	
Connection	backplane bus
Rated voltage	U_r 12 V DC , only in connection with the power supplies LB9***
Power dissipation	0.4 W
Power consumption	0.4 W
Internal bus	
Connection	backplane bus
Interface	manufacturer-specific bus to standard com unit
temperature input	
Number of channels	1
Suitable field devices	

Release date: 2025-07-10 Date of issue: 2025-07-10 Filename: 254805_eng.pdf

Technical Data

Field device	resistance thermometer
Field device [3]	slide-wire sensors
Field device interface	
Connection	2-wire sensor
Connection [2]	3-wire sensor
Connection [3]	4-wire sensor
Connection	2-wire connection: 5, 6 3-wire connection: 1, 5, 6 4-wire connection: 1, 2, 5, 6
Measuring range	10 ... 400 Ω (500 Ω incl. line resistance)
Slide-wire sensor	10 ... 400 Ω
Measuring current	200 μ A
Smallest span	20 Ω for 0.1 % accuracy
Linearity error	0.1 %
Conversion time	max. 20 ms without LFD max. 150 ms with LFD
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 k Ω
Transfer characteristics	
Deviation	
Influence of ambient temperature	max. 0,1 %/10 K
Indicators/settings	
LED indication	Power LED (P) green: supply Status LED (1) 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	
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 $^{\circ}$ C (-4 ... 140 $^{\circ}$ F)
Storage temperature	-40 ... 85 $^{\circ}$ C (-40 ... 185 $^{\circ}$ 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 \pm 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration \pm 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. 90 g
Dimensions	16 x 100 x 102 mm (0.63 x 3.9 x 4 inch)

Technical Data

Data for application in connection with hazardous areas		
EU-type examination certificate	PTB 03 ATEX 2042 X	
Marking	Ⓜ II (1)G [Ex ia Ga] IIC Ⓜ II (1)D [Ex ia Da] IIIC Ⓜ I (M1) [Ex ia Ma] I	
Input		
Voltage	U_o	2.7 V
Current	I_o	43 mA
Power	P_o	93 mW (trapezoid characteristic curve)
Certificate	PF 08 CERT 1234 X	
Marking	Ⓜ II 3 G Ex nA IIC T4 Gc	
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 60079-11:2012 EN 60079-15:2010	
International approvals		
ATEX approval	PTB 03 ATEX 2042 X	
UL approval	E106378	
Control drawing	116-0322	
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

Power LED green

Status LED red



Socket for removable plug blue (accessory)

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