

Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input 2-wire transmitters and 2-wire current sources
- Output 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.

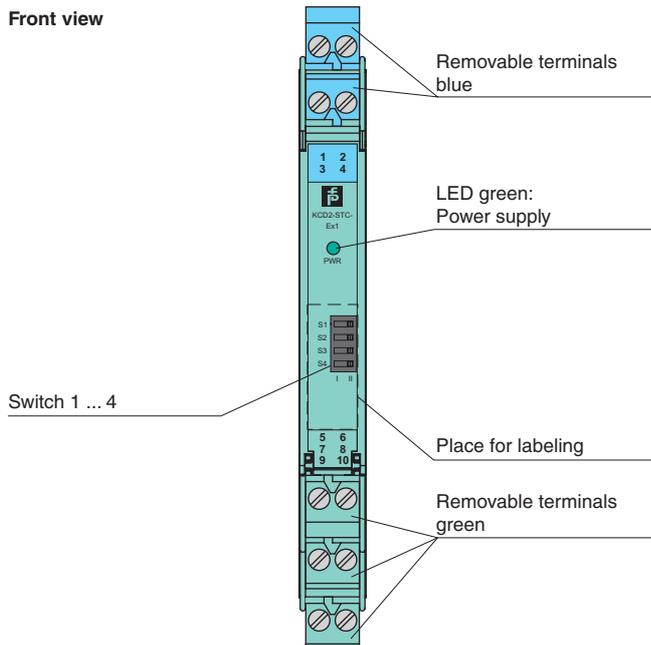
Test sockets for the connection of HART communicators are integrated into the terminals of the device.

Application

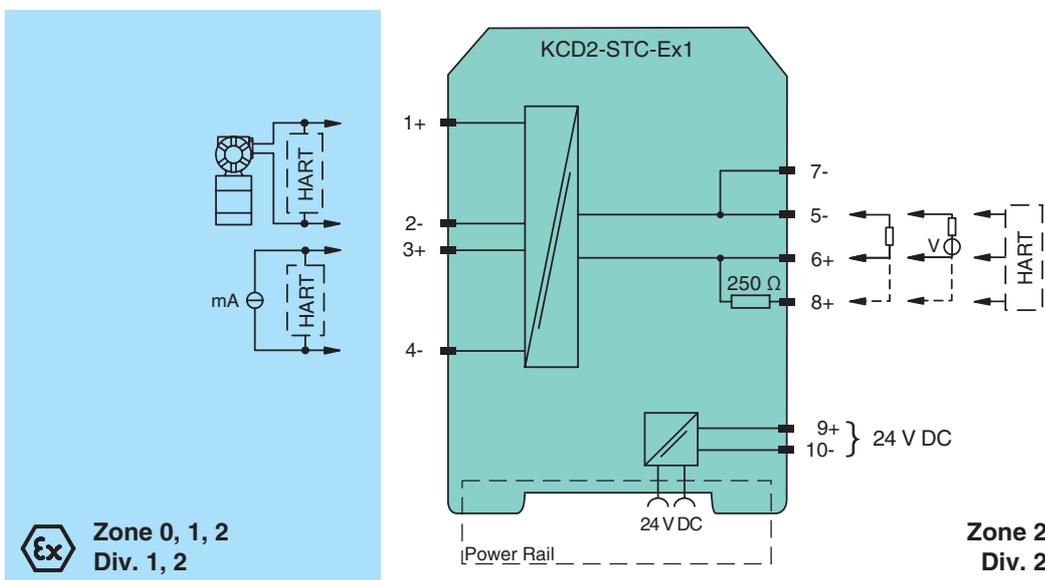
The device supports the following SMART protocols:

