

**Features**

- 2-channel signal conditioner
- 24 V DC supply (Power Rail)
- Current output up to 700 Ω load
- HART I/P and valve positioner
- Line fault detection (LFD)
- Accuracy 0.05 %
- Terminal blocks with test sockets
- Up to SIL 2 acc. to IEC 61508

**Function**

This signal conditioner drives SMART I/P converters, electrical valves, and positioners and provides isolation for non-intrinsically safe applications.

Digital signals are superimposed on the analog values at the field or control side and are transferred bi-directionally.

Current transferred across the DC/DC converter is repeated at terminals 1, 2 and 4, 5.

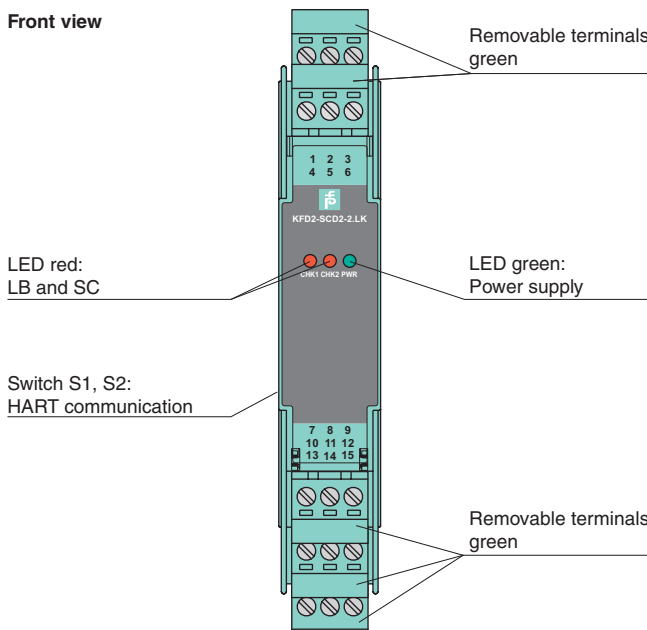
An open and shorted field circuit presents a high input impedance to the control side to allow line fault detection by control system.

If the loop resistance for digital communication is too low, an internal resistor of 250 Ω between terminals 8, 9 and 11, 12 is available, which may be used as the HART communication resistor.

Sockets for the connection of a HART communicator are integrated into the terminals of the device.

A unique collective error messaging feature is available when used with the Power Rail system.

