

# SMART Transmitter Power Supply KFD2-STC4-Ex1.H

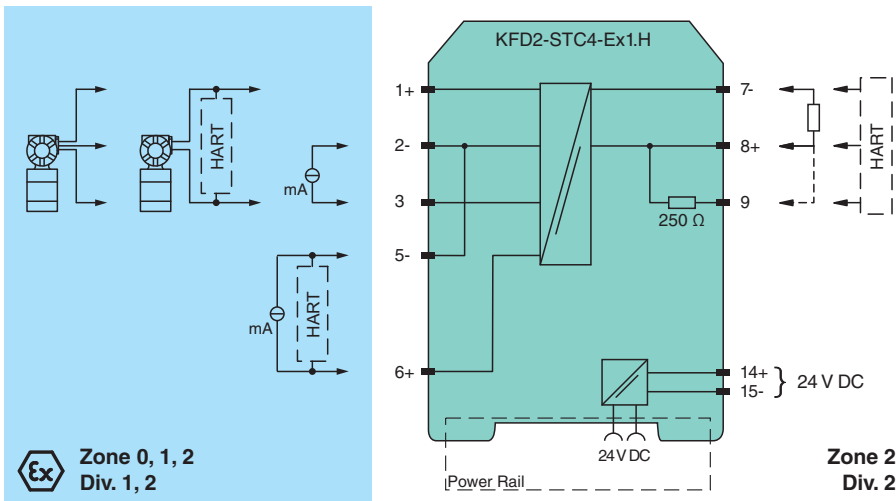
- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input 2-wire and 3-wire SMART transmitters and 2-wire SMART current sources
- Output 0/4 mA ... 20 mA
- Terminals with test points
- High field voltage 17.6 V DC
- Up to SIL 2 acc. to IEC/EN 61508



## Function

This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire and 3-wire SMART transmitters with higher output voltage 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 1.5 W

Power consumption 1.9 W

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

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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	≥ 17.6 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) , (W x H x D) 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>	27.2 V
Current I <sub>o</sub>	93 mA
Power P <sub>o</sub>	632 mW
Internal capacitance C <sub>i</sub>	12 nF
Internal inductance L <sub>i</sub>	0 mH
Equipment	terminals 2-, 3

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## Technical Data

Voltage $U_i$		30 V
Current $I_i$		117 mA
Voltage $U_o$		3.5 V
Current $I_o$		73 mA
Power $P_o$		64 mW
Equipment		terminals 1+, 2 / 3-
Voltage $U_o$		27.2 V
Current $I_o$		117 mA
Power $P_o$		639 mW
Internal capacitance $C_i$		12 nF
Internal inductance $L_i$		0 mH
Equipment		terminals 5-, 6+
Voltage $U_i$		30 V
Current $I_i$		117 mA
Voltage $U_o$		8.7 V
Current $I_o$		0 mA
Internal capacitance $C_i$		0 nF
Internal inductance $L_i$		0 mH
Output		
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]
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
<b>International approvals</b>		
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
<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> .

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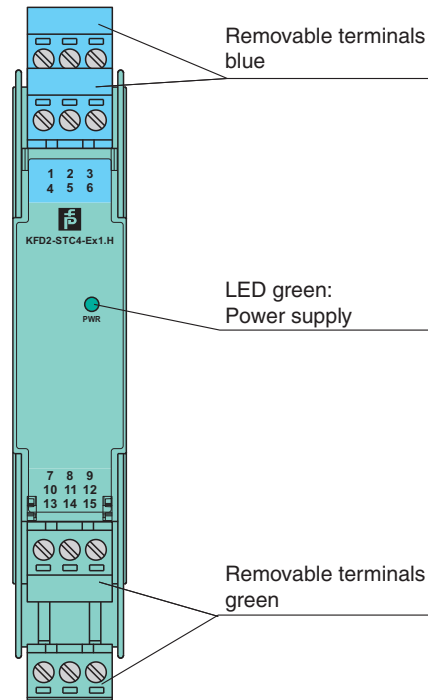
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



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**Assembly**





Front view



**Matching System Components**

	<b>KFD2-EB2</b>	Power Feed Module
	<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>	Profile rail, wiring comb field side, blue
	<b>K-DUCT-BU-UPR-03</b>	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue



**Accessories**

	<b>K-500R0%1</b>	Measuring resistor
	<b>K-250R</b>	Measuring resistor
	<b>KF-STP-5BU</b>	Terminal block for KF modules, 3-pin screw terminal, with test sockets, blue
	<b>KF-STP-5GN</b>	Terminal block for KF modules, 3-pin screw terminal, with test sockets, green

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**Accessories**

	<p><b>KF-ST-5GN</b></p>	<p>Terminal block for KF modules, 3-pin screw terminal, green</p>
	<p><b>KF-CP</b></p>	<p>Red coding pins, packaging unit: 20 x 6</p>

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## Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro