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
- High field voltage 17 V DC
- 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.

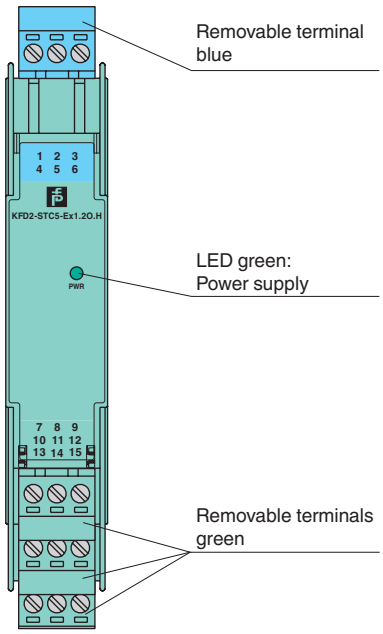
Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro

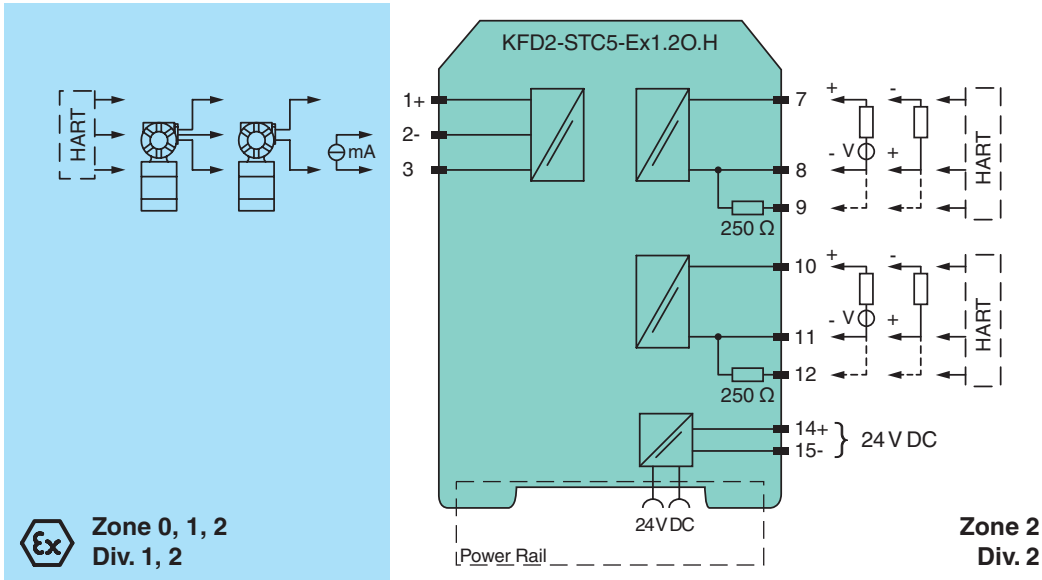
Assembly

Front view



CE Ex SIL 3

Connection



Release date 2018-10-09 15:39 Date of issue 2018-11-08 239218_eng.xml

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 maximium load
Power consumption		≤ 1.7 W at maximium load
Input		
Connection side		field side
Connection		terminals 1+, 2-, 3
Input signal		0/4 ... 20 mA
Input resistance		≤ 265 Ω terminals 2-, 3 , ≤ 330 Ω terminals 1+, 3
Available voltage		≥ 17 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		≤ 50 µA $_{rms}$
External supply (loop)		2 ... 30 V DC
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		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		⟨Ex⟩ II (1)G [Ex ia Ga] IIC ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ 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		terminals 1+, 3-
Voltage	U_o	27.2 V

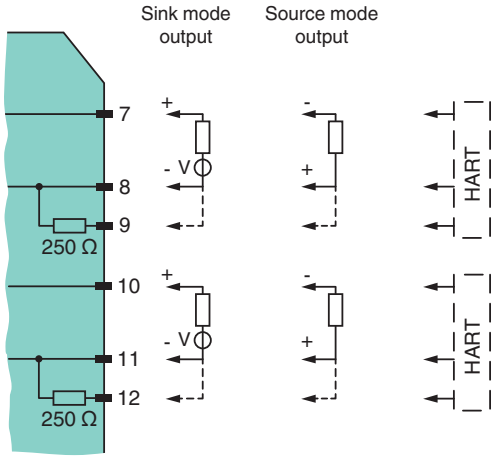
Release date 2018-10-09 15:39 Date of issue 2018-11-08 239218_eng.xml

Current	I_o	93 mA
Power	P_o	633 mW
Permissible connection values [EEx ia]		
Equipment		terminals 2-, 3
Voltage	U_i	30 V
Current	I_i	115 mA
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	27.2 V
Current	I_o	115 mA
Power	P_o	782 mW
Permissible connection values [EEx ia]		
Equipment		terminals 5-, 6+
Voltage	U_i	30 V
Current	I_i	115 mA
Voltage	U_o	2 V
Current	I_o	8.5 mA
Output		
Maximum safe voltage	U_m	250 V (Attention! The rated voltage can be lower.)
Certificate		CML 17 ATEX 3030X
Marking		Ⓔx 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		- power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-BU(-UPR-03)

Release date 2018-10-09 15:39 Date of issue 2018-11-08 239218_eng.xml

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.

Release date 2018-10-09 15:39 Date of issue 2018-11-08 239218_eng.xml