

Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input for 2-wire SMART transmitters and current sources
- Output for 4 mA ... 20 mA or 1 V ... 5 V
- Sink or source mode
- Housing width 12.5 mm
- Up to SIL2 acc. to IEC 61508

Function

This isolated barrier is used for intrinsic safety applications. The device supplies 2-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.

Selectable output of current source, sink mode, or voltage output is available via DIP switches.

If the HART communication resistance in the loop is too low, the internal resistance of 250 Ω between terminals 6 and 8 can be used.

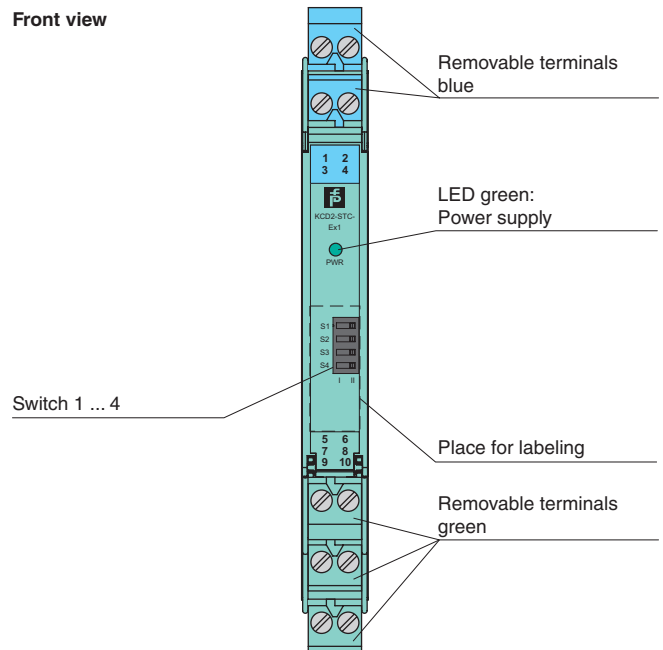
Test sockets for the connection of HART communicators are integrated into the terminals of the device.

Application

The device supports the following SMART protocols:

