

# SMART Transmitter Power Supply KCD2-STC-1

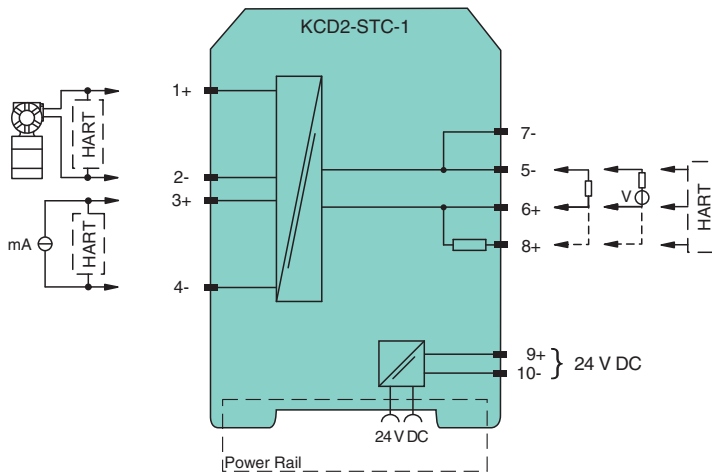
- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Input for 2-wire SMART transmitters and current sources
- Output for 4 mA ... 20 mA or 1 V ... 5 V
- Housing width 12.5 mm
- Up to SIL 2 acc. to IEC/EN 61508



## 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  $\leq 10 \%$

Rated current  $I_r$   $\leq 45 \text{ mA}$  at 24 V and 20 mA source mode output

Power dissipation  $\leq 800 \text{ mW}$

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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
<b>Input</b>	
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
<b>Output</b>	
Connection side	control side
Connection	terminals 5-, 6+ terminals 5-, 8+ for HART resistor
Load	0 ... 525 Ω (10.5 V <sub>max</sub> 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 <sub>rms</sub>
<b>Transfer characteristics</b>	
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 <sub>pp</sub> signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 3 kHz (-3 dB)
Settling time	≤ 50 ms
Rise time/fall time	≤ 10 ms
<b>Galvanic isolation</b>	
Input/Output	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Input/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output/power supply	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
<b>Indicators/settings</b>	
Display elements	LED
Control elements	DIP switch
Configuration	via DIP switches
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 21:2017 EN 61326-3-2:2018
Degree of protection	IEC 60529:2001
<b>Ambient conditions</b>	
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
<b>Mechanical specifications</b>	
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
<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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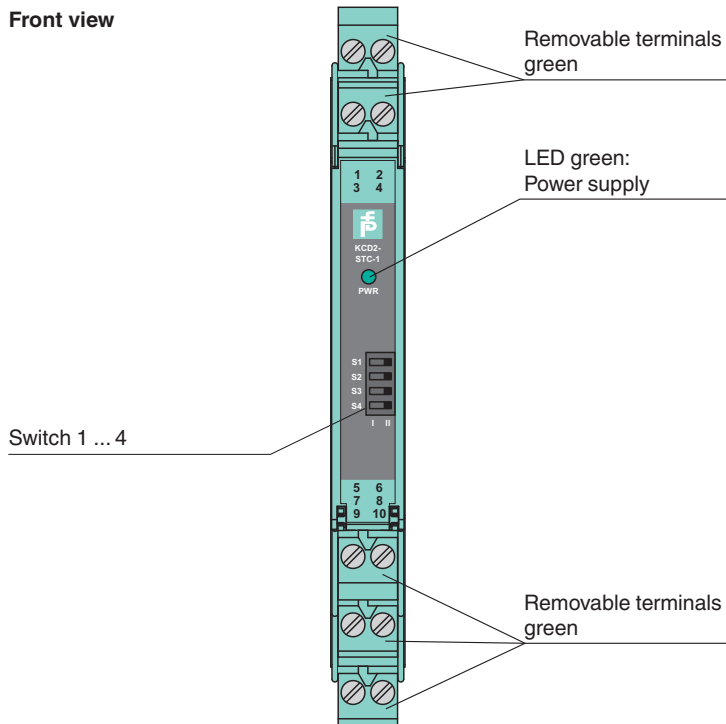
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



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

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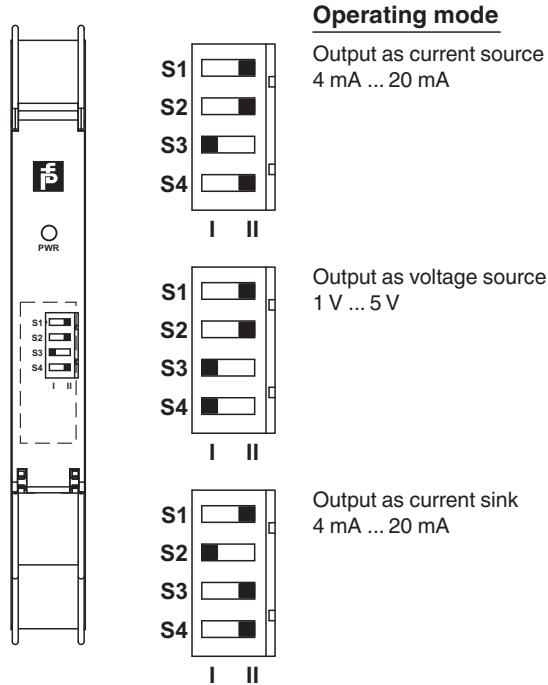
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**Application**

The device supports the following SMART protocols:

- HART
- BRAIN

**Configuration**



Factory settings: output as current source 4 mA ... 20 mA

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