- HART
- BRAIN

Assembly



Connection



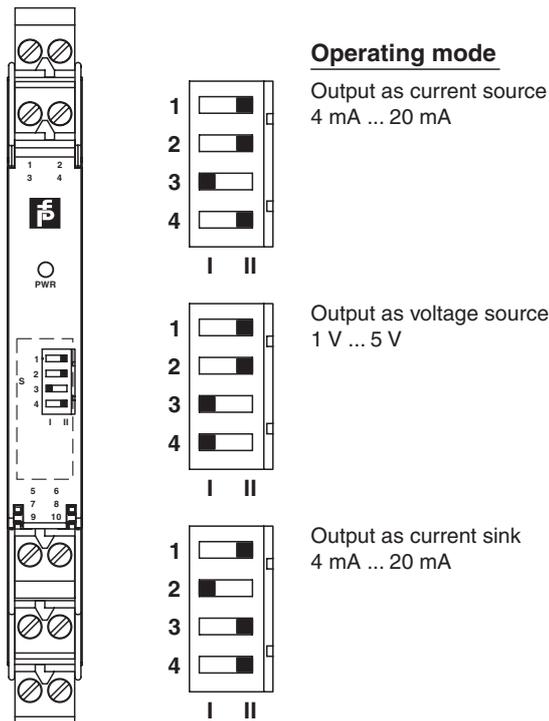
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General specifications		
Signal type	Analog input	
Supply		
Connection	Power Rail or terminals 9+, 10-	
Rated voltage	19 ... 30 V DC	
Ripple	≤ 10 %	
Rated current	≤ 45 mA	
Power loss	≤ 800 mW	
Power consumption	≤ 1.1 W	
Input		
Connection	terminals 1+, 2-; 3+, 4-	
Input signal	4 ... 20 mA limited to approx. 30 mA	
Voltage drop U_d	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 (293 K) ≤ ± 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/°C (0 ... +60 °C); < 4 μA/°C (-20 ... 0 °C) (source mode and sink mode 4 ... 20 mA) < 0.5 mV/°C (0 ... +60 °C); < 1 mV/°C (-20 ... 0 °C) (source mode 1 ... 5 V)	
Frequency range	hazardous area into the safe area: bandwidth with 0.5 V _{SS} 0 ... 3 kHz (-3 dB) safe area into the hazardous area: bandwidth with 0.5 V _{SS} 0 ... 3 kHz (-3 dB)	
Rise time	10 to 90 % ≤ 20 ms	
Electrical isolation		
Input/Output	safe galvanic isolation acc. to EN 50020, voltage peak value 375 V	
Input/power supply	safe galvanic isolation acc. to EN 50020, voltage peak value 375 V	
Output/power supply	reinforced insulation according to IEC 61140, rated insulation voltage 300 V _{eff}	
Indicators/settings		
LED PWR	green	
DIP-switch	selection of operating mode: current source, current sink or voltage source	
Factory setting	output: current source	
Labeling	space for labeling at the front	
Directive conformity		
Electromagnetic compatibility		
Directive 2004/108/EC	EN 61326-1:2006	
Conformity		
Electromagnetic compatibility	NE 21	
Protection degree	EN 60529	
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	
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)GD [EEx ia] IIC, [Ex ia D] [circuit(s) in zone 0/1/2/20/21/22]	
Input	Ex ia IIC, Ex iaD	
Supply		
Maximum safe voltage U_m	253 V AC (Attention! U_m is no rated voltage.)	
Equipment	terminals 1+, 2-	
Voltage U_o	25.2 V	
Current I_o	100 mA	
Power P_o	630 mW	
Equipment	terminals 3+, 4-	
Voltage U_i	< 30 V	
Current I_i	< 128 mA	
Voltage U_o	7.2 V	

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Current	I_o	100 mA
Power	P_o	25 mW
Statement of conformity		Pepperl+Fuchs
Group, category, type of protection, temperature classification		⊕ II 3G Ex nA II T4 X
Directive conformity		
Directive 94/9/EC		EN 50014, EN 50020, pr EN 61241-11, EN 50284, EN 60079-15
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] IIC
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 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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