



SMART Transmitter Power Supply/SMART Current Driver

KCD2-SCS-Ex2

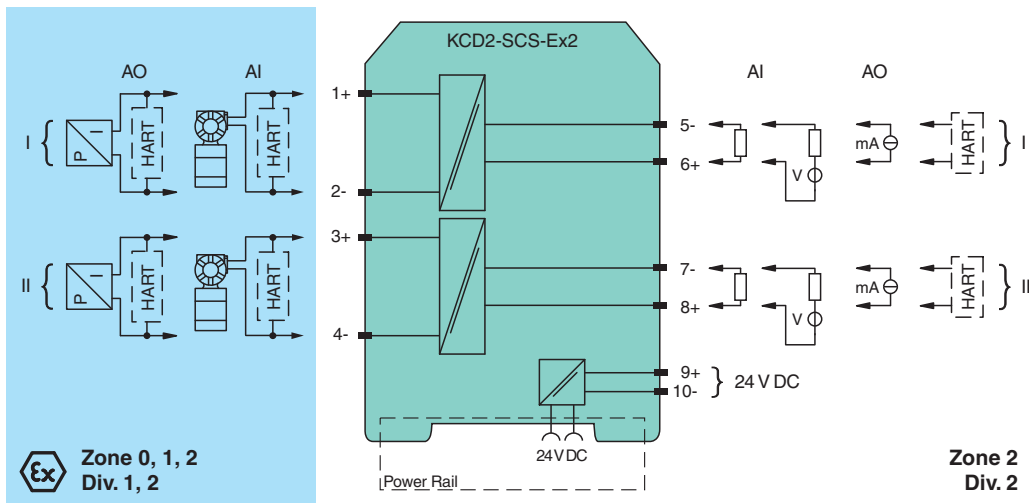
- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Analog input (AI), Analog output (AO)
- Operates as transmitter power supply or current driver
- Housing width 12.5 mm
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



Function

This isolated barrier is used for intrinsic safety applications. Each device channel works as a transmitter power supply or a current driver. The device transfers data by using a current signal. The device supports a bi-directional communication for SMART devices that use current modulation to transmit data and voltage modulation to receive data. For current driver operation, an open field circuit presents a high impedance to the control side to allow lead breakage to be monitored by control systems.

Connection



Technical Data

| General specifications | |
|--------------------------------------|---------------------------------|
| Signal type | Analog input/analog output |
| Functional safety related parameters | |
| Safety Integrity Level (SIL) | SIL 2 |
| Systematic capability (SC) | SC 3 |
| Supply | |
| Connection | Power Rail or terminals 9+, 10- |
| Rated voltage | U_r 19 ... 30 V DC |
| Ripple | max. 10 % |
| Rated current | I_r max. 88 mA at 24 V |

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

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Technical Data

| | |
|-------------------------------------|---|
| Power dissipation | max. 1.4 W |
| Power consumption | max. 2.1 W |
| Analog input | |
| Number of channels | 2 |
| Suitable field devices | 2-wire SMART transmitters |
| Signal | 0/4 ... 20 mA , limited to approx. 30 mA |
| Field circuit | terminals 1+, 2-, 3+, 4- |
| Available voltage | min. 15 V at 20 mA min. 18 V at 4 mA |
| Control circuit | terminals 5-, 6+; 7-, 8+ limited electrical values : max. 30 V , max. 2 A |
| Input voltage | Voltage across terminals 10 ... 30 V. If the current is supplied from a source > 24 V, series resistance of $\geq (V - 24)/0.02 \Omega$ is needed, where V is the source voltage. The maximum value of the resistance is $(V - 10)/0.02 \Omega$. (sink output) |
| Load | max. 350 Ω (source output) |
| Ripple | 20 mV _{eff} |
| Analog output | |
| Number of channels | 2 |
| Suitable field devices | SMART I/P converters (positioner), on-site-displays |
| Signal | 0/4 ... 20 mA , limited to approx. 30 mA |
| Field circuit | terminals 1+, 2-, 3+, 4- |
| Load | max. 650 Ω |
| Voltage | min. 13 V at 20 mA |
| Ripple | 20 mV _{eff} , on all signal terminals |
| Control circuit | terminals 5-, 6+; 7-, 8+ limited electrical values : max. 30 V , max. 2 A |
| Voltage drop | max. 6 V |
| Line fault detection | > 100 k Ω at max. 30 V, with field wiring open |
| Transfer characteristics | |
| Deviation | max. 20 μ A incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage |
| Influence of ambient temperature | < 2 μ A/K (-40 ... 70 °C (-40 ... 158 °F)) |
| 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 | max. 200 ms |
| Rise time/fall time | max. 100 ms (10 ... 90 %) |
| Galvanic isolation | |
| Field circuit/control circuit | basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff} |
| Control circuit/control circuit | functional isolation, rated voltage: 50 V |
| Field circuit/power supply | reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff} |
| Control/power supply | basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff} |
| Indicators/settings | |
| Display elements | LED |
| Factory setting | analog input with source output |
| 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 61010-1:2019 |
| Ambient conditions | |
| Ambient temperature | -40 ... 70 °C (-40 ... 158 °F) |

