

# SMART Transmitter Power Supply KFD2-STC4-Ex1

SIL 2

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input 2-wire and 3-wire SMART transmitters and 2-wire SMART current sources
- Output 0/4 mA ... 20 mA
- Terminals with test points
- Up to SIL 2 acc. to IEC 61508

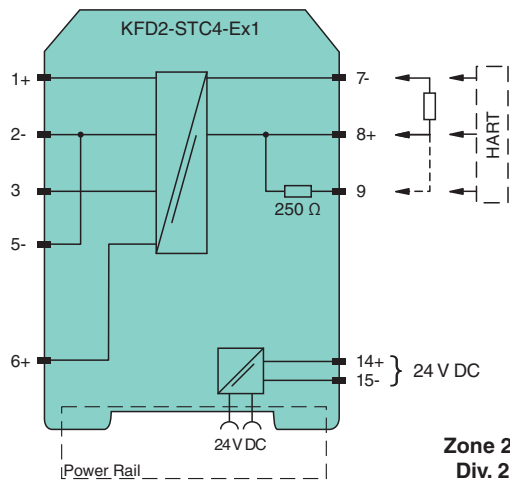
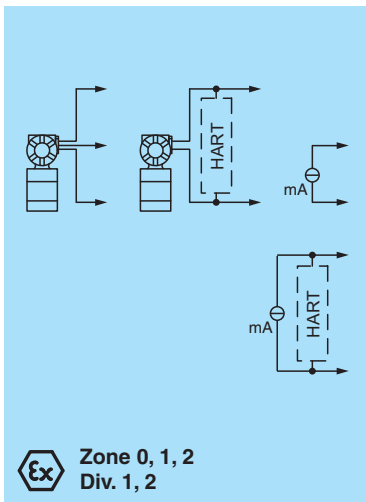
Input 0/4 mA ... 20 mA Output 0/4 mA ... 20 mA



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

## Connection



## Technical Data

### General specifications

Signal type Analog input

### Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

### Supply

Connection Power Rail or terminals 14+, 15-

Rated voltage  $U_r$  20 ... 35 V DC

Ripple within the supply tolerance

Power dissipation 1.4 W

Power consumption 1.8 W

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

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## Technical Data

<b>Input</b>	
Connection side	field side
Connection	terminals 1+, 2-, 3 or 5-, 6+
Input signal	0/4 ... 20 mA
Voltage drop	≤ 2.4 V at 20 mA (terminals 5, 6)
Input resistance	≤ 64 Ω terminals 2-, 3 ; ≤ 500 Ω terminals 1+, 3 (250 Ω load)
Available voltage	≥ 16 V at 20 mA terminals 1+, 3
<b>Output</b>	
Connection side	control side
Connection	terminals 7-, 8+, 9
Load	0 ... 800 Ω at 20 mA
Output signal	0/4 ... 20 mA (overload > 25 mA)
Ripple	max. 50 μA <sub>rms</sub>
<b>Transfer characteristics</b>	
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 <sub>pp</sub> signal 0 ... 7.5 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V <sub>pp</sub> signal 0.3 ... 7.5 kHz (-3 dB)
Settling time	200 μs
Rise time/fall time	20 μs
<b>Galvanic isolation</b>	
Output/power supply	functional insulation, rated insulation voltage 50 V AC
<b>Indicators/settings</b>	
Display elements	LED
Labeling	space for labeling at the front
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
<b>Conformity</b>	
Electromagnetic compatibility	NE 21:2011
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2012
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>	
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
<b>Data for application in connection with hazardous areas</b>	
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 <sub>m</sub> 250 V (Attention! The rated voltage can be lower.)
Equipment	terminals 1+, 3-
Voltage U <sub>o</sub>	25.4 V
Current I <sub>o</sub>	86.8 mA
Power P <sub>o</sub>	551 mW
Equipment	terminals 2-, 3
Current I <sub>o</sub> /Current I <sub>i</sub>	74 mA / 115 mA
Current I <sub>i</sub>	115 mA

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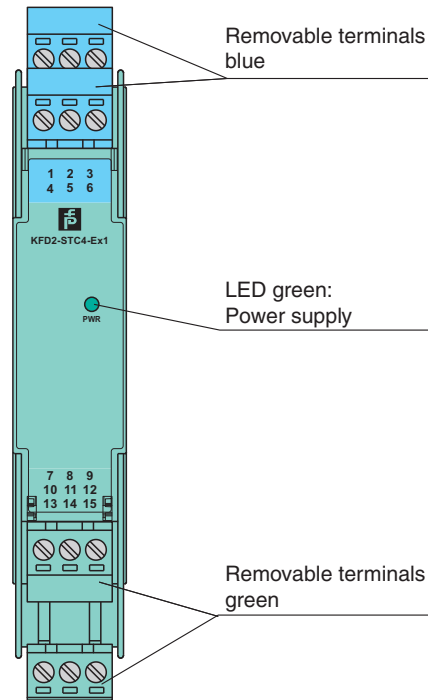
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## Technical Data










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
<b>Output</b>		
Maximum safe voltage	$U_m$	250 V (Attention! The rated voltage can be lower.)
Certificate		TÜV 99 ATEX 1499 X
Marking		Ⓜ II 3G Ex nA II T4 [device in zone 2]
<b>Galvanic isolation</b>		
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
<b>Directive conformity</b>		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
<b>International approvals</b>		
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
<b>General information</b>		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .
<b>Accessories</b>		
Optional accessories		- power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-BU(-UPR-03)

**Assembly**

Front view



**Accessories**

	<b>KFD2-EB2</b>	Power Feed Module
	<b>KFD2-EB2.R4A.B</b>	Power feed module, redundant supply
	<b>KFD2-EB2.R4A.B.SP</b>	Power feed module with spring terminals, redundant supply
	<b>KFD2-EB2.SP</b>	Power feed module with spring terminals
	<b>UPR-03</b>	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m
	<b>UPR-03-M</b>	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
	<b>UPR-03-S</b>	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
	<b>K-DUCT-BU</b>	
	<b>K-DUCT-BU-UPR-03</b>	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side blue

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## Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro