



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 SIL2

Function

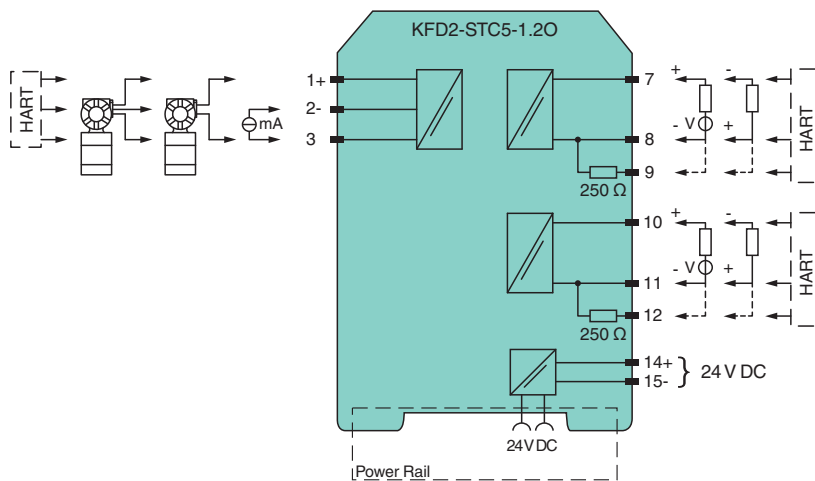
This signal conditioner provides the galvanic isolation between field circuits and control circuits. The device supplies 2-wire and 3-wire SMART transmitters, and can also be used with 2-wire SMART current sources. It transfers the analog input signal to the control side as two isolated output signals. 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.

Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro

Connection



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

Technical Data

General specifications

Signal type Analog input

Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 239215_eng.pdf

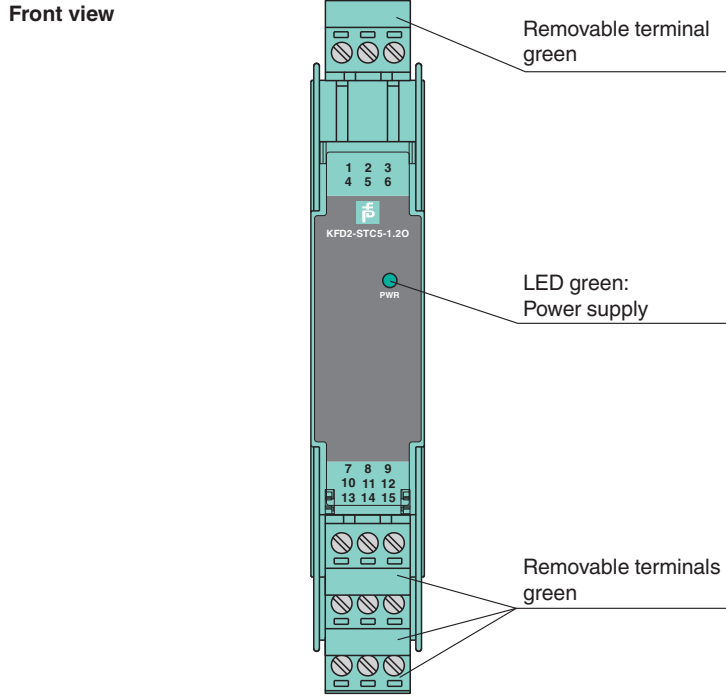
Technical Data

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		≤ 1 W at maximum load
Power consumption		≤ 1.7 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-; 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_{eff}
External supply (loop)		2 ... 30 V DC If the external voltage is > 19 V, a load $\geq ((V - 19) / 0.02)$ 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.
Transfer characteristics		
Deviation		at 20 °C (68 °F), 4 ... 20 mA $\leq \pm 10$ μA incl. calibration, linearity, hysteresis, loads and supply voltage fluctuations
Influence of ambient temperature		≤ 0.25 $\mu\text{A}/\text{K}$
Frequency range		input in output: bandwidth with 1 mA_{pp} signal 0 ... 7.5 kHz (-3 dB) output in input: band width with 1 V_{ss} signal 0.3 ... 7.5 kHz (-3 dB)
Settling time		200 μs
Rise time/fall time		100 μs
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
Output/Output		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. 150 g

Technical Data

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

Assembly



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

Accessories

	KF-ST-5GN	Terminal block for KF modules, 3-pin screw terminal, green
--	------------------	--

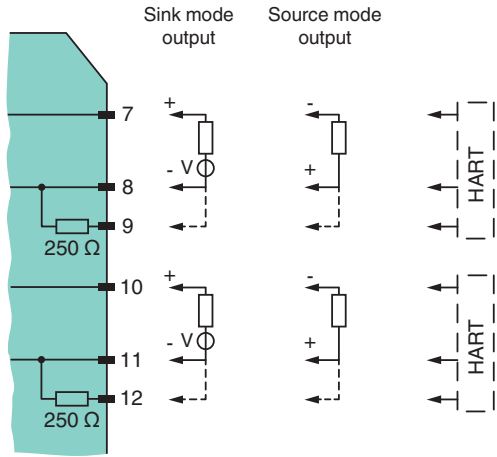
Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 239215_eng.pdf

Accessories

	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 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.



Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 239215_eng.pdf