

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

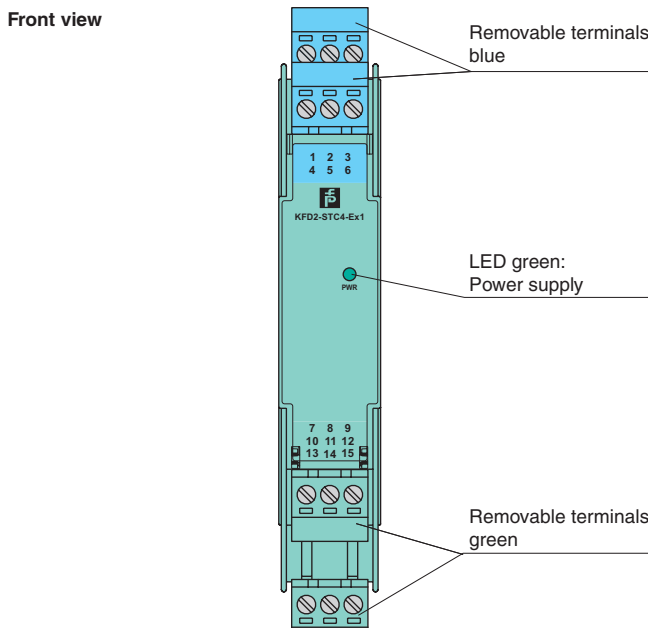
Function

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.

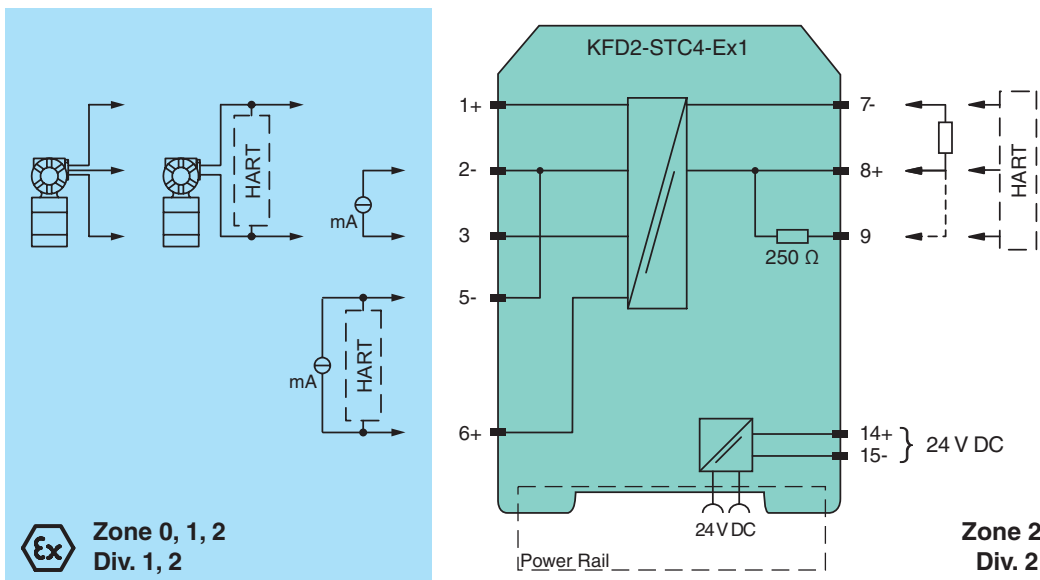
Application

- The device supports the following SMART protocols:
- HART
 - BRAIN
 - Foxboro

Assembly



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	1.4 W	
Power consumption	1.8 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	≥ 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 (68 °F), 0/4 ... 20 mA ≤ 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) 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 21:2006	
Protection degree	IEC 60529:2001	
Protection against electrical shock	UL 61010-1	
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	⊕ 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		
Voltage	U _o	25.4 V
Current	I _o	86.8 mA
Power	P _o	551 mW
Equipment		
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		
Voltage	U _i	30 V
Current	I _i	115 mA
Voltage	U _o	25.4 V
Current	I _o	115 mA

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Power	P_o	584 mW
Equipment		terminals 5-, 6+
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		
Group, category, type of protection		⊕ I (M1) [Ex ia] I
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 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 , EN 50303:2000
International approvals		
UL approval		
Control drawing		116-0173 (cULus)
IECEX approval		
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!