

HART Transmitter Power Supply, Input Isolator

LB3102A2

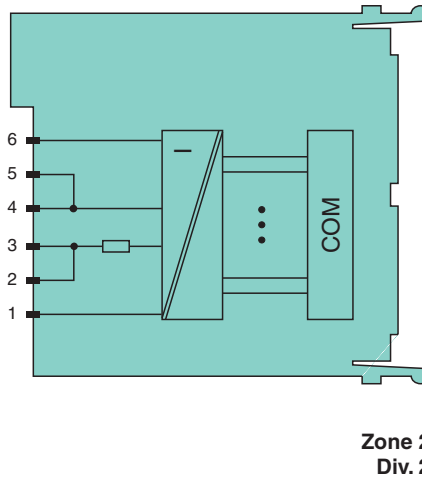
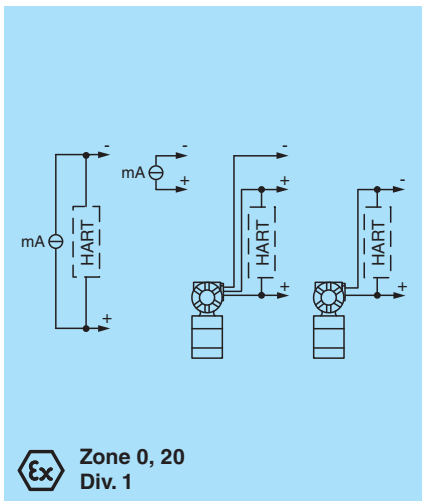
- 1-channel
- Input Ex ia
- Mounting in Zone 2, Class I/Div.2 or in the safe area
- Power supply for 2- or 3-wire transmitters with 4 mA ... 20 mA
- Supply circuit 15 V (20 mA)
- Input from active signals of 4-wire transmitters
- HART communication via field bus or service bus
- HART communication also for separately powered devices
- Simulation mode for service operations (forcing)
- Line fault detection (LFD) and Live Zero monitoring
- Permanently self-monitoring
- Module can be exchanged under voltage



Function

The transmitter power supply feeds 2- and 3-wire transmitters. Active signals from separately powered field devices and 4-wire transmitters can be connected. Open circuit, short circuit, and Live Zero status are detected. The intrinsically safe input is galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots

Occupied slots	1
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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	1.1 W	

Internal bus

Connection	backplane bus
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Technical Data

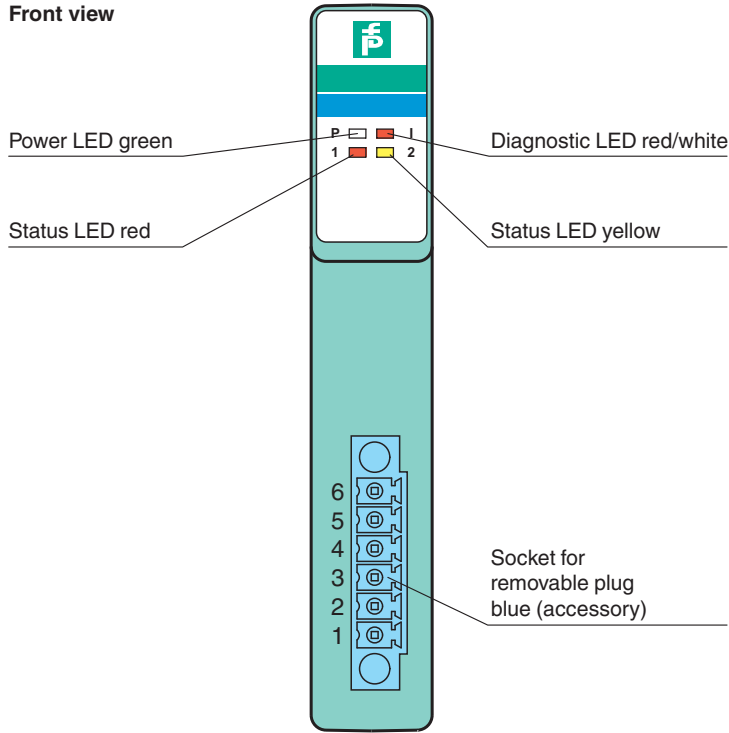
Interface	manufacturer-specific bus to standard com unit
Analog input	
Number of channels	1
Suitable field devices	
Field device	pressure converter
Field device [2]	flow converter
Field device [3]	level converter
Field device [4]	Temperature Converter
Field device interface	
Connection	2-wire transmitter
Connection [2]	3-wire transmitter
Connection [3]	4-wire transmitter
Connection	2-wire transmitter (HART): supply circuit: 2/3+, 4/5- 3-wire transmitter (HART): supply circuit: 2/3+, 6- measuring circuit: 4/5+, 6- 4-wire transmitter (separately powered): measuring circuit: 4/5+, 6- HART measuring circuit: 1+, 6-
Transmitter supply voltage	min. 15 V at 20 mA ; 21.5 V at 4 mA
Input resistance	15 Ω (terminals 5, 6) <P></P> 236 Ω (terminals 1, 6) HART
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: > 22 mA configurable between 0 ... 26 mA
Open-circuit	factory setting: < 1 mA configurable between 0 ... 26 mA
HART communication	yes
HART secondary variable	yes
Transfer characteristics	
Deviation	
After calibration	0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperature	0.1 %/10 K of the signal range
Resolution	12 Bit (0 ... 26 mA)
Refresh time	100 ms
Indicators/settings	
LED indication	Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1) red: line fault (lead breakage or short circuit) Status LED (2) yellow: Live Zero monitoring
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	NE 21:2007
Environmental test	IEC 60529:2000
Shock resistance	EN 60068-2-14:2009
Vibration resistance	EN 60068-2-27:2009
Damaging gas	EN 60068-2-6:2008
Relative humidity	EN 60068-2-42:2003
Relative humidity	EN 60068-2-78:2001
Ambient conditions	
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Relative humidity	95 % non-condensing
Altitude	max. 2000 m

Technical Data

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. 90 g		
Dimensions	16 x 100 x 102 mm (0.63 x 3.9 x 4 inch)		
Data for application in connection with hazardous areas			
EU-type examination certificate	BVS 12 ATEX E 100 X		
Marking	<ul style="list-style-type: none"> ⊕ II 3(1) G Ex nA [ia Ga] IIC T4 Gc ⊕ I (M1) [Ex ia Ma] I ⊕ II (1) D [Ex ia Da] IIIC 		
Supply			
Voltage	U _o	27 V	
Current	I _o	92 mA	
Power	P _o	619 mW (linear characteristic)	
Connection 1 to 6			
Voltage	8.9 V		
Current	4 mA		
Power	24 mW (trapezoid characteristic curve)		
Input			
Voltage	U _o	0.7 V	
Current	I _o	7 mA	
Voltage	U _i	30 V DC	
Current	I _i	100 mA	
Power	P _i	100 mW P _i < 100 mW is fulfilled by I _i < 100 mA, so a comparison of P _o < P _i is not necessary.	
Internal capacitance	C _i	242 nF	
Internal inductance	L _i	0 mH	
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	BVS 12 ATEX E 100X		
UL approval	E106378		
IECEx approval	BVS 13.0043X		
Approved for	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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