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
- 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 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.

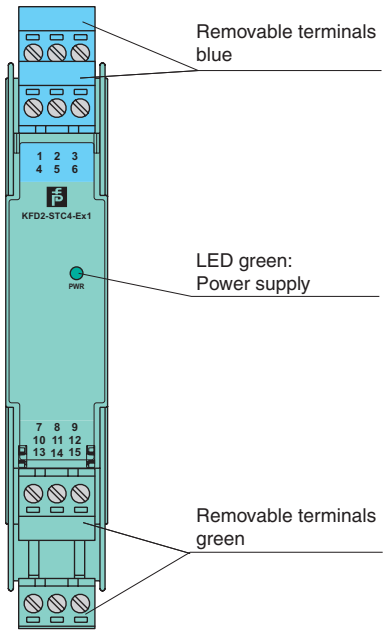
Application

The device supports the following SMART protocols:

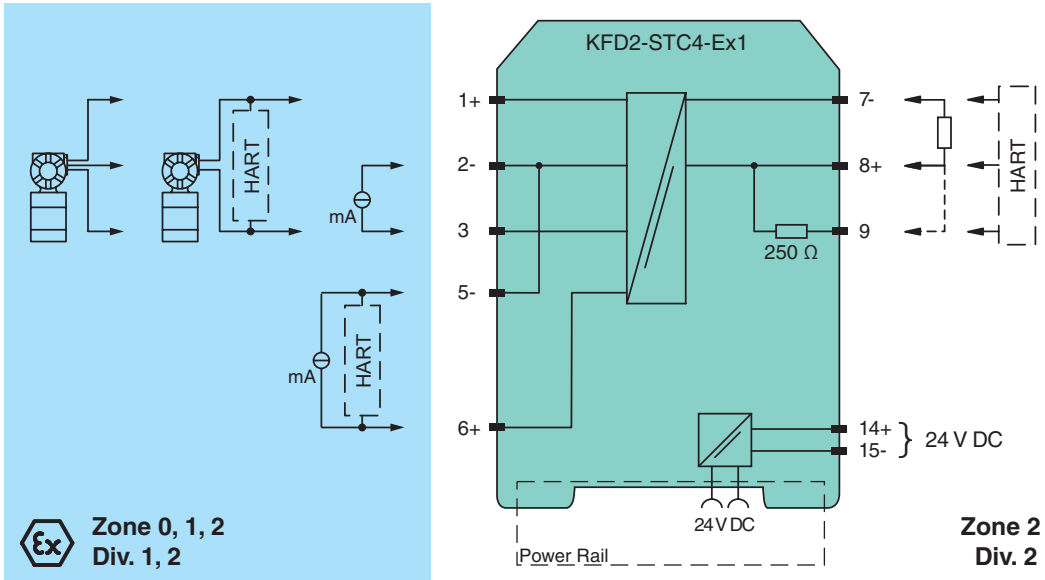
- HART
- BRAIN
- Foxboro

Assembly

Front view



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 U_d		≤ 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		≥ 16 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 / 0/4 ... 20 mA ≤ 10 µA incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage
Influence of ambient temperature		0.25 µA/°C
Frequency range		hazardous area into the safe area: bandwidth with 0.5 V_{ss} 0 ... 7.5 kHz (-3 dB) safe area into the hazardous area: bandwidth with 0.5 V_{ss} 0.3 ... 7.5 kHz (-3 dB)
Rise time		20 µs
Start-up time		200 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 21:2006
Protection degree		IEC 60529
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
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, I (M1) [Ex ia] IIC, [Ex iaD], [Ex ia] I (-20 °C ≤ T_{amb} ≤ 60 °C) [circuit(s) in zone 0/1/2]
Input		Ex ia IIC
Supply		
Maximum safe voltage U_m		250 V (Attention! The rated voltage can be lower.)
Equipment		terminals 1+, 3-
Voltage	U_o	25.4 V
Current	I_o	86.8 mA
Power	P_o	551 mW
Equipment		terminals 2-, 3
Current I_o/Current I_i		74 mA / 115 mA
Current	I_i	115 mA
Voltage	U_o	3.5 V
Current	I_o	74 mA
Power	P_o	64 mW
Equipment		terminals 1+, 2 / 3-
Voltage	U_i	30 V
Current	I_i	115 mA
Voltage	U_o	25.4 V
Current	I_o	115 mA
Power	P_o	584 mW
Equipment		terminals 5-, 6+

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Voltage	U_i	30 V
Current	I_i	115 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) [EEx ia] I
Statement of conformity		TÜV 99 ATEX 1499 X , observe statement of conformity
Group, category, type of protection, temperature classification		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 60079-0:2006, EN 60079-11:2007, EN 61241-11:2006 , EN 60079-15:2005
International approvals		
UL approval		
Control drawing		116-0173 (cULus)
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 modules 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 100 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.

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

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