

SMART Transmitter Power Supply KCD2-STC-1

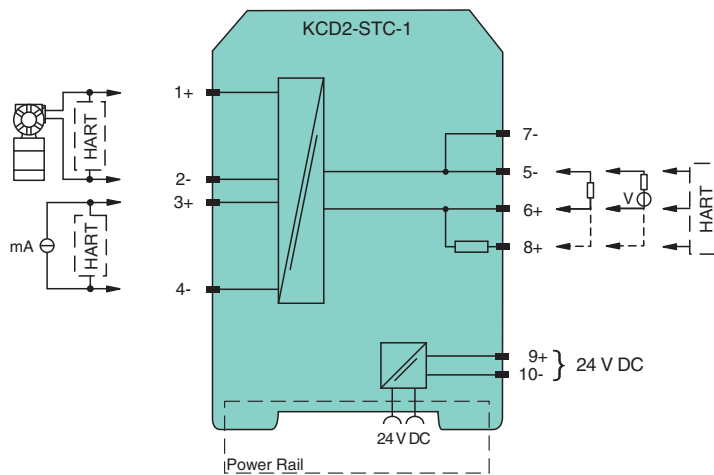
- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Input for 2-wire SMART transmitters and current sources
- Output for 4 mA ... 20 mA or 1 V ... 5 V
- Housing width 12.5 mm
- Up to SIL 2 acc. to IEC/EN 61508



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 | 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 _{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 | |

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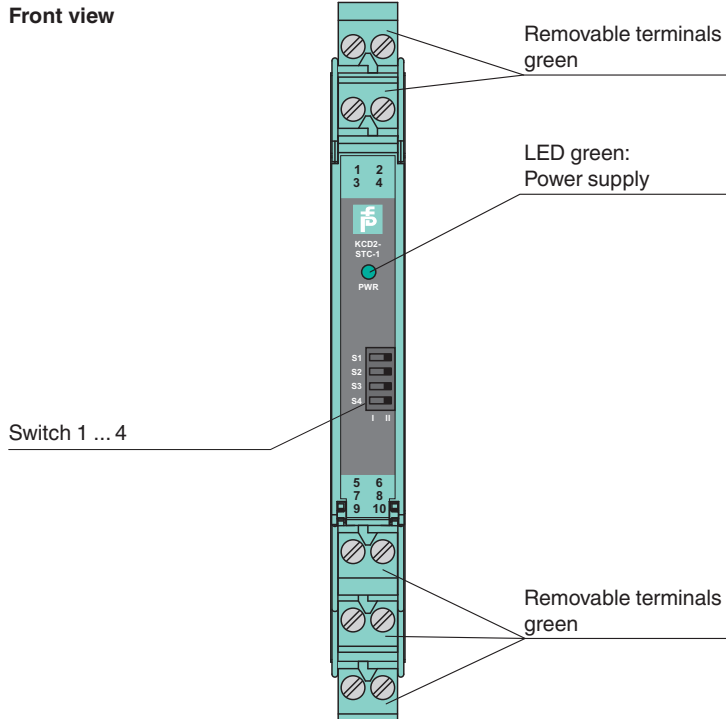
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Technical Data

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

| | | |
|--|-------------------|---|
| | 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 |

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Accessories

| | | |
|---|--------------|---|
|  | KF-CP | Red coding pins, packaging unit: 20 x 6 |
|---|--------------|---|

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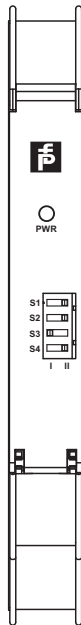
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Application

The device supports the following SMART protocols:

- HART
- BRAIN

Configuration



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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