

# SMART Transmitter Power Supply

## KCD2-STC-1.SP

- 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
- Connection via spring terminals with push-in connection technology
- Up to SIL 2 acc. to IEC/EN 61508



### Function

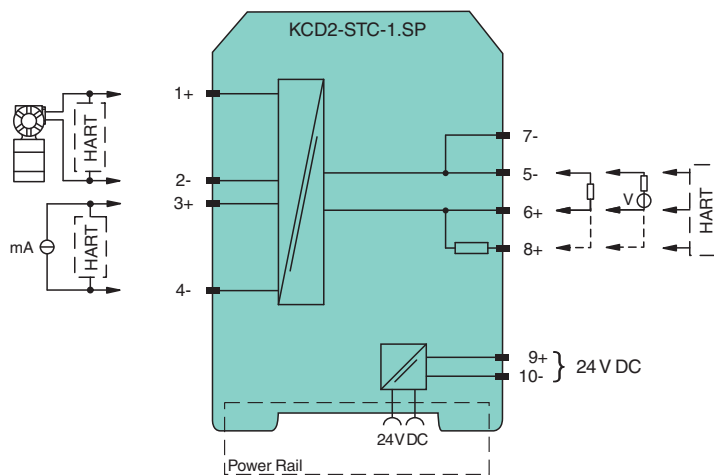
This signal conditioner provides the isolation for non-intrinsically safe applications. The device supplies 2-wire SMART transmitters, and can also be used with 2-wire SMART current sources. It transfers the analog input signal as an isolated current value. Digital signals may be superimposed on the 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.

### Application

The device supports the following SMART protocols:

- HART
- BRAIN

### 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-

Release date: 2023-06-01 Date of issue: 2023-06-01 Filename: 321419\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com

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## Technical Data

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
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		source mode: 4 ... 20 mA or 1 ... 5 V (internal resistor: 250 Ω, 0.1 %) sink mode: 4 ... 20 mA, operating voltage 5 ... 30 V For additional internal or external loads (e. g. terminal +8) the voltage drop has to be considered, e. g. 250 Ω x 20 mA = 5 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		spring terminals
Mass		approx. 100 g

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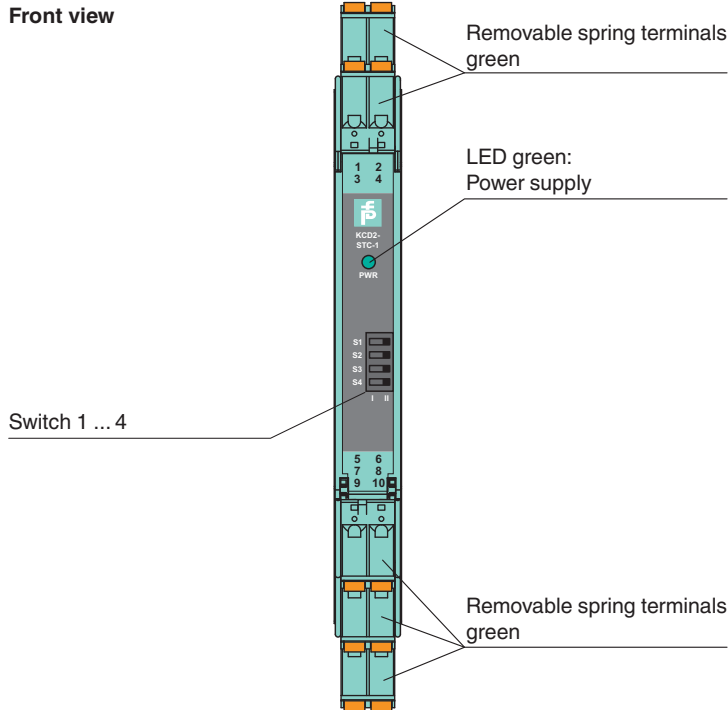
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**Technical Data**

Dimensions	12.5 x 119 x 114 mm (0.5 x 4.7 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> .

**Assembly**



**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-CTT-5GN</b>	Terminal block for KC modules, 2-pin spring terminal, with test sockets, green
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## Accessories

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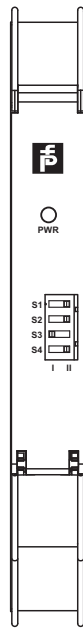
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**Configuration**



**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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