



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 4 mA ... 20 mA current sink/current source
- Terminals with test points
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508

CE SIL 2

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.

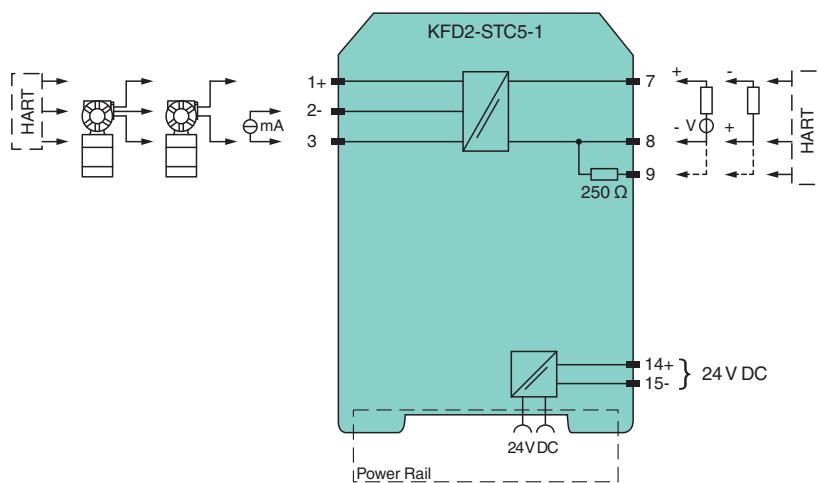
Test sockets for the connection of HART communicators are integrated into the terminals of the device.

Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro

Connection



Technical Data

General specifications

Signal type	Analog input
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Functional safety related parameters

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Safety Integrity Level (SIL)	SIL 2
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Systematic capability (SC)	SC 3
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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

Supply	
Connection	Power Rail or terminals 14+, 15-
Rated voltage	U_r 18 ... 30 V DC
Ripple	within the supply tolerance
Power dissipation	≤ 1 W at maximum load
Power consumption	≤ 1.6 W at maximum load
Input	
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
Output	
Connection side	control side
Connection	terminals 7+, 8-, 9- (sink) terminals 7-, 8+, 9+ (source) see additional information
Load	0 ... 800 Ω
Output signal	4 ... 20 mA (overload > 25 mA)
Ripple	max. 50 μ A eff
External supply (loop)	2 ... 30 V DC If the external voltage is > 19 V, a load $\geq ((V - 19) / 0.02) \Omega$ is required. V represents the value of the external voltage. The internal 250 Ω resistor at terminal 9 can be used as a load.
Transfer characteristics	
Deviation	at 20 °C (68 °F), 4 ... 20 mA $\leq 10 \mu$ A incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage
Influence of ambient temperature	$\leq 0.25 \mu$ A/K
Frequency range	input to output: bandwidth with 0.5 V_{pp} signal 0 ... 7.5 kHz (-3 dB) output to input: bandwidth with 0.5 V_{pp} signal 0.3 ... 7.5 kHz (-3 dB)
Settling time	200 μ s
Rise time/fall time	100 μ s
Galvanic isolation	
Input/Output	basic insulation according to IEC 61010-1, rated insulation voltage 300 V eff
Input/power supply	basic insulation according to IEC 61010-1, rated insulation voltage 300 V eff
Output/power supply	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 21:2012 EN 61326-3-2:2008
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2012
Ambient conditions	
Ambient temperature	-20 ... 70 °C (-4 ... 158 °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) (W x H x D) , housing type B2
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001

Technical Data

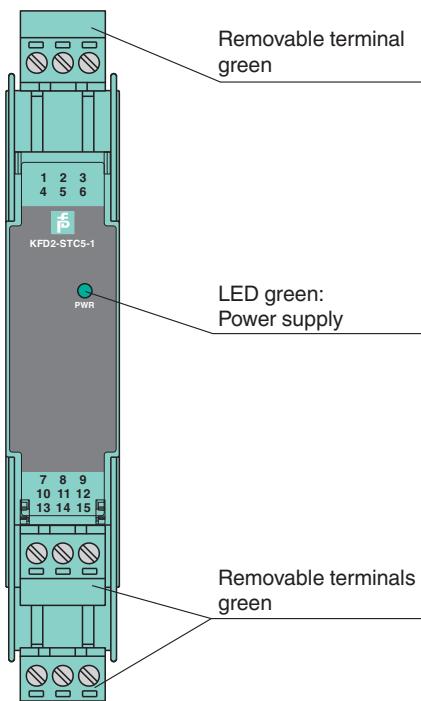
General information

Supplementary information

Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

Assembly

Front view



Matching System Components

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

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Accessories

	K-250R	Measuring resistor
	K-500R0%1	Measuring resistor

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Accessories

	KF-ST-5GN	Terminal block for KF modules, 3-pin screw terminal, green
	KF-STP-5GN	Terminal block for KF modules, 3-pin screw terminal, with test sockets, green
	KF-CP	Red coding pins, packaging unit: 20 x 6

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.

