## Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input 2-wire and 3-wire SMART transmitters and 2-wire SMART current sources
- Output 0/4 mA ... 20 mA
- Terminals with test points
- High field voltage 17.6 V DC
- Up to SIL2 acc. to IEC 61508

## Function

This isolated barrier is used for intrinsic safety applications.

The device supplies 2-wire and 3-wire SMART transmitters with higher output voltage in a hazardous area, and can also be used with 2-wire SMART current sources.

It transfers the analog input signal to the safe area as an isolated current value.

Digital signals may be superimposed on the input signal in the hazardous or safe area and are transferred bi-directionally.

If the HART communication resistance in the loop is too low, the internal resistance of 250 Ω between terminals 8 and 9 can be used.

Test sockets for the connection of HART communicators are integrated into the terminals of the device.

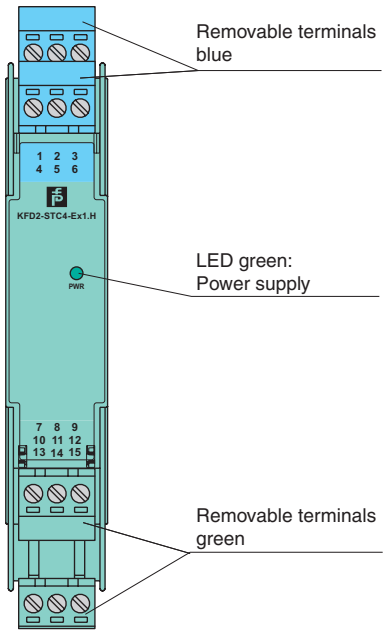
## Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro

