

SMART Transmitter Power Supply KCD2-STC-1

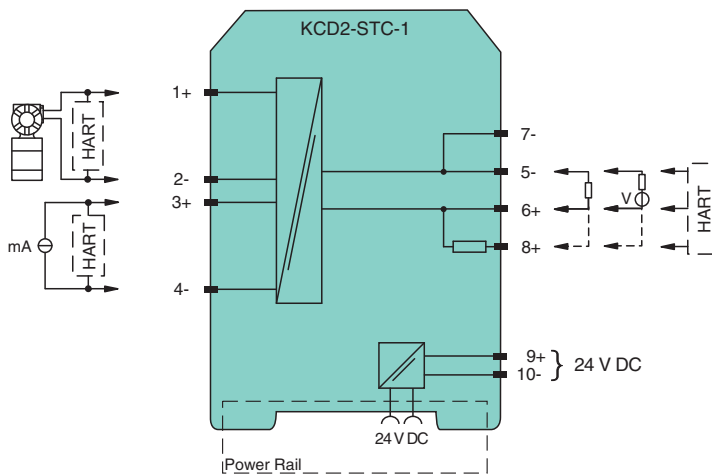
- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Input for 2-wire SMART transmitters and current sources
- Output for 4 mA ... 20 mA or 1 V ... 5 V
- Housing width 12.5 mm
- Up to SIL 2 acc. to IEC/EN 61508



Function

This signal conditioner provides the isolation for non-intrinsically safe applications. The device supplies 2-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 and are transferred bi-directionally. Selectable output of current source, sink mode, or voltage output is available via DIP switches. If the HART communication resistance in the loop is too low, the internal resistance of 250 Ω between terminals 6 and 8 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 9+, 10-		
Rated voltage	U_r	19 ... 30 V DC	
Ripple		≤ 10 %	
Rated current	I_r	≤ 45 mA at 24 V and 20 mA source mode output	
Power dissipation	≤ 800 mW		

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

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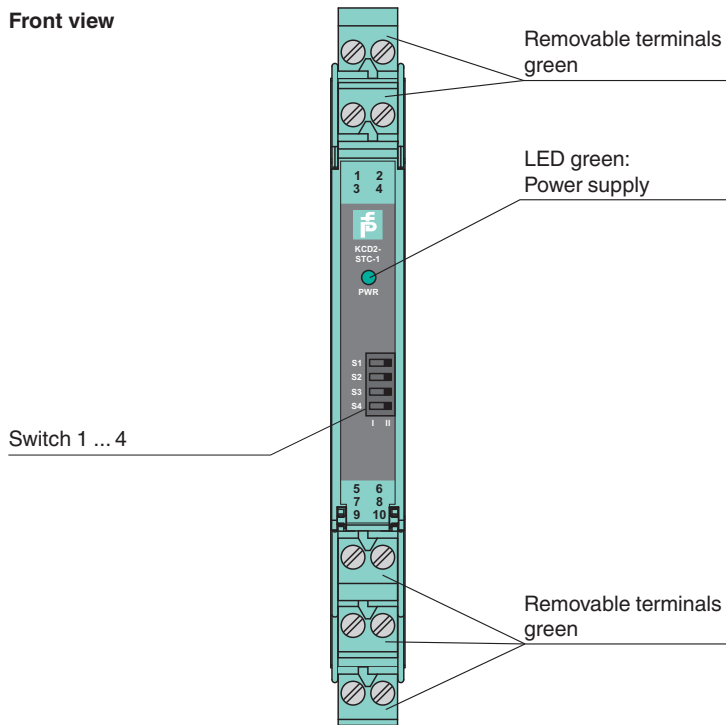
Technical Data

Power consumption	≤ 1.1 W
Input	
Connection side	field side
Connection	terminals 1+, 2-; 3+, 4-
Input signal	4 ... 20 mA limited to approx. 26 mA
Open circuit voltage/short-circuit current	terminals 1+, 2-: 20 V / 26 mA
Voltage drop	terminals 3+, 4- : approx. 5 V
Available voltage	terminals 1+, 2-: ≥ 16 V at 20 mA ; ≥ 17 V at 4 mA
Output	
Connection side	control side
Connection	terminals 5-, 6+ terminals 5-, 8+ for HART resistor
Load	0 ... 525 Ω (10.5 V _{max} source mode)
Output signal	4 ... 20 mA or 1 ... 5 V (on 250 Ω, 0.1 % internal shunt) 4 ... 20 mA (sink mode), operating voltage 5 ... 30 V
Ripple	20 mV _{rms}
Transfer characteristics	
Deviation	at 20 °C (68 °F) < 0.1 % of full scale, incl. non-linearity and hysteresis (source mode and sink mode 4 ... 20 mA) ≤ ± 0.2 % incl. non-linearity and hysteresis (source mode 1 ... 5 V)
Influence of ambient temperature	< 2 μA/K (-20 ... 70 °C (-4 ... 158 °F)); < 4 μA/K (-40 ... -20 °C (-40 ... -4 °F)) (source mode and sink mode 4 ... 20mA) < 0.5 mV/K (-20 ... 70 °C (-4 ... 158 °F)); < 1 mV/K (-40 ... -20 °C (-40 ... -4 °F)) (source mode 1...5 V)
Frequency range	field side into the control side: bandwidth with 0.5 V _{pp} signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V _{pp} signal 0 ... 3 kHz (-3 dB)
Settling time	≤ 50 ms
Rise time/fall time	≤ 10 ms
Galvanic isolation	
Input/Output	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Input/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output/power supply	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Indicators/settings	
Display elements	LED
Control elements	DIP switch
Configuration	via DIP switches
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 21:2017 EN 61326-3-2:2018
Degree of protection	IEC 60529:2001
Ambient conditions	
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications	
Degree of protection	IP20
Connection	screw terminals
Mass	approx. 100 g
Dimensions	12.5 x 124 x 114 mm (0.5 x 4.9 x 4.5 inch) (W x H x D) , housing type A2
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 .







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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

Accessories

	KC-ST-5GN	Terminal block for KC modules, 2-pin screw terminal, green
	KC-STP-5GN	Terminal block for KC modules, 2-pin screw terminal, with test sockets, green
	KF-CP	Red coding pins, packaging unit: 20 x 6

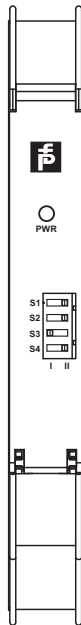
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Application

The device supports the following SMART protocols:

- HART
- BRAIN

Configuration



Output switch settings

Mode of operation	S1	S2	S3	S4
Current source output 4 ... 20 mA	II	II	I	II
Voltage source output 1 ... 5 V	II	II	I	I
Current sink output 4 ... 20 mA	II	I	II	II

Factory setting: current source output 4 ... 20 mA

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