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 %
- Terminals with test points
- Up to SIL2 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.

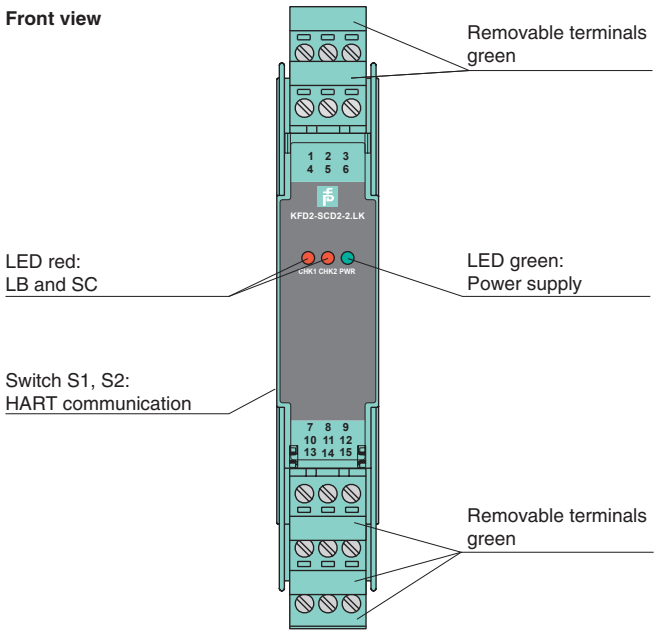
An open and shorted field circuit presents a high input impedance to the control side to allow line fault detection by control system.

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.

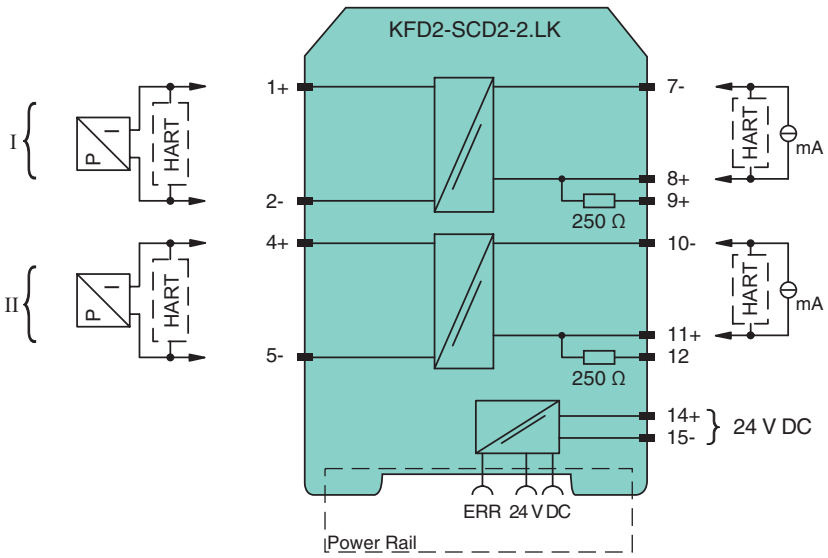
A unique collective error messaging feature is available when used with the Power Rail system.

Assembly



SIL2

Connection



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General specifications	
Signal type	analogue output
Supply	
Connection	Power Rail or terminals 14+, 15-
Rated voltage	10 ... 35 V DC
Ripple	within the supply tolerance
Power loss	1.6 W
Power consumption	1.8 W at 20 mA
Input	
Connection	terminals 7-, 8+, (9+); 10-, 11+, (12+)
Voltage drop U_d	approx. 4 V or internal resistance 200 Ω at 20 mA
Input resistance	> 100 kΩ, when wiring resistance in the field > 16 V (equivalent to 800 Ω at 20 mA)
Current	4 ... 20 mA limited to approx. 25 mA
Output	
Connection	terminals 1+, 2-; 4+, 5-
Current	4 ... 20 mA
Load	100 ... 700 Ω
Voltage	≥ 14 V at 20 mA
Transfer characteristics	
Deviation	
After calibration	at 293 K (20 °C): 10 µA incl. non-linearity, calibration, hysteresis, supply and load changes
Influence of ambient temperature	1 µA/°C
Rise time	< 100 µs (bounce from 10 ... 90 %)
Electrical isolation	
Input/output	basic insulation according to IEC 61140, rated insulation voltage 300 V_{rms}
Directive conformity	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
Conformity	
Insulation coordination	EN 50178
Electromagnetic compatibility	NE 21
Protection degree	IEC 60529
Ambient conditions	
Ambient temperature	-20 ... 60 °C (253 ... 333 K)
Mechanical specifications	
Protection degree	IP20
Mass	approx. 150 g
Dimensions	20 x 124 x 115 mm (0.8 x 4.9 x 4.5 in) , housing type B2
General information	
Supplementary information	Statement of Conformity, Declaration of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.

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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 HART function

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

Switch		Position	Function
Channel 1	Channel 2		
S1.1 S1.2	S2.1 S2.2	0 (OFF) 0 (OFF)	HART
S1.1 S1.2	S2.1 S2.2	0 (OFF) 1 (ON)	non HART
S1.1 S1.2	S2.1 S2.2	1 (ON) 0 (OFF)	
S1.1 S1.2	S2.1 S2.2	1 (ON) 1 ON)	

Accessories

Power feed modules KFD2-EB2...

The power feed module is used to supply the devices with 24 V DC via the Power Rail. The fuse-protected power feed module can supply up to 100 individual devices depending on the power consumption of the devices. A galvanically isolated mechanical contact uses the Power Rail to transmit collective error messages.

Power Rail UPR-03

The Power Rail UPR-03 is a complete unit consisting of the electrical inset and an aluminium profile rail 35 mm x 15 mm. To make electrical contact, the devices are simply engaged.

The Power Rail must not be fed via the device terminals of the individual devices!

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