



# SMART Transmitter Power Supply/SMART Current Driver

## KCD2-SCS-2.SP

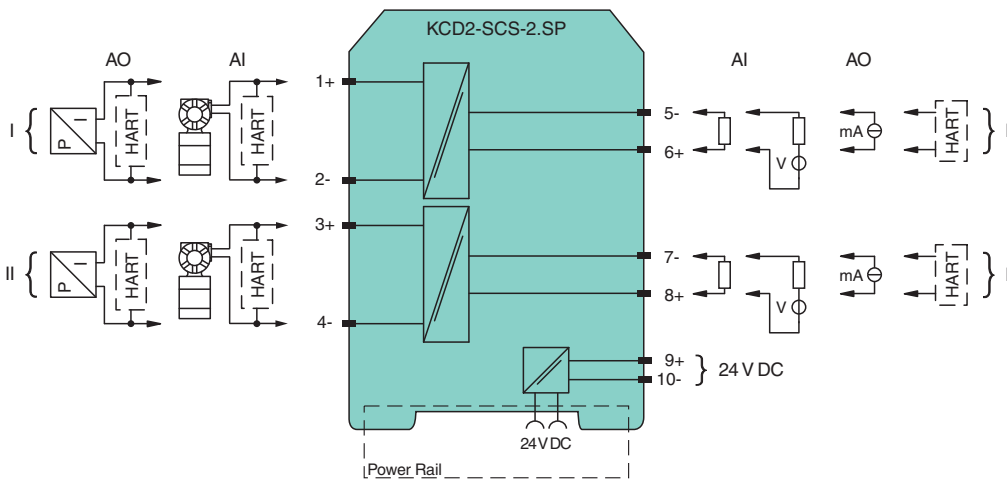
- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Analog input (AI), Analog output (AO)
- Operates as transmitter power supply or current driver
- Housing width 12.5 mm
- Connection via spring terminals with push-in connection technology
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



### Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits. 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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## Technical Data

|                                  |   |
|----------------------------------|---|
| Power dissipation                | max. 1.4 W  |
| Power consumption                | max. 2.1 W  |
| <b>Analog input</b>              |   |
| Number of channels               | 2   |
| Suitable field devices           | 2-wire SMART transmitters   |
| Signal                           | 0/4 ... 20 mA , limited to approx. 30 mA  |
| <b>Field circuit</b>             |   |
| Available voltage                | min. 15 V at 20 mA<br>min. 18 V at 4 mA   |
| <b>Control circuit</b>           |   |
| Input voltage                    | terminals 5-, 6+; 7-, 8+  |
| Load                             | 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) |
| Ripple                           | max. 350 $\Omega$ (source output)   |
|                                  | 20 mV <sub>eff</sub>  |
| <b>Analog output</b>             |   |
| 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  |
| <b>Field circuit</b>             |   |
| Load                             | terminals 1+, 2-, 3+, 4-  |
| Voltage                          | max. 650 $\Omega$   |
| Ripple                           | min. 13 V at 20 mA  |
|                                  | 20 mV <sub>eff</sub> , on all signal terminals  |
| <b>Control circuit</b>           |   |
| Voltage drop                     | terminals 5-, 6+; 7-, 8+  |
| Line fault detection             | max. 6 V  |
|                                  | > 100 k $\Omega$ at max. 30 V, with field wiring open   |
| <b>Transfer characteristics</b>  |   |
| Deviation                        | max. 20 $\mu$ A incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage  |
| Influence of ambient temperature | < 2 $\mu$ A/K (-40 ... 70 °C (-40 ... 158 °F))  |
| Frequency range                  | field side into the control side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 3 kHz (-3 dB)<br>control side into the field side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 3 kHz (-3 dB)  |
| Settling time                    | max. 200 ms   |
| Rise time/fall time              | max. 100 ms (10 ... 90 %)   |
| <b>Galvanic isolation</b>        |   |
| Field circuit/control circuit    | basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>   |
| 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 <sub>eff</sub>  |
| Control/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   |
| Factory setting                  | analog input with source output   |
| 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<br>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  |

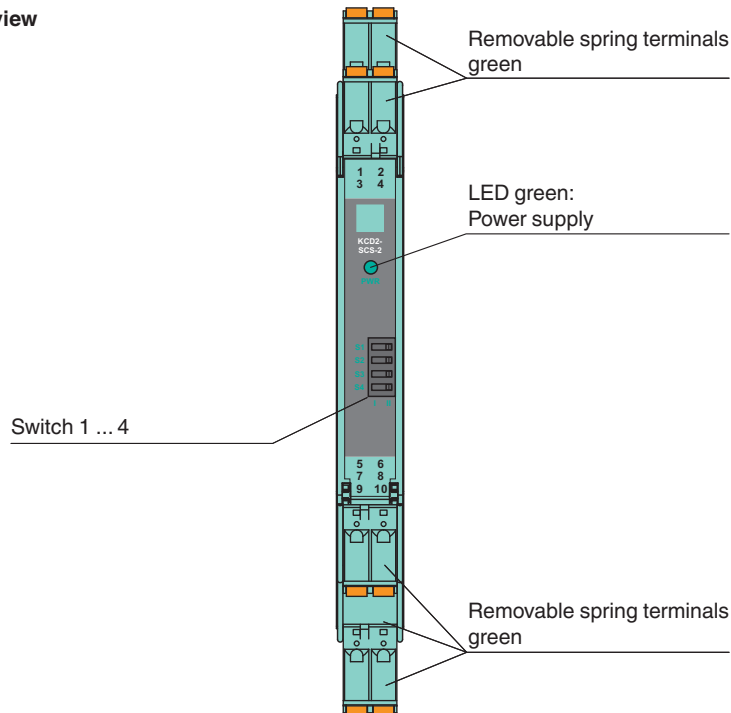
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## Technical Data







|                            |   |
|----------------------------|---|
| Connection                 | spring 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  |
| <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




Front view



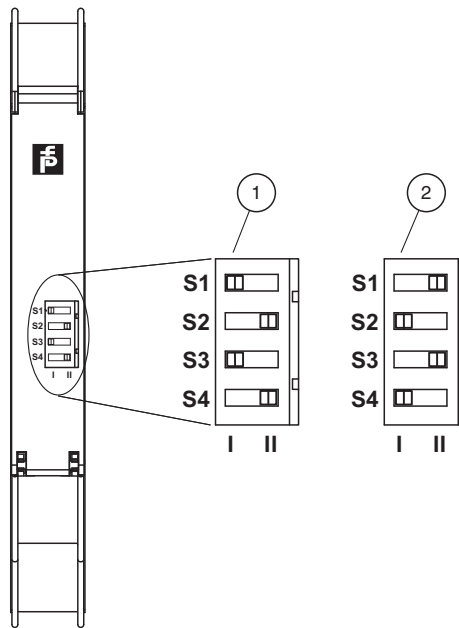
## Matching System Components

|   |                         |   |
|---|-------------------------|---|
|  | <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>EBP 2- 5</b>  | Insertion bridge for connectors, 2-pin, fully insulated    |
|  | <b>KC-ST-5GN</b> | Terminal block for KC modules, 2-pin screw terminal, green |
|  | <b>KF-CP</b>     | Red coding pins, packaging unit: 20 x 6                    |

**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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