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PEPPERL+FUCHS

Technical Data

| Mechanical specifications | | |
|---|-------|---|
| Degree of protection | | IP20 |
| Connection | | screw terminals |
| Mass | | approx. 115 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 |
| Data for application in connection with hazardous areas | | |
| EU-type examination certificate | | UL 22 ATEX 2786 X |
| Marking | | ⊕ II (1)G [Ex ia Ga] IIC ⊕ II (1)D [Ex ia Da] IIIC ⊕ I (M1) [Ex ia Ma] I |
| Output | | Ex ia, Ex iaD |
| Voltage | U_o | 25.2 V |
| Current | I_o | 100 mA |
| Power | P_o | 630 mW |
| Internal capacitance | C_i | 1.05 nF |
| Internal inductance | L_i | 0 |
| Supply | | |
| Maximum safe voltage | U_m | 250 V _{rms} (Attention! The rated voltage can be lower.) |
| Input | | |
| Maximum safe voltage | U_m | 250 V _{rms} (Attention! The rated voltage can be lower.) |
| Certificate | | UL 22 ATEX 2787 X |
| Marking | | ⊕ II 3G Ex ec IIC T4 Gc [device in zone 2] |
| Galvanic isolation | | |
| Field circuit/control circuit | | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Field circuit/power supply | | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Directive conformity | | |
| Directive 2014/34/EU | | EN IEC 60079-0:2018 , EN 60079-11:2012 , EN IEC 60079-7:2015+A1:2018 |
| International approvals | | |
| UL approval | | E106378 |
| Control drawing | | 116-0490 (cULus) |
| IECEX approval | | |
| IECEX certificate | | IECEX ULD 22.0020X |
| 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 . |

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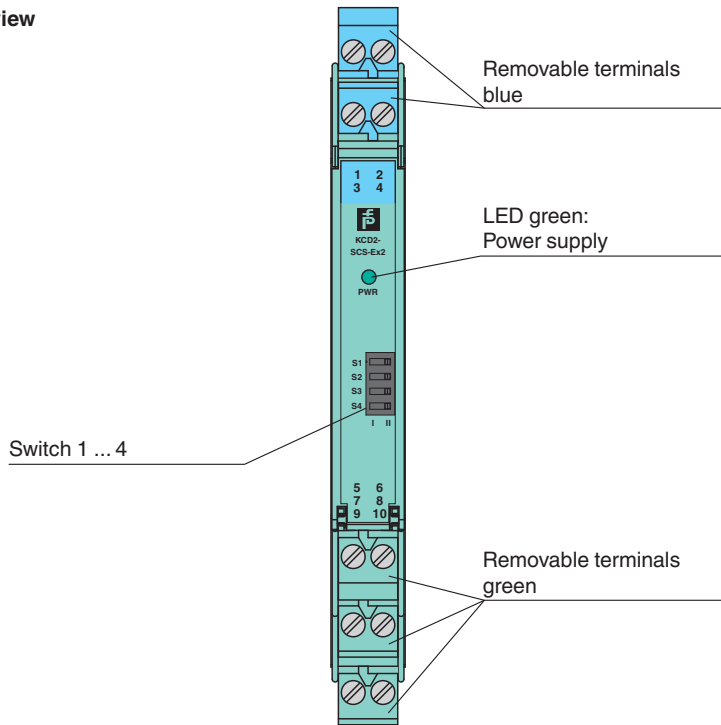
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Assembly

Front view



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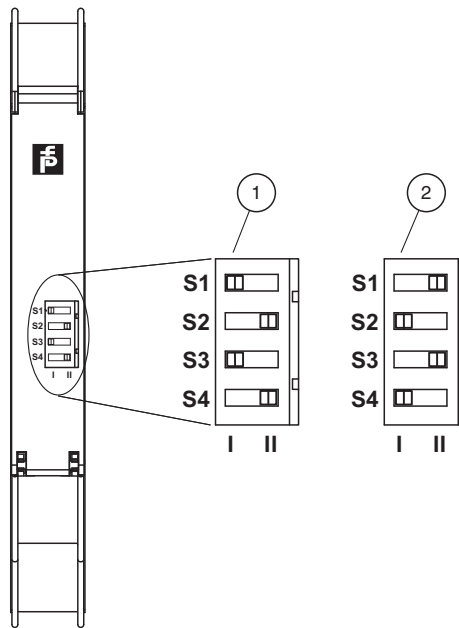
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Configuration



- 1 Analog input with current source output
- 2 Analog input with current sink output, analog output

Switch position

| Function | | Switch | | | |
|---------------|----------------|-----------|----|-----------|----|
| | | Channel 1 | | Channel 2 | |
| Field side | Control side | S1 | S2 | S3 | S4 |
| Analog input | Current source | I | II | I | II |
| Analog input | Current sink | II | I | II | I |
| Analog output | | II | I | II | I |

Factory setting: analog input with current source output

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