



SMART Transmitter Power Supply KCD2-STC-1.20

- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Input for 2-wire SMART transmitters and current sources
- Signal splitter (1 input and 2 outputs)
- Dual output 0/4 mA ... 20 mA or 0/1 V ... 5 V
- Terminal blocks with test sockets
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



Function

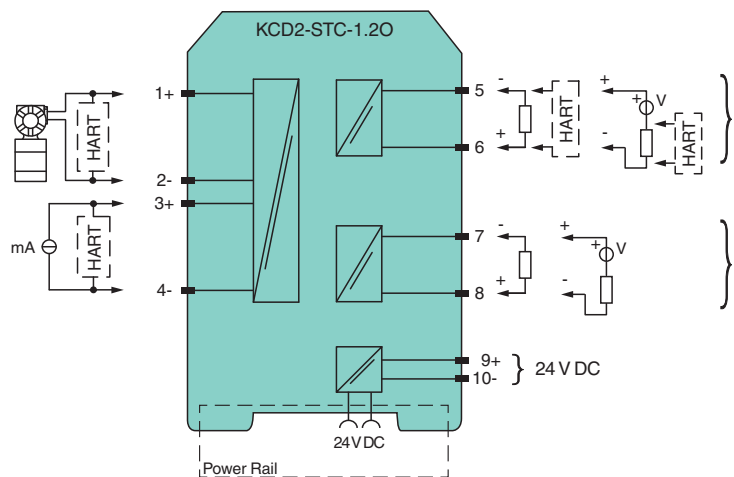
This signal conditioner provides the galvanic isolation between field circuits and control circuits. The device supplies 2-wire transmitters, and can also be used with current sources. The device transfers the analog input signal to the control side as two isolated output signals. Bi-directional communication is supported for SMART transmitters that use current modulation to transmit data and voltage modulation to receive data. The output is selected as a current source, current sink, or voltage source via switches. 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

Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

Systematic capability (SC) SC 3

Technical Data

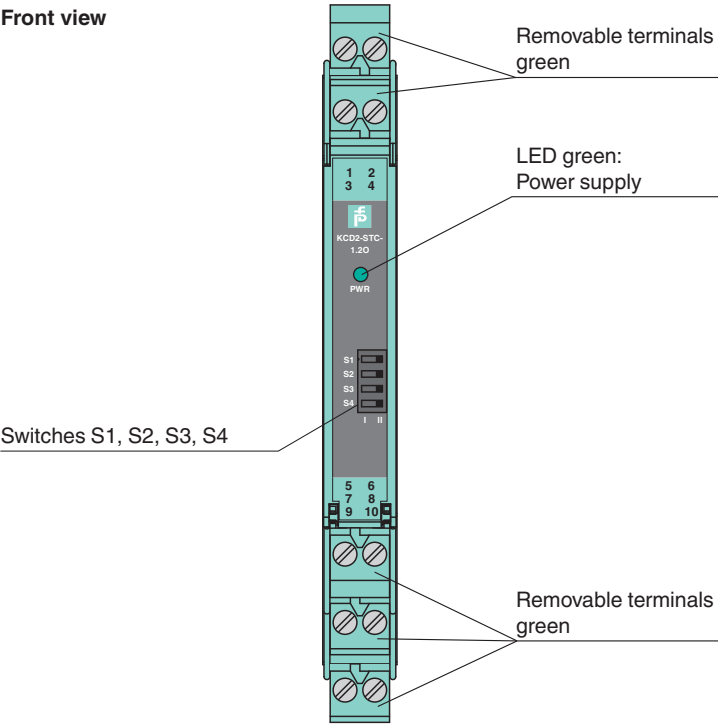
Supply		
Connection		Power Rail or terminals 9+, 10-
Rated voltage	U_r	19 ... 30 V DC
Ripple		within the supply tolerance
Power dissipation		approx. 1.4 W at 20 mA transfer current, 250 Ω in both outputs
Power consumption		2 W
Input		
Connection side		field side
Connection		terminals 1+, 2- (sink); 3+, 4- (source)
Input signal		0/4 ... 20 mA
Voltage drop		terminals 3, 4: ≤ 6.1 V at 20 mA
Short-circuit current		terminals 1+, 2-: 25 mA
Input resistance		terminals 1+, 2-: max. 500 Ω (BRAIN) (250 Ω load)
Available voltage		terminals 1+, 2-: ≥ 16 V at 20 mA, ≥ 18.5 V at 4 mA
Output		
Connection side		control side
Connection		source: terminals 5-, 6+; 7-, 8+ sink: terminals 5+, 6-, 7+, 8-
Load		channel 1: 0 ... 500 Ω (20 mA)/ > 1 M Ω (5 V) channel 2: 0 ... 500 Ω (20 mA)/ > 1 M Ω (5 V)
Output signal		0/4 ... 20 mA or 0/1 ... 5 V
Ripple		max. 50 μ A _{rms}
Transfer characteristics		
Deviation		$I_{out} < 20$ μ A (0.1 %); $V_{out} < 7.5$ mV (0.15 %) incl. calibration, linearity, hysteresis and fluctuation of supply voltage, at 20 °C (68 °F), 0/4 ... 20 mA, 0/1 ... 5 V
Influence of ambient temperature		current output: 0.25 μ A/K voltage output: 80 μ V/K
Frequency range		field side into the control side: bandwidth with 0.5 V _{pp} signal 0 ... 7.5 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V _{pp} signal 0.3 ... 7.5 kHz (-3 dB)
Settling time		6 ms
Rise time/fall time		2 ms
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
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 21:2012 EN 61326-3-2:2008
Degree of protection		IEC 60529:2001
Protection against electrical shock		UL 61010-1:2012
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F) extended ambient temperature range up to 70 °C (158 °F), refer to manual for necessary mounting conditions
Mechanical specifications		
Degree of protection		IP20

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Technical Data

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	
Note	Both output loads must be connected to ensure complete and correct operation within the technical specification.
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

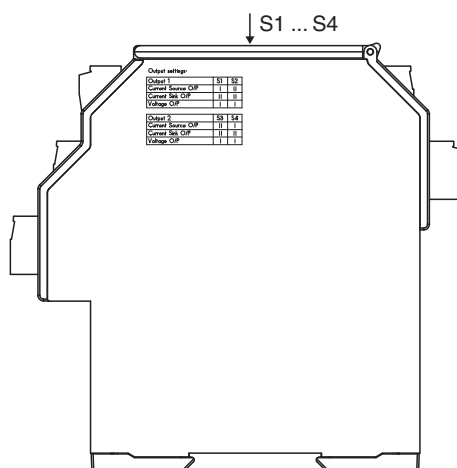
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Accessories

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

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Configuration



Output switch settings

Output 1	S1	S2
Current source output	I	II
Current sink output	II	II
Voltage output	I	I
Not valid	II	I

Output 2	S3	S4
Current source output	II	I
Current sink output	II	II
Voltage output	I	I
Not valid	I	II

Factory settings: current source output, for both channels.