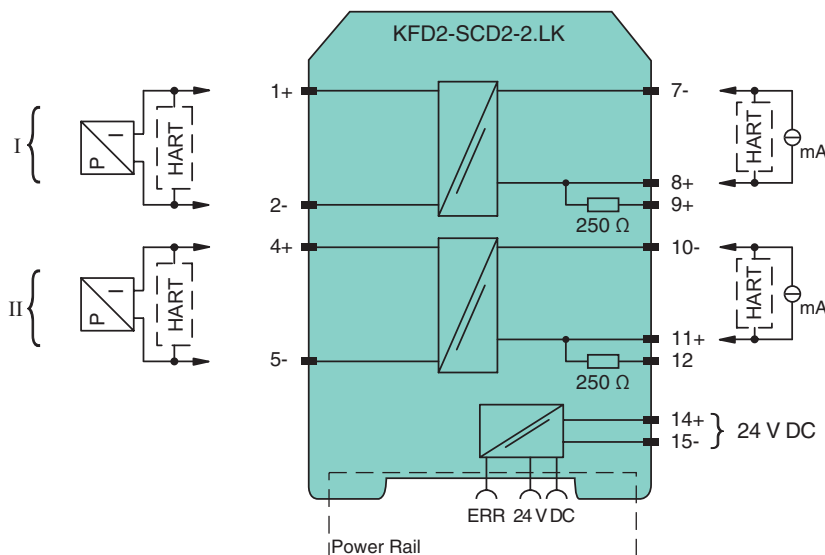
**Assembly**



**SIL 2**



**Connection**



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

<b>General specifications</b>	
Signal type	Analog output
<b>Functional safety related parameters</b>	
Safety Integrity Level (SIL)	SIL 2
<b>Supply</b>	
Connection	Power Rail or terminals 14+, 15-
Rated voltage $U_r$	20 ... 35 V DC
Ripple	within the supply tolerance
Power dissipation	1.4 W at 20 mA into 10 V (equivalent to 500 $\Omega$ ) load
Power consumption	1.8 W at 20 mA
<b>Input</b>	
Connection side	control side
Connection	terminals 7-, 8+, (9+); 10-, 11+, (12+)
Voltage drop	approx. 4 V or internal resistance 200 $\Omega$ at 20 mA
Input resistance	> 100 k $\Omega$ , when wiring resistance in the field > 16 V (equivalent to 800 $\Omega$ at 20 mA)
Current	4 ... 20 mA limited to approx. 25 mA
<b>Output</b>	
Connection side	field side
Connection	terminals 1+, 2-; 4+, 5-
Current	4 ... 20 mA
Load	100 ... 700 $\Omega$
Voltage	$\geq$ 14 V at 20 mA
<b>Transfer characteristics</b>	
Accuracy	0.05 %
<b>Deviation</b>	
After calibration	at 20 °C (68 °F): $\leq$ 10 $\mu$ A incl. non-linearity, calibration, hysteresis, supply and load changes
Influence of ambient temperature	$\leq$ 1 $\mu$ A/K
Rise time	< 100 $\mu$ s , 10 ... 90 % step change
<b>Galvanic isolation</b>	
Input/Output	basic insulation according to IEC 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Input/power supply	functional insulation, rated insulation voltage 50 V AC
Output/power supply	basic insulation according to IEC 61010-1, rated insulation voltage 300 V <sub>eff</sub>
<b>Indicators/settings</b>	
Display elements	LEDs
Control elements	DIP-switch
Configuration	via DIP switches
Labeling	space for labeling at the front
<b>Directive conformity</b>	
<b>Electromagnetic compatibility</b>	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
<b>Conformity</b>	
Electromagnetic compatibility	NE 21:2011
Degree of protection	IEC 60529:2001
Protection against electrical shock	EN 61010-1:2010
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>	
Degree of protection	IP20
Connection	screw terminals
Mass	approx. 150 g
Dimensions	20 x 124 x 115 mm (0.8 x 4.9 x 4.5 inch) , housing type B2
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> .
<b>Accessories</b>	
Optional accessories	- power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-GY(-UPR-03)

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

**Additional information**

**Lead monitoring, input characteristics**

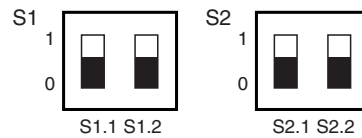
During lead breakage (> 16 V) in the field the input resistance is > 100 kΩ, the field current is < 1 mA and the red LED is flashing. During short circuit (< 50 Ω) in the field the input resistance is approx. 20 kΩ, the input current and the field current are approx. 1 mA and the red LED is flashing.

The voltage drop at the current input (terminals 7-, 8+ and 10-, 11+) is lower than 4 V. Thus, it corresponds to an input resistance of 200 Ω at 20 mA. The AC input impedance corresponds to the load impedance of the unit.

**Adjustment SMART function**

When using positioners, which do not meet the HART standard, set the switches to the 1 position (without SMART function) (see adjustment table).

Switch		Position	Function
Channel 1	Channel 2		
S1.1	S2.1	0	SMART
S1.2	S2.2	0	
All other switch settings			non SMART



*If you are using field devices with high input impedance and a control system with low output impedance, check whether HART transparency is working correctly.*

*If necessary, deactivate HART transparency via the DIP switches. If the impedances are combined as described above, you can for example use the device KCD2-SCD-Ex1 alternatively.*