

SMART Transmitter Power Supply, Output Current Sink

SIL 3

KFD2-STC4-Ex1.20-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 61508

Input 0/4 mA ... 20 mA² x Output 0/4 mA ... 20 mA(current sink)



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 Ω between terminals 8 and 9 can be used. Test sockets for the connection of HART communicators are integrated into the terminals of the device.

Technical Data

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 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 μA_{rms}

External supply (loop) 11 ... 30 V DC

Transfer characteristics

Release date: 2020-04-06 Date of issue: 2020-04-06 Filename: 283687_eng.pdf

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0002
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
pa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS

Technical Data

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		20 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 21:2011
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) , 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	⊕ 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	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

Release date: 2020-04-06 Date of issue: 2020-04-06 Filename: 283687_eng.pdf

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

Pepperl+Fuchs Group
www.pepperl-fuchs.comUSA: +1 330 486 0002
pa-info@us.pepperl-fuchs.comGermany: +49 621 776 2222
pa-info@de.pepperl-fuchs.comSingapore: +65 6779 9091
pa-info@sg.pepperl-fuchs.com

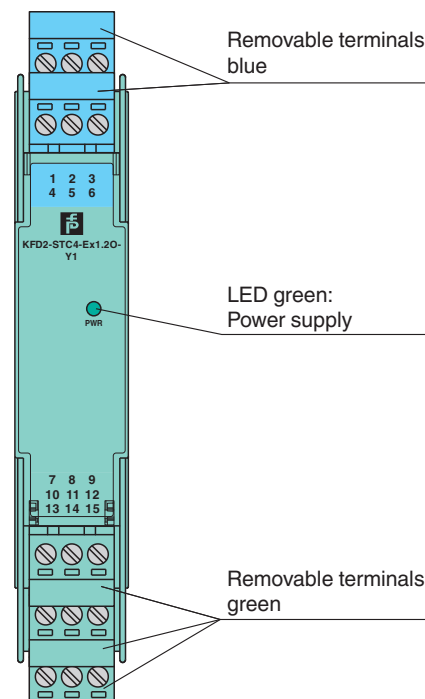
PEPPERL+FUCHS

Technical Data

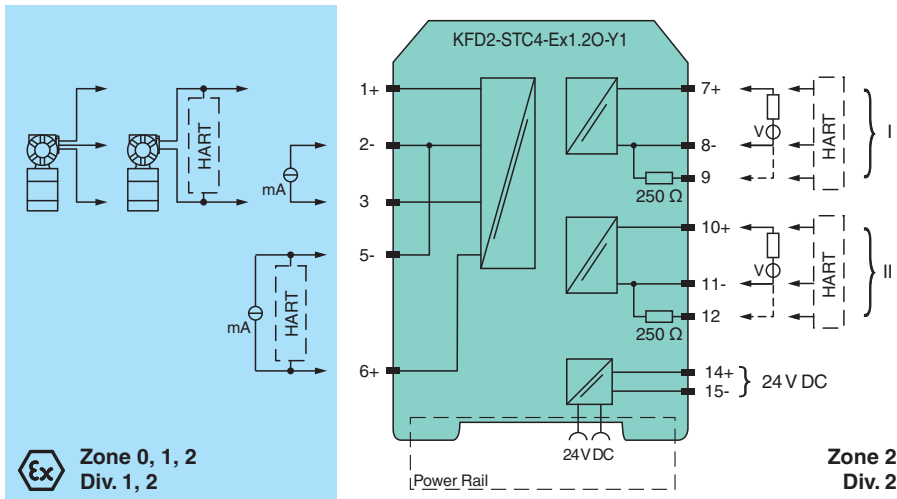
Voltage U_o	8.7 V
Current I_o	0 mA
Certificate	TÜV 99 ATEX 1499 X
Marking	Ⓜ II 3G Ex nA II T4 [device in zone 2]
Galvanic isolation	
Input/Output	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/power supply	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak 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 BAS 04.0016X 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	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

Assembly

Front view



Connection



Accessories

	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	
	K-DUCT-BU-UPR-03	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side blue

Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro

Configuration

Configuration passive output (sink)

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

