



# SMART Transmitter Power Supply

## KFD2-STC5-1.20

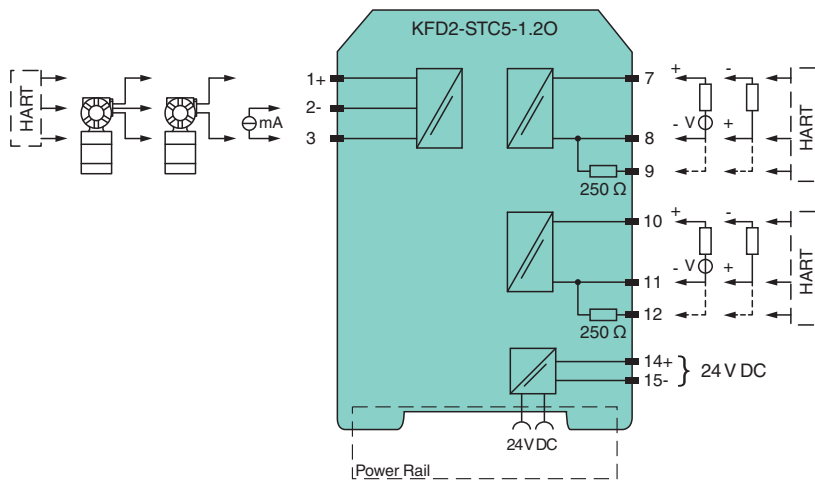
- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Input 2-wire and 3-wire SMART transmitters and 2-wire SMART current sources
- Signal splitter (1 input and 2 outputs)
- Dual output 4 mA ... 20 mA current sink/current source
- Terminals with test points
- Up to SIL 2 (SC 3) acc. to IEC/EN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

# CE SIL3

### 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 to the control side as two isolated output signals. 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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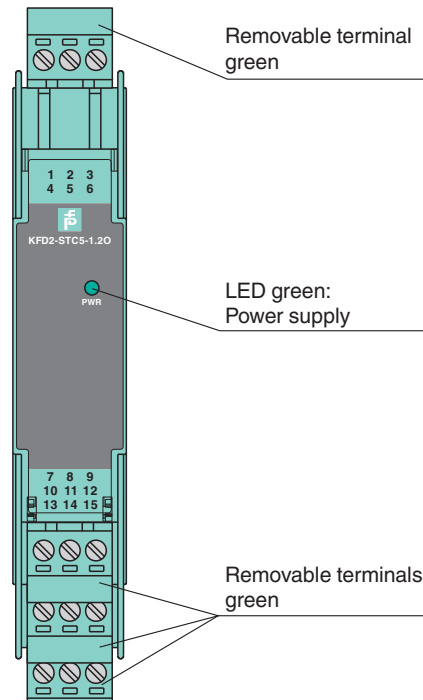
## Technical Data

Power consumption	≤ 1.7 W at maximum load
<b>Input</b>	
Connection side	field side
Connection	terminals 1+, 2-, 3
Input signal	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-; 10+, 11-, 12- (sink) terminals 7-, 8+, 9+; 10-, 11+, 12+ (source) see additional information
Load	0 ... 600 Ω
Output signal	4 ... 20 mA (overload > 25 mA)
Ripple	max. 50 μA <sub>eff</sub>
External supply (loop)	2 ... 30 V DC If the external voltage is > 19 V, a load ≥ ((V - 19) / 0.02) Ω is required. V represents the value of the external voltage. The internal 250 Ω resistor at terminals 9 and 12 can be used as a load.
<b>Transfer characteristics</b>	
Deviation	at 20 °C (68 °F), 4 ... 20 mA ≤ ± 10 μA incl. calibration, linearity, hysteresis, loads and supply voltage fluctuations
Influence of ambient temperature	≤ 0.25 μA/K
Frequency range	input in output: bandwidth with 1 mA <sub>pp</sub> signal 0 ... 7.5 kHz (-3 dB) output in input: band width with 1 V <sub>ss</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
Output/Output	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. 150 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> .







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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-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>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
	<b>KF-CP</b>	Red coding pins, packaging unit: 20 x 6

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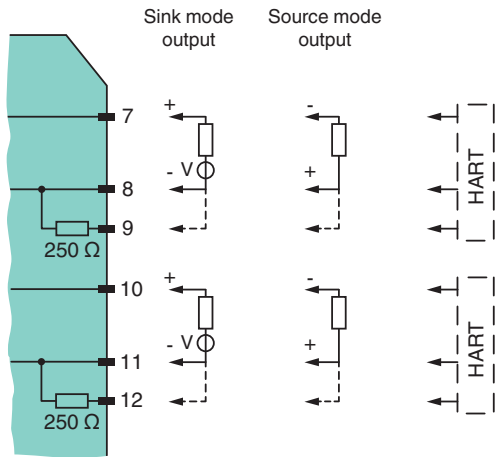
**Application**

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro

**Connection**

The device provides 2 outputs on the control side terminals. These outputs can be operated in any combination of the current sink operating mode and current source operating mode. Please refer to the following diagram for connection.



Short circuit unused circuits on the output. Open circuit outputs increase the internal power dissipation by up to 300 mW per channel.

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