



SMART Transmitter Power Supply KCD2-STC-Ex1-Y1

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input for 2-wire SMART transmitters
- Output for 4 mA ... 20 mA or 1 V ... 5 V
- Housing width 12.5 mm
- SIL 2 (SC 3) acc. to IEC/EN 61508



SIL 2



Function

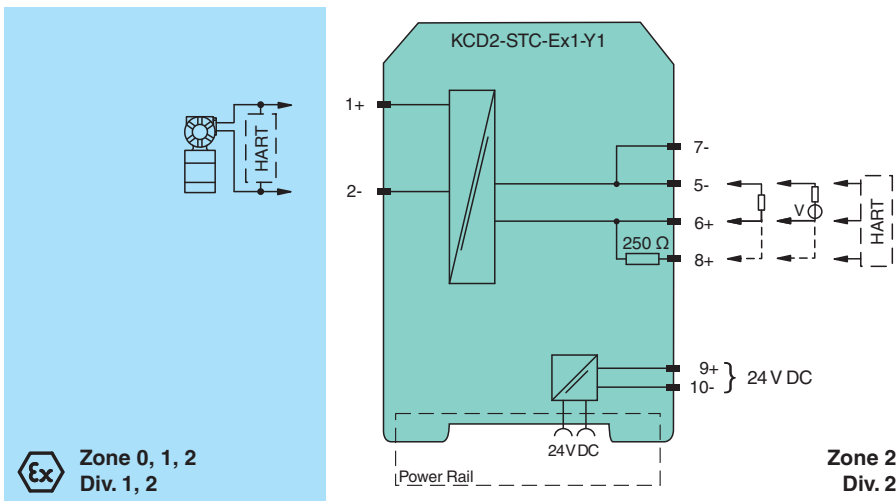
This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire transmitters in the hazardous area. The device transfers the analog input signal to the non-hazardous area as an isolated current value. Digital signals may be superimposed on the input signal on the field side or control side and are transferred bi-directionally. The output is selected as a current source, current sink, or voltage source via DIP switches. If the HART communication resistance in the loop is too low, the internal resistance 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

Technical Data

| | | |
|--|-------|---|
| Systematic capability (SC) | | SC 3 |
| 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 | | $\leq 800 \text{ mW}$ |
| Power consumption | | $\leq 1.1 \text{ W}$ |
| Input | | |
| Connection side | | field side |
| Connection | | terminals 1+, 2- |
| Input signal | | 4 ... 20 mA limited to approx. 26 mA |
| Open circuit voltage/short-circuit current | | 22 V / 26 mA |
| Available voltage | | $\geq 15 \text{ V}$ at 20 mA ; $\geq 18 \text{ V}$ at 4 mA |
| Output | | |
| Connection side | | control side |
| Connection | | terminals 5-, 6+ terminals 5-, 8+ for HART resistor |
| Load | | 0 ... 350 Ω (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 10 ... 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) $\leq \pm 0.2 \%$ incl. non-linearity and hysteresis (source mode 1 ... 5 V) |
| Influence of ambient temperature | | $< 2 \mu\text{A/K}$ (-20 ... 70 °C (-4 ... 158 °F)); $< 4 \mu\text{A/K}$ (-40 ... -20 °C (-40 ... -4 °F)) (source mode and sink mode 4 ... 20mA) $< 0.5 \text{ mV/K}$ (-20 ... 70 °C (-4 ... 158 °F)); $< 1 \text{ mV/K}$ (-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 | | $\leq 50 \text{ ms}$ |
| Rise time/fall time | | $\leq 10 \text{ ms}$ |
| 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 |
| Protection against electrical shock | | UL 61010-1:2012 |
| Ambient conditions | | |
| Ambient temperature | | -40 ... 70 °C (-40 ... 158 °F) |
| Mechanical specifications | | |
| Degree of protection | | IP20 |