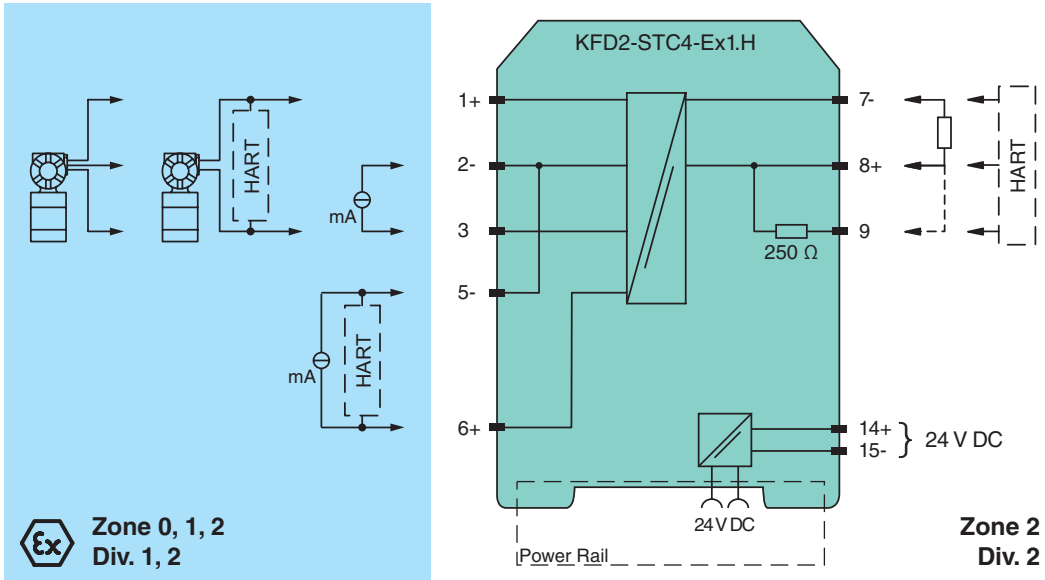
## Assembly

**Front view**




SIL2

## Connection

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| | | |
|---|---|---|
| **General specifications** | | |
| Signal type | | Analog input |
| **Supply** | | |
| Connection | | Power Rail or terminals 14+, 15- |
| Rated voltage | | 20 ... 35 V DC |
| Ripple | | within the supply tolerance |
| Power loss | | 1.5 W |
| Power consumption | | 1.9 W |
| **Input** | | |
| Connection | | terminals 1+, 2-, 3 or 5-, 6+ |
| Input signal | | 0/4 ... 20 mA |
| Voltage drop | | ≤ 2.4 V at 20 mA (terminals 5, 6) |
| Input resistance | | ≤ 64 Ω terminals 2-, 3 ; ≤ 500 Ω terminals 1+, 3 (250 Ω load) |
| Available voltage | | ≥ 17.6 V at 20 mA terminals 1+, 3 |
| **Output** | | |
| Connection | | terminals 7-, 8+, 9 |
| Load | | 0 ... 800 Ω |
| Output signal | | 0/4 ... 20 mA (overload > 25 mA) |
| Ripple | | ≤ 50 µA $_{rms}$ |
| **Transfer characteristics** | | |
| Deviation | | at 20 °C (68 °F), 0/4 ... 20 mA<br>≤ 10 µA incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage |
| Influence of ambient temperature | | 0.25 µA/K |
| Frequency range | | field side into the control side: bandwidth with 0.5 $V_{pp}$ signal 0 ... 7.5 kHz (-3 dB)<br>control side into the field side: bandwidth with 0.5 $V_{pp}$ signal 0.3 ... 7.5 kHz (-3 dB) |
| Settling time | | 200 µs |
| Rise time/fall time | | 20 µs |
| **Electrical isolation** | | |
| Output/power supply | | functional insulation, rated insulation voltage 50 V AC |
| **Directive conformity** | | |
| Electromagnetic compatibility | | |
| Directive 2004/108/EC | | EN 61326-1:2006 |
| **Conformity** | | |
| Electromagnetic compatibility | | NE 21:2011 |
| Protection degree | | IEC 60529:2001 |
| Protection against electrical shock | | UL 61010-1:2004 |
| **Ambient conditions** | | |
| Ambient temperature | | -20 ... 60 °C (-4 ... 140 °F) |
| **Mechanical specifications** | | |
| Protection degree | | IP20 |
| Mass | | approx. 200 g |
| Dimensions | | 20 x 124 x 115 mm (0.8 x 4.9 x 4.5 in) , housing type B2 |
| 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 99 ATEX 7060 , for additional certificates see www.pepperl-fuchs.com |
| Group, category, type of protection | | ⟨Ex⟩ II (1)GD, [Ex ia] IIC, [Ex iaD], (-20 °C ≤ $T_{amb}$ ≤ 60 °C) [circuit(s) in zone 0/1/2] |
| Input | | Ex ia IIC, Ex iaD |
| Supply | | |
| Maximum safe voltage | $U_m$ | 250 V (Attention! The rated voltage can be lower.) |
| Equipment | | terminals 1+, 3- |
| Voltage | $U_o$ | 27.2 V |
| Current | $I_o$ | 93 mA |
| Power | $P_o$ | 632 mW |
| Equipment | | terminals 2-, 3 |
| Voltage | $U_i$ | 30 V |
| Current | $I_i$ | 117 mA |
| Voltage | $U_o$ | 3.5 V |
| Current | $I_o$ | 73 mA |
| Power | $P_o$ | 64 mW |
| Equipment | | terminals 1+, 2 / 3- |
| Voltage | $U_o$ | 27.2 V |
| Current | $I_o$ | 117 mA |
| Power | $P_o$ | 639 mW |
| Equipment | | terminals 5-, 6+ |

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| | | |
|---|---|---|
| Voltage | $U_i$ | 30 V |
| Current | $I_i$ | 117 mA |
| Voltage | $U_o$ | 8.7 V |
| Current | $I_o$ | 0 mA |
| Output | | |
| Maximum safe voltage | $U_m$ | 250 V (Attention! The rated voltage can be lower.) |
| EC-Type Examination Certificate | | DMT 01 ATEX E 133 |
| Group, category, type of protection | | Ex I (M1) [Ex ia] I |
| Statement of conformity | | TÜV 99 ATEX 1499 X , observe statement of conformity |
| Group, category, type of protection, temperature class | | Ex II 3G Ex nA II T4 [device in zone 2] |
| Electrical isolation | | |
| Input/Output | | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Input/power supply | | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Directive conformity | | |
| Directive 94/9/EC | | EN 60079-0:2012 , EN 60079-11:2007 , EN 60079-15:2010 , EN 61241-11:2006 , EN 50303:2000 |
| **International approvals** | | |
| UL approval | | |
| Control drawing | | 116-0173 (cULus) |
| IECEx approval | | IECEx BAS 04.0016 |
| Approved for | | [Zone 0] [Ex ia] IIC, [Ex iaD], [Ex ia] I |
| **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. |

## 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!*

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