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
- · Terminal blocks with test sockets
- Up to SIL3 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 two isolated current values.

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

It is designed to provide a sink mode output on the safe area

If the HART communication resistance in the loop is too low, the internal resistance of 250 Ω between terminals 8, 9 and 11, 12 can be used.

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

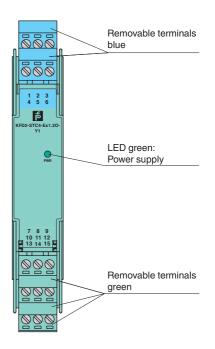
Application

The device supports the following SMART protocols:

- **BRAIN**
- Foxboro

Assembly

Front view

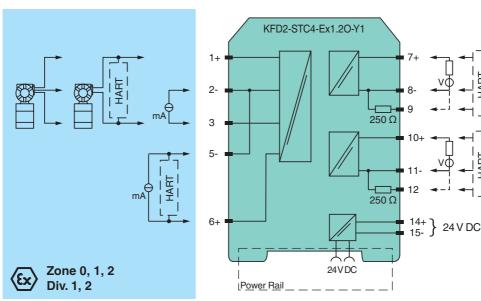






SIL 3

Connection



Zone 2

Div. 2

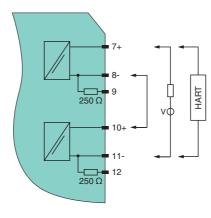
Senitrol specifications Signal lyose Sizo		
Succession Suc	General specifications	
Surply	Signal type	Analog input
Supply	Functional safety related paramet	ers
Power Consumption	Safety Integrity Level (SIL)	SIL 3
Rabel voltage U_c 20 35 V C Within the supply tolerance 1.8 W 2.4 W	Supply	
Page	Connection	Power Rail or terminals 14+, 15-
Power consumption	Rated voltage U _r	20 35 V DC
Power consumption	Ripple	within the supply tolerance
Page Commodition Side	Power dissipation	1.8 W
Connection side	Power consumption	2.4 W
Connection Imput signal O4 20 mA O4 .	Input	
Input signal	Connection side	field side
Spening Sp	Connection	terminals 1+, 2-, 3 or 5-, 6+
Voltage drop terminals 5, 6 : ≤ 2 4 V at 20 mA	Input signal	0/4 20 mA
Imput resistance Imminals 2, 9; 576 Ω terminals 1+, 3; 500 μ (550 μ load)	Open circuit voltage/short-circuit curr	ent terminals 1+, 3-: 22.7 V / 38 mA
Available voltage terminals 1+.3 :≤ 16 V at 20 mA Output connection Connection terminals 7+.8 -10+.11- Output signal 04 20 mA (overload > 25 mA) Ripple ≤ 50 M. Am. External supply (boop) 11 30 V DC Transfer characteristics 11 30 V DC Peviation 21 p. β incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage Influence of ambient temperature 0.25 μ.ΑV Influence of ambient temperature 2.0 ± 0.0 m. Calibration, linearity, hysteresis, loads and fluctuations of supply voltage Influence of ambient temperature 2.0 ± 0.0 m. Calibration, linearity, hysteresis, loads and fluctuations of supply voltage Influence of ambient temperature 2.0 ± 0.0 m. Calibration, linearity, hysteresis, loads and fluctuations of supply voltage Influence of ambient temperature 2.0 ± 0.0 m. Calibration, linearity, hysteresis, loads and fluctuations of supply voltage Settling time 2.0 ± 0.0 m. Calibration, linearity, hysteresis, loads and fluctuations of supply voltage Settling time 2.0 ± 0.0 m. Calibration, linearity, hysteresis, loads and fluctuations of supply voltage Output/Output 1 uncertain in the lead side: bandwidth with 0.5 Vpp signal 0.3 7.5 kHz (-3 dB) <	Voltage drop	terminals 5, 6 : ≤ 2.4 V at 20 mA
Available voltage Output Connection side Connection Output signal Output South American Supply (loop) In 30 V DC Transfer characteristics Deviation Set 91 A _{1 ma} 21 0 µ A incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage Influence of ambient temperature Act 0 µ A incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage Influence of ambient temperature Control side into the centrol 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 7.5 kHz (·3 dB) control side into the field 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 7.5 kHz (·3 dB) control side into the field 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 7.5 kHz (·3 dB) control side into the field 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 7.5 kHz (·3 dB) Coutput/Output Field into the field side: bandwidth with 0.5 V _{pp} signal 0 7.5 kHz (·3 dB) Coutput/Output Field into the field side: bandwidth with 0.5 V _{pp} signal 0 7.5 kHz (·3 dB) Coutput/Output Field into the field side: bandwidth with 0.5 V _{pp} signal 0 7.5 kHz (·3 dB) Coutput/Output Field into the field side: bandwidth with 0.5 V _{pp} signal 0 7.5 kHz (·3 dB) Coutput/Output Field into the field side: bandwidth with 0.5 V _{pp} signal 0 7.5 kHz (·3 dB) Coutput/Output Field into the field side: bandwidth with 0.5 V _{pp} signal 0 7.5 kHz (·3 dB) Coutput 0 the field side: bandwidth with 0.5 V _{pp} signal 0 7.5 kHz (·3 dB) Cout	Input resistance	terminals 2-, 3 : \leq 76 Ω
Output Connection side control side Connection terminals 7-, 8-; 10+, 11- Output signal 04 20 mA (overload > 25 mA) Ripple ≤ 50 µA long External supply (loop) 11 30 V DC Transfer characteristics Deviation Influence of ambient temperature at 20 °C (68 °F), 0/4 20 mA Influence of ambient temperature 2.5 µA' Frequency range 56ld side into the control side: bandwidth with 0.5 V _{pc} signal 0 7.5 kHz (-3 dB) Setting time 200 µs Rise time/all time 20 µs Galvanic isolation Uput/power supply Uncertical insulation, rated insulation voltage 50 V AC Unput/power supply Uncertical insulation, rated insulation voltage 50 V AC Unput/power supply Uncertical insulation, rated insulation voltage 50 V AC Indicators/settings ED Display elements LED Labeling space for labeling at the front Directive conformity EN 61326-1:2013 (industrial locations) Directive 2014/30/EU EN 61326-1:2013 (industrial locations) Cordomati ED (60529:2001	·	terminals 1+, 3: \leq 500 Ω (250 Ω load)
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Figure	Output signal	
Transfer characteristics		·
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Settling time control side into the field side: bandwidth with 0.5 V ^p _{pp} signal 0.3 7.5 kHz (-3 dB) Rise time/fall time 20 µs Galvanic isolation control side insulation, rated insulation voltage 50 V AC Output/power supply functional insulation, rated insulation voltage 50 V AC Undustor/settings LED Display elements LED Labeling space for labeling at the front Directive conformity Electromagnetic compatibility EN 61326-1:2013 (industrial locations) Directive 2014/30/EU EN 61326-1:2013 (industrial locations) Conformity Electromagnetic compatibility NE 21:2011 Degree of protection IEC 60529:2001 Protection against electrical shock UL 61010-1:2012 Ambient temperature -20 60 °C (-4 140 °F) Mechanical specifications IP20 Some we terminals Mass approx. 200 g Dimansions 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 BAS 99 ATEX 7060 Supply	·	·
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Indicators/settings UED	Output/power supply	functional insulation, rated insulation voltage 50 V AC
Display elements	Output/Output	functional insulation, rated insulation voltage 50 V AC
Space for labeling at the front	Indicators/settings	
Directive conformity Electromagnetic compatibility Directive 2014/30/EU EN 61326-1:2013 (industrial locations)	Display elements	LED
Electromagnetic compatibility Directive 2014/30/EU	Labeling	space for labeling at the front
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Mounting Data for application in connection with hazardous areas EU-Type Examination Certificate Marking Maximum safe voltage Maximum safe voltage Um 250 V (Attention! The rated voltage can be lower.) Equipment Voltage Un 25.4 V Current Un 0 35 mm DIN mounting rail acc. to EN 60715:2001 EN		
Data for application in connection with hazardous areas EU-Type Examination Certificate BAS 99 ATEX 7060 Marking ⑤ II (1)G [Ex ia Ga] IIC , ⑥ II (1)D [Ex ia Da] IIIC Input [Ex ia Ga] IIC, [Ex ia Da] IIIC Supply Maximum safe voltage Um 250 V (Attention! The rated voltage can be lower.) Equipment terminals 1+, 3- Voltage Uo 25.4 V Current Io 86.8 mA		
EU-Type Examination Certificate Marking Input [Ex ia Ga] IIC , II (1)D [Ex ia Da] IIIC Input Supply Maximum safe voltage Um 250 V (Attention! The rated voltage can be lower.) Equipment Voltage Uo 25.4 V Current Io 88.8 mA	Data for application in connection	-
Marking ⟨₤⟩ II (1)G [Ex ia Ga] IIC , ⟨₤⟩ II (1)D [Ex ia Da] IIIC Input [Ex ia Ga] IIC, [Ex ia Da] IIIC Supply Maximum safe voltage Um 250 V (Attention! The rated voltage can be lower.) Equipment terminals 1+, 3- Voltage Uo 25.4 V Current Io 86.8 mA		DAG OO ATEV 7000
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Equipment terminals 1+, 3- Voltage Uo 25.4 V Current Io 86.8 mA		
Voltage U _o 25.4 V Current I _o 86.8 mA		· · ·
Current I _o 86.8 mA		
	Voltage U _o	25.4 V
Power P _o 551 mW	0	86.8 mA
	Power P _o	551 mW



