

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
- Signal splitter (1 input and 2 outputs)
- Dual output 0/4 mA ... 20 mA, current sink/current source
- Terminals with test points
- Up to SIL 3 acc. to IEC 61508

Function

This isolated barrier is used for intrinsic safety applications.

The device supplies 2-wire and 3-wire SMART transmitters, and can also be used with 2-wire SMART current sources.

It transfers the analog input signal to the safe area as two isolated output signals.

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

The device provides a sink mode or a source mode output on the safe area terminals.

The device has an internal resistor. Use this resistor if the HART communication resistance in the control circuit is too low.

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

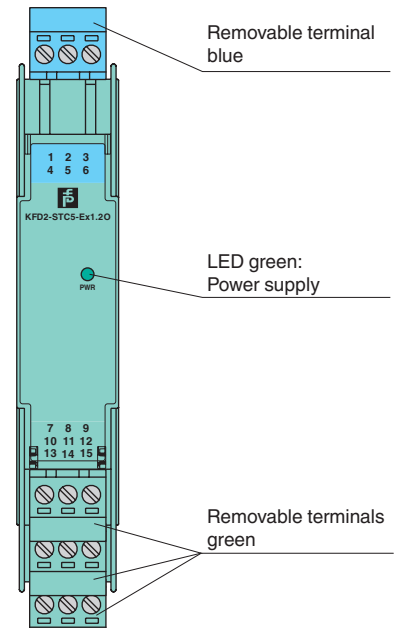
Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro

