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 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.

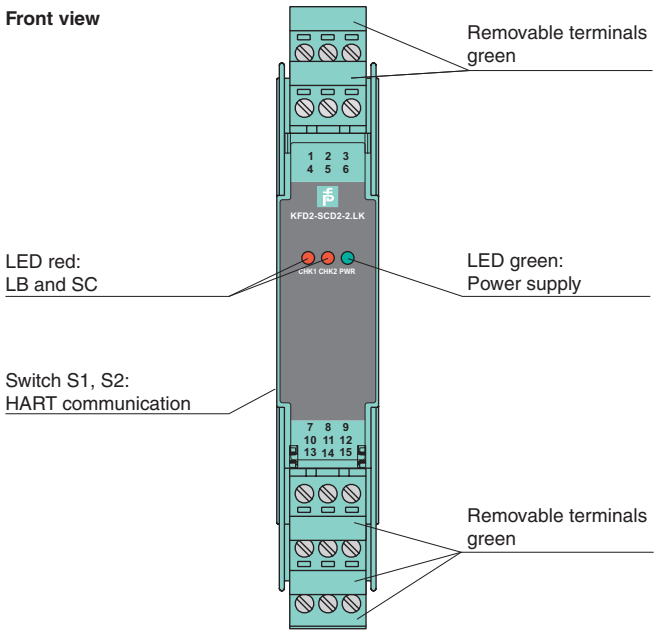
An open and shorted field circuit presents a high input impedance to the control side to allow line fault detection by control system.

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



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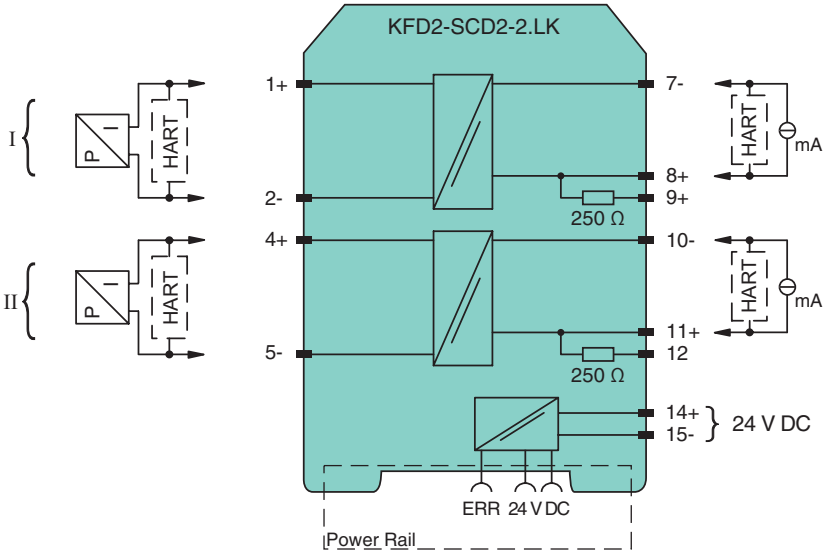
Connection



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General specifications	
Signal type	Analog output
Supply	
Connection	Power Rail or terminals 14+, 15-
Rated voltage	20 ... 35 V DC
Ripple	within the supply tolerance
Power loss	1.4 W at 20 mA into 10 V (equivalent to 500 Ω) load
Power consumption	1.8 W at 20 mA
Input	
Connection	terminals 7-, 8+, (9+); 10-, 11+, (12+)
Voltage drop	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 20 °C (68 °F): ≤ 10 µA incl. non-linearity, calibration, hysteresis, supply and load changes
Influence of ambient temperature	≤ 1 µA/K
Rise time	< 100 µs , 10 ... 90 % step change
Electrical isolation	
Input/Output	basic insulation according to IEC 61010-1, rated insulation voltage 300 V_{eff}
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_{eff}
Directive conformity	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
Conformity	
Electrical isolation	EN 50178:1997
Electromagnetic compatibility	NE 21:2006
Protection degree	IEC 60529:2001
Protection against electrical shock	EN 61010-1
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
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
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
General information	
Supplementary information	Statement of Conformity, Declaration of Conformity, Attestation 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 module 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 150 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.

Profile Rail K-DUCT with Power Rail

The profile rail K-DUCT is an aluminum profile rail with Power Rail insert and two integral cable ducts for system and field cables. Due to this assembly no additional cable guides are necessary.



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

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