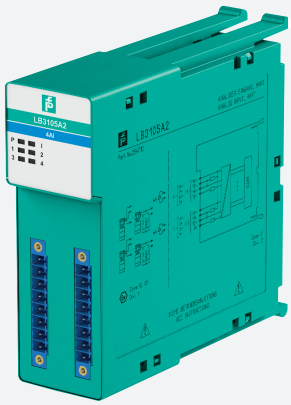


# HART Transmitter Power Supply, Input Isolator

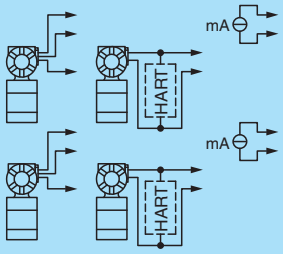
## LB3105A2

- 4-channel
- Inputs Ex ia
- Mounting in Zone 2, Class I/Div.2 or in the safe area
- Power supply for 2-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
- Simulation mode for service operations (forcing)
- Line fault detection (LFD): one LED per channel
- Permanently self-monitoring

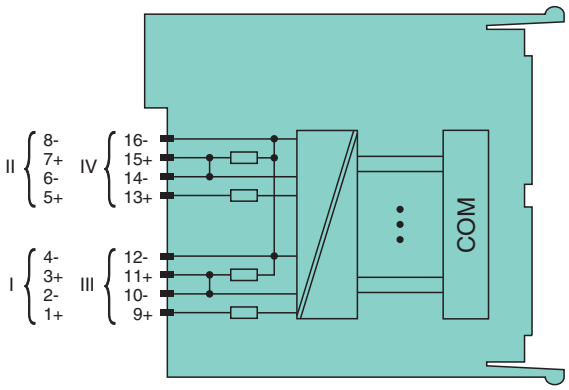
## Function

The transmitter power supply feeds 2-wire transmitters.
Active signals from separately powered field devices and 4-wire transmitters can be connected.
Open and short-circuit line faults are detected.
The intrinsically safe inputs are galvanically isolated from the bus and the power supply.

## 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 | | 1.5 W |
| Power consumption | | 2.7 W |
| **Internal bus** | | |
| Connection | | backplane bus |
| Interface | | manufacturer-specific bus to standard com unit |

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## Technical Data

| | |
|---|---|
| **Analog input** | |
| Number of channels | 4 |
| 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: channel I 1+, 2-, channel II 5+, 6-, channel III 9+, 10-, channel IV 13+, 14-3-wire transmitter:Supply circuit: channel I 1+, 4-, channel II 5+, 8-, channel III 9+, 12-, channel IV 13+, 16-Measurement loop: channel I 3+, 4-, channel II 7+, 8-, channel III 11+, 12-, channel IV 15+, 16-4-wire transmitter (powered externally):Measurement loop: channel I 3+, 4-, channel II 7+, 8-, channel III 11+, 12-, channel IV 15+, 16- |
| Transmitter supply voltage | min. 15 V at 20 mA ; 21.5 V at 4 mA |
| Input resistance | 15 Ω |
| Conversion time | max. 100 ms |
| 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 | no |
| **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<br>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<br>Status LED (1-4) red: line fault (lead breakage or short circuit) |
| Coding | optional mechanical coding via front socket |
| **Directive conformity** | |
| Electromagnetic compatibility | |
| Directive 2014/30/EU | EN 61326-1:2013 |
| **Conformity** | |
| Electromagnetic compatibility | NE 21:2007 |
| Degree of protection | IEC 60529:2000 |
| Environmental test | EN 60068-2-14:2009 |
| Shock resistance | EN 60068-2-27:2009 |
| Vibration resistance | EN 60068-2-6:2008 |
| Damaging gas | 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 |
| Shock resistance | shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18 |

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## Technical Data

| | | |
|---|---|---|
| Vibration resistance | | frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles<br>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)<br>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 | | BVS 12 ATEX E 024 X |
| Marking | | ⟨Ex⟩ II 3(1) G Ex nA [ia Ga] IIC T4 Gc<br>⟨Ex⟩ I (M1) [Ex ia Ma] I<br>⟨Ex⟩ II (1) D [Ex ia Da] IIIC |
| Supply | | |
| Voltage | $U_o$ | 27 V |
| Current | $I_o$ | 90 mA |
| Power | $P_o$ | 588 mW (linear characteristic) |
| Input | | |
| Voltage | $U_o$ | 0.7 V |
| Current | $I_o$ | 2.78 mA |
| Power | $P_o$ | 2 mW (trapezoid characteristic curve) |
| Voltage | $U_i$ | 30 V DC |
| Current | $I_i$ | 100 mA |
| Power | $P_i$ | 100 mW<br>$P_i$ < 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<br>EN 60079-11:2012<br>EN 60079-15:2010 |
| **International approvals** | | |
| ATEX approval | | BVS 12 ATEX E 024 X |
| UL approval | | E106378 |
| IECEx approval | | |
| IECEx certificate | | IECEx BVS 12.0055X |
| IECEx marking | | Ex nA [ia Ga] IIC T4 Gc<br>[Ex ia Da] IIIC<br>[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. |

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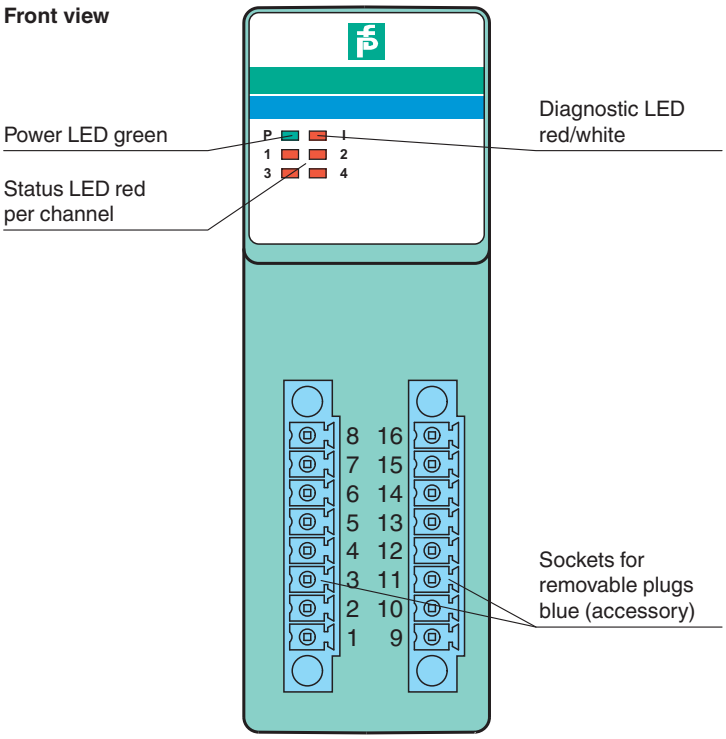
## Assembly

**Front view**

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