

# SMART Transmitter Power Supply

## KFD2-STC5-1

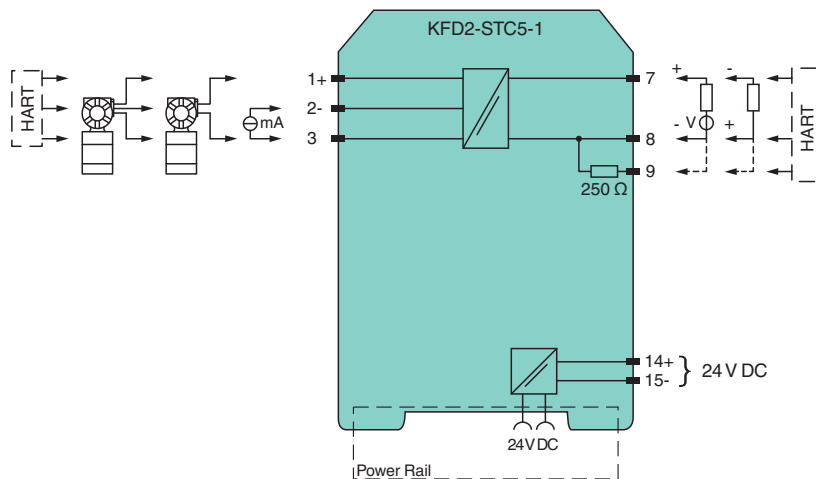
- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Input 2-wire and 3-wire SMART transmitters and 2-wire SMART current sources
- Output 0/4 mA ... 20 mA current sink/current source
- Terminals with test points
- SIL 2 (SC 3) acc. to IEC/EN 61508

# CE SIL2

## Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits. The device supplies 2-wire and 3-wire SMART transmitters, and can also be used with 2-wire SMART current sources. It transfers the analog input signal as an isolated current value. Digital signals may be superimposed on the input signal on the field side or on the control side and are transferred bi-directionally. The device provides a sink mode or a source mode output on the control side terminals. The device has an internal resistor. Use this resistor if the HART communication resistance in the control circuit is too low. 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

Systematic capability (SC) SC 3

### Supply

Connection Power Rail or terminals 14+, 15-

Rated voltage  $U_r$  18 ... 30 V DC

Ripple within the supply tolerance

Power dissipation  $\leq 1$  W at maximum load

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

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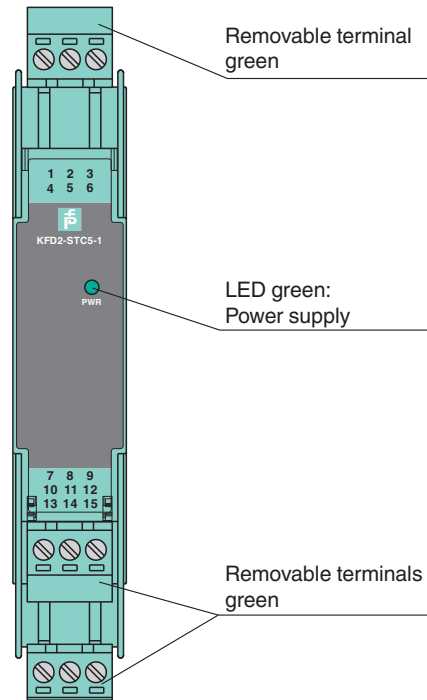
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## Technical Data







Power consumption	≤ 1.6 W at maximum load
<b>Input</b>	
Connection side	field side
Connection	terminals 1+, 2-, 3
Input signal	0/4 ... 20 mA
Open circuit voltage/short-circuit current	terminals 1+, 3: 23 V / 25 mA
Input resistance	max. 265 Ω terminals 2-, 3 , max. 330 Ω terminals 1+, 3
Available voltage	≥ 16 V at 20 mA ; ≥ 20 V at 4 mA , terminals 1+, 3
<b>Output</b>	
Connection side	control side
Connection	terminals 7+, 8-, 9- (sink) terminals 7-, 8+, 9+ (source) see additional information
Load	0 ... 800 Ω
Output signal	0/4 ... 20 mA (overload > 25 mA)
Ripple	max. 50 μA <sub>eff</sub>
External supply (loop)	2 ... 30 V DC
<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	input to output: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 7.5 kHz (-3 dB) output to input: bandwidth with 0.5 V <sub>pp</sub> signal 0.3 ... 7.5 kHz (-3 dB)
Settling time	200 μs
Rise time/fall time	100 μs
<b>Galvanic isolation</b>	
Input/Output	basic insulation according to IEC 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Input/power supply	basic insulation according to IEC 61010-1, rated insulation voltage 300 V <sub>eff</sub>
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 21:2012 EN 61326-3-2:2008
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2012
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 70 °C (-4 ... 158 °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>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> .

**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-GY</b>	Profile rail, wiring comb field side, gray
	<b>K-DUCT-GY-UPR-03</b>	Profile rail with UPR-03-* insert, 3 conductors, wiring comb field side, gray


**Accessories**

	<b>K-250R</b>	Measuring resistor
	<b>K-500R0%1</b>	Measuring resistor
	<b>KF-ST-5GN</b>	Terminal block for KF modules, 3-pin screw terminal, green
	<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-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

## Connection

The device provides an output on the control side terminals. This output can be operated in the current sink operating mode or current source operating mode. Please refer to the following diagram for connection.

