

Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Current output up to 700 Ω load
- HART I/P and valve positioner
- Line fault detection (LFD)
- Accuracy 0.1 %
- Terminal blocks with test sockets
- Up to SIL2 acc. to IEC 61508

Function

This isolated barrier is used for intrinsic safety applications. It drives SMART I/P converters, electrical valves, and positioners in hazardous areas.

Digital signals are superimposed on the analog values at the field or control side and are transferred bi-directionally.

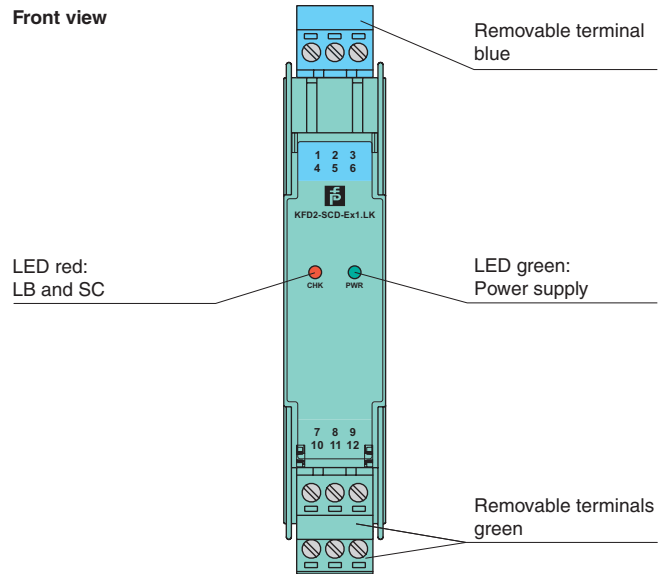
Current transferred across the DC/DC converter is repeated at terminals 1 and 2.

An open and shorted field circuit presents a high input impedance to the control side to allow line fault detection by control system.

If the loop resistance for the digital communication is too low, an internal resistor of 250 Ω between terminals 8 and 9 is available, which may be used as the HART communication resistor.

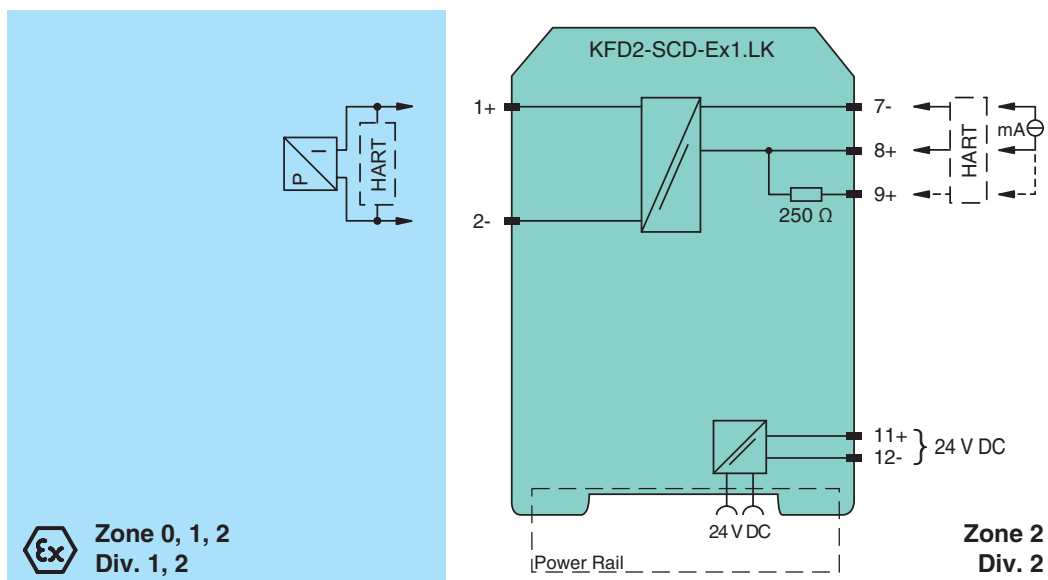
Sockets for the connection of a HART communicator are integrated into the terminals of the device.

Assembly



SIL2

Connection



| | | |
|---|----------------|---|
| General specifications | | |
| Signal type | | Analog output |
| Supply | | |
| Connection | | Power Rail or terminals 11+, 12- |
| Rated voltage | | 20 ... 35 V DC |
| Ripple | | within the supply tolerance |
| Power loss | | 1.1 W at 20 mA into 10 V (equivalent to 500 Ω) load |
| Power consumption | | 1.3 W |
| Input | | |
| Connection | | terminals 7-, 8+ |
| Voltage drop | | approx. 4 V or internal resistance 200 Ω at 20 mA |
| Input resistance | | > 100 kΩ, when wiring resistance in the field < 50 Ω or > 800 Ω at 20 mA |
| Current | | 4 ... 20 mA limited to approx. 25 mA |
| Output | | |
| Connection | | terminals 1+, 2- |
| Current | | 4 ... 20 mA |
| Load | | 100 ... 700 Ω |
| Voltage | | ≥ 14 V at 20 mA |
| Transfer characteristics | | |
| Deviation | | |
| After calibration | | at 20 °C (68 °F): ≤ ± 0.1 % incl. non-linearity and hysteresis |
| Influence of ambient temperature | | ≤ ± 20 ppm/K |
| Rise time | | < 100 μs (bounce from 10 ... 90 %) |
| Electrical isolation | | |
| Input/power supply | | basic insulation acc. to EN 50178, rated insulation voltage of 50 V AC |
| Directive conformity | | |
| Electromagnetic compatibility | | |
| Directive 2004/108/EC | | EN 61326-1:2006 |
| Conformity | | |
| Insulation coordination | | EN 50178:1997 |
| Electrical isolation | | EN 50178:1997 |
| Electromagnetic compatibility | | NE 21:2006 |
| Protection degree | | IEC 60529:2001 |
| Ambient conditions | | |
| Ambient temperature | | -20 ... 60 °C (-4 ... 140 °F) |
| Mechanical specifications | | |
| Protection degree | | IP20 |
| Mass | | approx. 100 g |
| Dimensions | | 20 x 115 x 115 mm (0.8 x 4.5 x 4.5 in) , housing type B1 |
| Mounting | | on 35 mm DIN mounting rail acc. to EN 60715:2001 |
| Data for application in connection with Ex-areas | | |
| EC-Type Examination Certificate | | BAS 00 ATEX 7215 , for additional certificates see www.pepperl-fuchs.com |
| Group, category, type of protection | | Ⓔ II (1)GD [EEEx ia] IIC (-20 °C ≤ T _{amb} ≤ 60 °C) |
| Voltage | U _o | 25.2 V |
| Current | I _o | 93 mA |
| Power | P _o | 585 mW |
| Supply | | |
| Maximum safe voltage | U _m | 250 V _{rms} (Attention! The rated voltage can be lower.) |
| Equipment | | |
| Voltage | U _o | 25.5 V |
| Current | I _o | 93 mA |
| Power | P _o | 0.58 W |
| Input | | |
| Maximum safe voltage | U _m | 250 V _{rms} (Attention! The rated voltage can be lower.) |
| Statement of conformity | | |
| Group, category, type of protection, temperature class | | Ⓔ II 3G Ex nA II T4 [device in zone 2] |
| Electrical isolation | | |
| Input/Output | | safe galvanic isolation acc. to EN 50020, voltage peak value 375 V |
| Output/power supply | | safe galvanic isolation acc. to EN 50020, voltage peak value 375 V |
| Directive conformity | | |
| Directive 94/9/EC | | EN 50014, EN 50020, EN 50021, EN 60079-0, EN 60079-15 |
| International approvals | | |
| FM approval | | |

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|----------------------------|--|
| Control drawing | 116-0129 |
| UL approval | |
| Control drawing | 116-0173 (cULus) |
| CSA approval | |
| Control drawing | 116-0132 |
| General information | |
| 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 . |

Additional information

Lead monitoring, input characteristics

The range above a field load of 700 Ω is not designated for transferring signals. In case of short circuit or lead breakage in the field circuit the input resistance is increased to > 100 k Ω . The field current decreases to < 1 mA, and the red LED flashes.

During normal operation the DC input voltage is lower than 4 V (200 Ω at 20 mA respectively). The AC input impedance corresponds to the output impedance of the unit.

- Normal operation: 100 Ω ... 700 Ω field load
- Lead short circuit: up to < 50 Ω field load
- Lead breakage: up to > 2 k Ω field load when $I_{on} = 20$ mA

Accessories

Power feed module KFD2-EB2

The power feed module is used to supply the devices with 24 V DC via the Power Rail. The fuse-protected power feed module can supply up to 150 individual devices depending on the power consumption of the devices. A galvanically isolated mechanical contact uses the Power Rail to transmit collective error messages.

Power Rail UPR-03

The Power Rail UPR-03 is a complete unit consisting of the electrical inset and an aluminium profile rail 35 mm x 15 mm. To make electrical contact, the devices are simply engaged.

Profile Rail K-DUCT with Power Rail

The profile rail K-DUCT is an aluminum profile rail with Power Rail insert and two integral cable ducts for system and field cables. Due to this assembly no additional cable guides are necessary.



Power Rail and Profile Rail must not be fed via the device terminals of the individual devices!