



SMART Transmitter Power Supply, Output Current Sink

KFD2-STC4-Ex1.2O-Y1

- 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 SIL 3 acc. to IEC/EN 61508



Function

This isolated barrier is used for intrinsic safety applications.

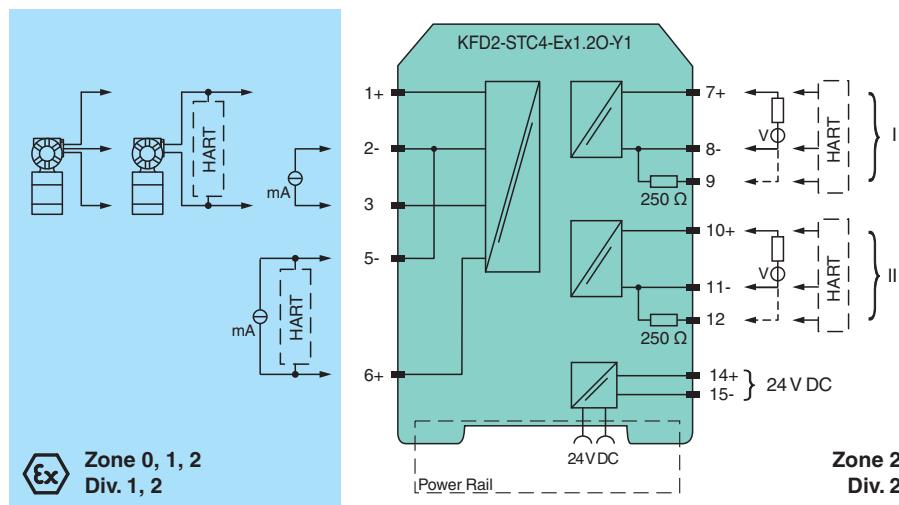
The device supplies 2-wire and 3-wire SMART transmitters in a hazardous area, and can also be used with 2-wire SMART current sources. It transfers the analog input signal to the safe area as two isolated current values. Digital signals may be superimposed on the input signal in the hazardous or safe area and are transferred bi-directionally. It is designed to provide a sink mode output on the safe area terminals. If the HART communication resistance in the loop is too low, the internal resistance of $250\ \Omega$ between terminals 8 and 9 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
- Foxboro

Connection



Technical Data

General specifications

Signal type

Analog input

Functional safety related parameters

Safety Integrity Level (SIL)

3

Supply

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Technical Data

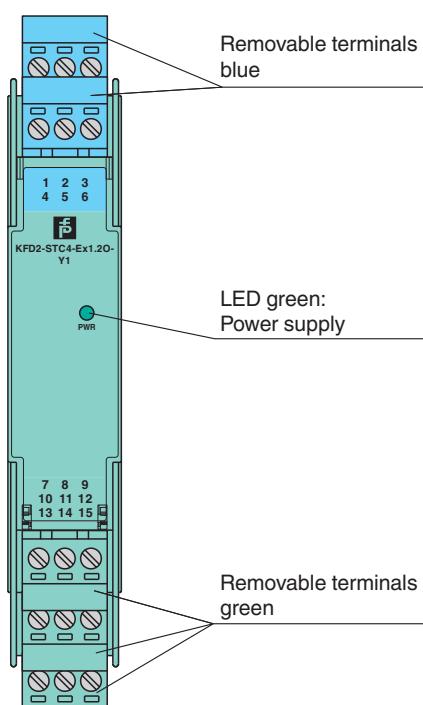
Connection	Power Rail or terminals 14+, 15-	
Rated voltage	U_r	20 ... 35 V DC
Ripple	within the supply tolerance	
Power dissipation	1.8 W	
Power consumption	2.4 W	
Input		
Connection side	field side	
Connection	terminals 1+, 2-, 3 or 5-, 6+	
Input signal	0/4 ... 20 mA	
Open circuit voltage/short-circuit current	terminals 1+, 3-: 22.7 V / 38 mA	
Voltage drop	terminals 5, 6 : ≤ 2.4 V at 20 mA	
Input resistance	terminals 2-, 3: max. 76 Ω terminals 1+, 3: max. 500 Ω (250 Ω load)	
Available voltage	terminals 1+, 3: ≥ 16 V at 20 mA	
Output		
Connection side	control side	
Connection	terminals 7+, 8-; 10+, 11-	
Output signal	0/4 ... 20 mA (overload > 25 mA)	
Ripple	max. 50 μ A _{rms}	
External supply (loop)	11 ... 30 V DC	
Transfer characteristics		
Deviation	at 20 °C (68 °F), 0/4 ... 20 mA $\leq 10 \mu$ A incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage	
Influence of ambient temperature	0.25 μ 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 μ s	
Rise time/fall time	20 μ s	
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 21:2011	
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), (W x H x D) 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	BAS 99 ATEX 7060 X	
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		

Technical Data

Maximum safe voltage	U_m	250 V (Attention! The rated voltage can be lower.)
Equipment		terminals 1+, 3-
Voltage	U_o	25.4 V
Current	I_o	86.8 mA
Power	P_o	551 mW
Internal capacitance	C_i	12 nF
Internal inductance	L_i	0 mH
Equipment		terminals 2-, 3
Current	I_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	I_i	115 mA
Voltage	U_o	25.4 V
Current	I_o	115 mA
Power	P_o	584 mW
Equipment		terminals 5-, 6+
Voltage	U_i	30 V
Current	I_i	115 mA
Voltage	U_o	8.7 V
Current	I_o	0 mA
Certificate		TÜV 99 ATEX 1499 X
Marking		Ex 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
International approvals		
UL approval		
Control drawing		116-0428 (cULus)
IECEx approval		
IECEx certificate		IECEx BAS 04.0016X IECEx CML 15.0055X
IECEx marking		[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		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

Assembly

Front view



Matching System Components

	KFD2-EB2	Power Feed Module
	UPR-03	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m
	UPR-03-M	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
	UPR-03-S	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
	K-DUCT-BU	Profile rail, wiring comb field side, blue
	K-DUCT-BU-UPR-03	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue

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Accessories

	KF-STP-5BU	Terminal block for KF modules, 3-pin screw terminal, with test sockets, blue
	KF-STP-5GN	Terminal block for KF modules, 3-pin screw terminal, with test sockets, green
	KF-ST-5GN	Terminal block for KF modules, 3-pin screw terminal, green
	KF-CP	Red coding pins, packaging unit: 20 x 6

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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PEPPERL+FUCHS

Configuration

Configuration passive output (sink)

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