Equipment		terminals 2-, 3
Current	l _i	115 mA
Voltage	U _o	3.5 V
Current	I _o	74 mA
Power	P_{o}	64 mW
Equipment		terminals 1+, 2 / 3-
Voltage	U _i	30 V
Current	l _i	115 mA
Voltage	U_o	25.4 V
Current	Io	115 mA
Power	P_{o}	584 mW
Equipment		terminals 5-, 6+
Voltage	U _i	30 V
Current	l _i	115 mA
Voltage	U_o	8.7 V
Current	I _o	0 mA
EU-Type Examination Co	ertificate	DMT 01 ATEX E 133
Marking		(€x) I (M1) [Ex ia] I
Certificate		TÜV 99 ATEX 1499 X
Marking		⟨x⟩ II 3G Ex nA II T4 [device in zone 2]
Galvanic 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 2014/34/EU		EN 60079-0:2012+A11:2013, EN 60079-11:2012, EN 60079-15:2010, EN 50303:2000
International approvals	5	
UL approval		
Control drawing		116-0173 (cULus)
IECEx approval		IECEX BAS 04.0016 IECEX CML 15.0055X
Approved for		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I Ex nA IIC T4 Gc
General information		
Note		Both output loads must be connected to ensure complete and correct operation within the technical specification.
Supplementary information	on	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

Configuration passive output (sink)

If only one output of the two outputs is used, a jumper have to be set as follows.



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. Collective error messages received from the Power Rail activate a galvanically-isolated mechanical contact.

Power Rail UPR-03

The Power Rail UPR-03 is a complete unit consisting of the electrical insert 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!