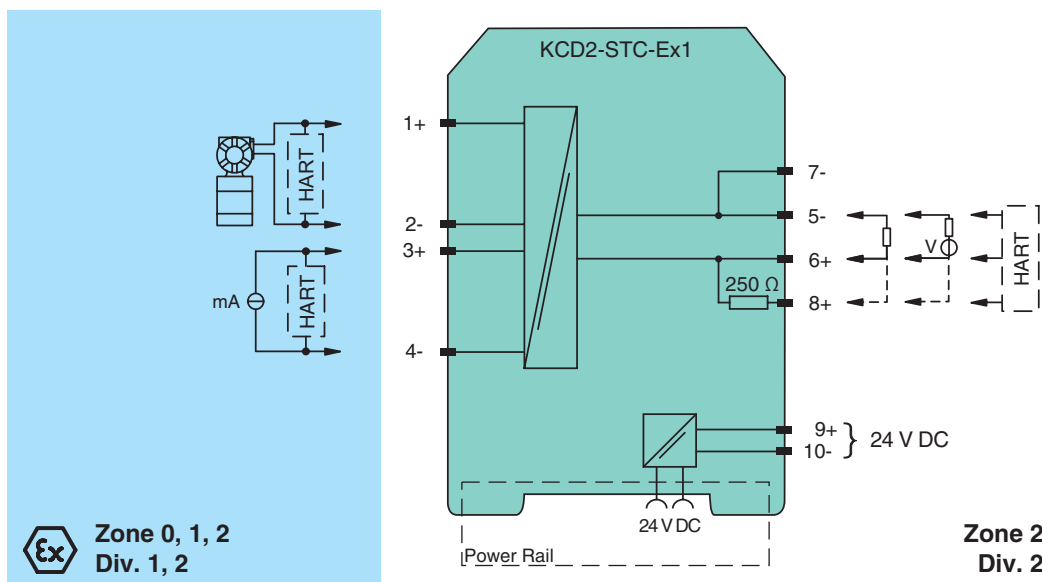
- HART
- BRAIN

Assembly



SIL2

Connection



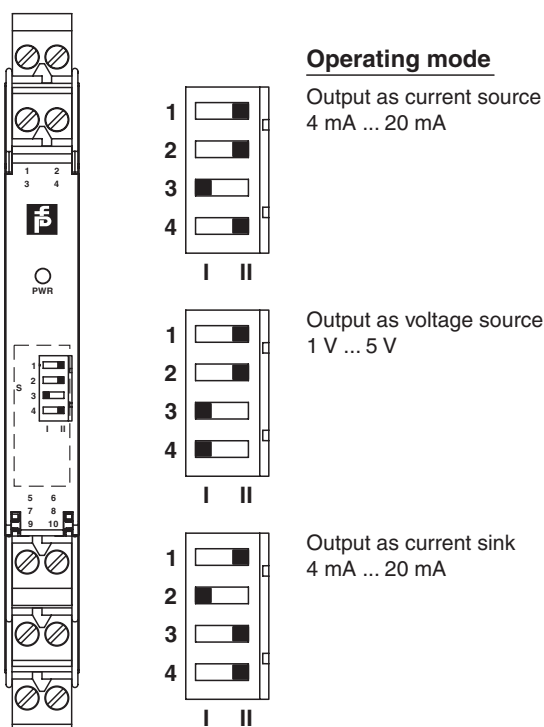
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General specifications		
Signal type	Analog input	
Supply		
Connection	Power Rail or terminals 9+, 10-	
Rated voltage	19 ... 30 V DC	
Ripple	≤ 10 %	
Rated current	≤ 45 mA	
Power loss	≤ 800 mW	
Power consumption	≤ 1.1 W	
Input		
Connection	terminals 1+, 2-; 3+, 4-	
Input signal	4 ... 20 mA limited to approx. 30 mA	
Voltage drop	approx. 5 V on terminals 3+, 4-	
Available voltage	≥ 15 V at 20 mA terminals 1+, 2-	
Output		
Connection	terminals 5-, 6+	
Load	0 ... 300 Ω (source mode)	
Output signal	4 ... 20 mA or 1 ... 5 V (on 250 Ω, 0.1 % internal shunt) 4 ... 20 mA (sink mode), operating voltage 15.5 ... 26 V	
Ripple	20 mV _{rms}	
Transfer characteristics		
Deviation	at 20 °C (68 °F) ≤ ± 0.1 % incl. non-linearity and hysteresis (source mode 4 ... 20 mA) ≤ ± 0.2 % incl. non-linearity and hysteresis (sink mode 4 ... 20 mA) ≤ ± 0.2 % incl. non-linearity and hysteresis (source mode 1 ... 5 V)	
Influence of ambient temperature	< 2 μA/K (0 ... 60 °C (32 ... 140 °F)); < 4 μA/K (-20 ... 0 °C (-4 ... 32 °F)) (source mode and sink mode 4 ... 20 mA) < 0.5 mV/K (0 ... 60 °C (32 ... 140 °F)); < 1 mV/K (-20 ... 0 °C (-4 ... 32 °F)) (source mode 1 ... 5 V)	
Frequency range	field side into the control side: bandwidth with 0.5 V _{pp} signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V _{pp} signal 0 ... 3 kHz (-3 dB)	
Settling time	≤ 200 ms	
Rise time/fall time	≤ 20 ms	
Electrical isolation		
Input/Output	reinforced insulation acc. to EN 50178, rated insulation voltage 300 V _{eff}	
Input/power supply	reinforced insulation acc. to EN 50178, rated insulation voltage 300 V _{eff}	
Output/power supply	reinforced insulation acc. to EN 50178, rated insulation voltage 300 V _{eff}	
Directive conformity		
Electromagnetic compatibility	Directive 2004/108/EC EN 61326-1:2006	
Conformity		
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	12.5 x 114 x 124 mm (0.5 x 4.5 x 4.9 in) , housing type A2	
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001	
Data for application in connection with Ex-areas		
EC-Type Examination Certificate	CESI 06 ATEX 021 , for additional certificates see www.pepperl-fuchs.com	
Group, category, type of protection	⊕ II (1)G [Ex ia Ga] IIC , ⊕ II (1)D [Ex ia Da] IIIC , ⊕ I (M1) [Ex ia Ma] I	
Input	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I	
Supply		
Maximum safe voltage	U _m	250 V AC (Attention! U _m is no rated voltage.)
Equipment		
Voltage	U _o	25.2 V
Current	I _o	100 mA
Power	P _o	630 mW
Equipment		
Voltage	U _i	< 30 V
Current	I _i	< 128 mA
Voltage	U _o	7.2 V
Current	I _o	100 mA
Power	P _o	25 mW

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Statement of conformity	PF 06 CERT 0973 X
Group, category, type of protection, temperature class	⊕ II 3G Ex nA IIC T4 Gc
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 60079-0:2009, EN 60079-11:2007 , EN 60079-15:2005 , EN 60079-26:2007 , EN 61241-11:2006 , EN 50303:2000
International approvals	
FM approval	
Control drawing	16-533FM-12 (cFMus)
UL approval	
Control drawing	16-533FM-12 (cULus)
IECEX approval	IECEX CES 06.0001
Approved for	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] 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 .

Configuration



Factory settings: output as current source 4 mA ... 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!

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