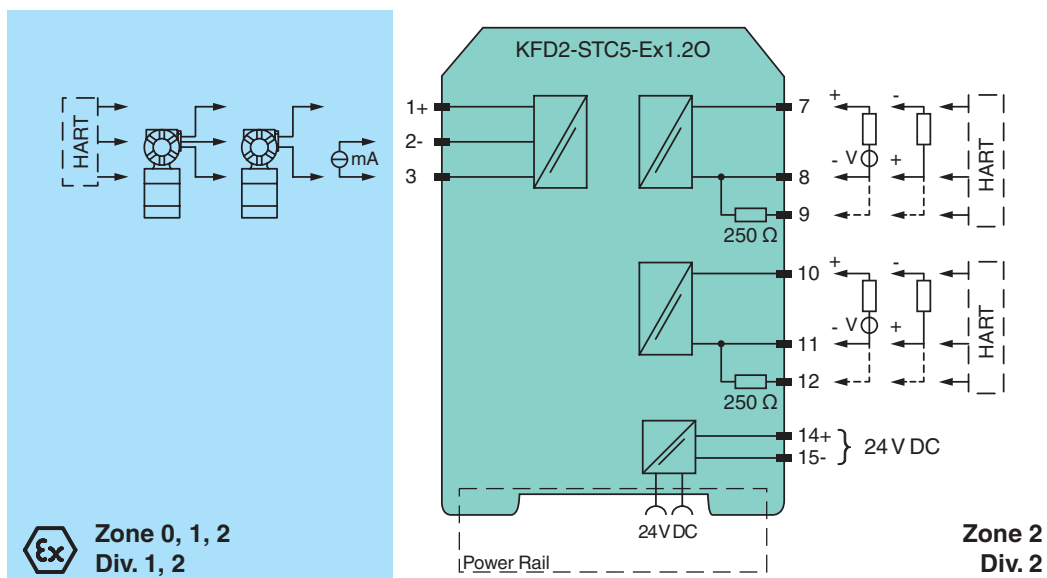
Assembly



Front view



SIL 3

Connection



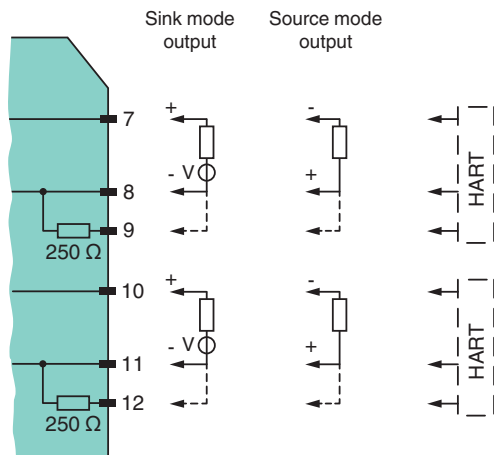
General specifications	
Signal type	Analog input
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 3
Supply	
Connection	Power Rail or terminals 14+, 15-
Rated voltage U_r	18 ... 30 V DC
Ripple	within the supply tolerance
Power dissipation	≤ 1 W at maximum load
Power consumption	≤ 1.7 W at maximum load
Input	
Connection side	field side
Connection	terminals 1+, 2-, 3
Input signal	0/4 ... 20 mA
Input resistance	$\leq 265 \Omega$ terminals 2-, 3, $\leq 330 \Omega$ terminals 1+, 3
Available voltage	≥ 16 V at 20 mA, terminals 1+, 3
Output	
Connection side	control side
Connection	terminals 7+, 8-, 9-; 10+, 11-, 12- (sink) terminals 7-, 8+, 9+; 10-, 11+, 12+ (source) see additional information
Load	0 ... 600 Ω
Output signal	0/4 ... 20 mA (overload > 25 mA)
Ripple	$\leq 50 \mu\text{A}_{\text{rms}}$
External supply (loop)	2 ... 30 V DC
Transfer characteristics	
Deviation	at 20 °C (68 °F), 0/4 ... 20 mA $\leq 10 \mu\text{A}$ incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage
Influence of ambient temperature	$\leq 0.25 \mu\text{A/K}$
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	100 μs
Galvanic isolation	
Output/power supply	functional insulation, rated insulation voltage 50 V AC
Output/Output	functional insulation, rated insulation voltage 50 V AC
Indicators/settings	
Display elements	LED
Labeling	space for labeling at the front
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
Conformity	
Electromagnetic compatibility	NE 21:2012 EN 61326-3-2:2008
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2012
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications	
Degree of protection	IP20
Connection	screw terminals
Mass	approx. 200 g
Dimensions	20 x 124 x 115 mm (0.8 x 4.9 x 4.5 inch), housing type B2
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas	
EU-Type Examination Certificate	CML 17 ATEX 2031X
Marking	 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 (Attention! The rated voltage can be lower.)
Equipment	
Voltage U_o	26.2 V

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Voltage	U_q	27.25 V
Current	I_o	93 mA
Power	P_o	634 mW
Permissible connection values [EEx ia]		
Equipment		terminals 2-, 3
Voltage	U_i	30 V
Current	I_i	115 mA
Power	P_i	max 1 W
Voltage	U_o	2 V
Current	I_o	8.5 mA
Power	P_o	4.3 mW
Permissible connection values [EEx ia]		
Equipment		terminals 1+, 2 / 3-
Voltage	U_o	26.2 V
Voltage	U_q	27.25 V
Current	I_o	115 mA
Power	P_o	784 mW
Certificate		CML 17 ATEX 3030X
Marking		Ⓔ II 3G Ex ec IIC T4 Gc
Galvanic isolation		
Input/Output		safe electrical isolation acc. to IEC/EN 60079-11:2012, voltage peak value 375 V
Input/power supply		safe electrical isolation acc. to IEC/EN 60079-11:2012, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013, EN 60079-11:2012, EN 60079-7:2015
International approvals		
UL approval		
Control drawing		116-0439 (cULus)
IECEX approval		IECEX CML 17.0016X
Approved for		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I, Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .
Accessories		
Optional accessories		<ul style="list-style-type: none"> - power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-BU(-UPR-03)

Additional Information

The device provides 2 outputs on the control side terminals. These outputs can be operated in any combination of the current sink operating mode and current source operating mode. Please refer to the following diagram for connection.



Note

Short circuit unused outputs decreases the internal power dissipation by up to 100 mW per channel.