Release date: 2022-01-27 Date of issue: 2022-01-27 Filename: 70147228_eng.pdf

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

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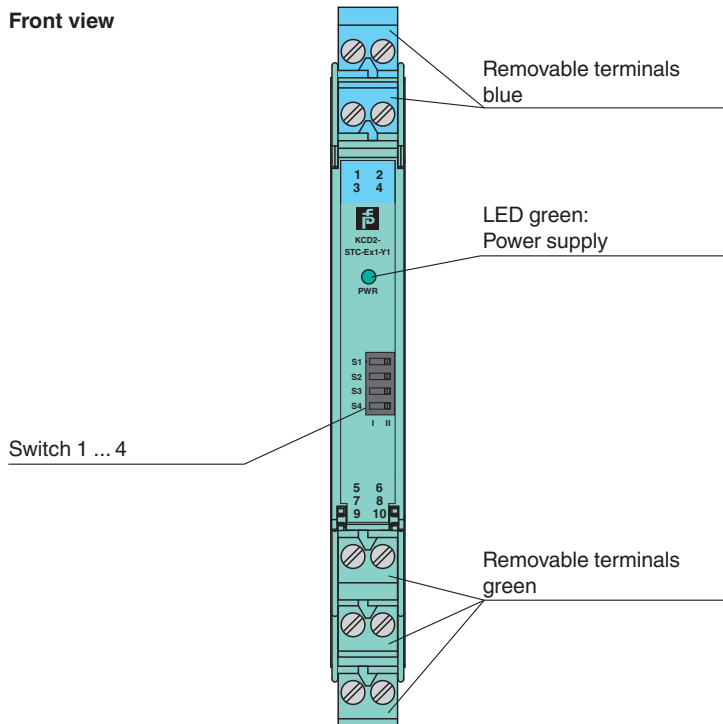
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Technical Data

| | | |
|--|-------|---|
| Connection | | screw terminals |
| Mass | | approx. 100 g |
| 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 |
| Data for application in connection with hazardous areas | | |
| EU-type examination certificate | | CESI 06 ATEX 021 |
| Marking | | Ⓜ II (1)G [Ex ia Ga] IIC Ⓜ II (1)D [Ex ia Da] IIIC Ⓜ I (M1) [Ex ia Ma] I |
| Input | | Ex ia |
| Supply | | |
| Maximum safe voltage | U_m | 250 V AC (Attention! U_m is no rated voltage.) |
| Equipment | | terminals 1+, 2- |
| Voltage | U_o | 25.2 V |
| Current | I_o | 100 mA |
| Power | P_o | 630 mW |
| Internal capacitance | C_i | 5.7 nF |
| Internal inductance | L_i | negligible |
| Certificate | | CESI 19 ATEX 021 X |
| Marking | | Ⓜ II 3G Ex ec IIC T4 Gc |
| Galvanic isolation | | |
| Input/Output | | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Input/power supply | | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Directive conformity | | |
| Directive 2014/34/EU | | EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-7:2015 |
| International approvals | | |
| UL approval | | E106378 |
| Control drawing | | 116-0459 (cULus) |
| IECEx approval | | |
| IECEx certificate | | IECEx CES 06.0001X |
| IECEx marking | | [Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc |
| General information | | |
| Supplementary information | | Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com . |

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-BU | Profile rail, wiring comb field side, blue |
| | K-DUCT-BU-UPR-03 | Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue |

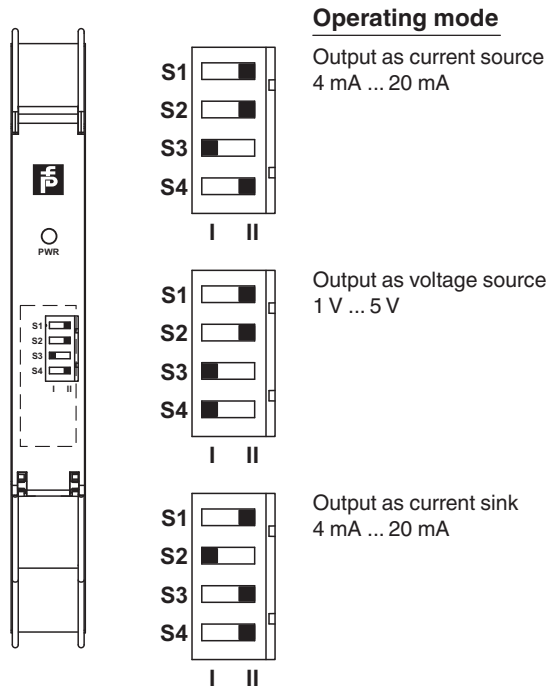
Accessories

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

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Configuration



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

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