

Features

- 1-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.

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

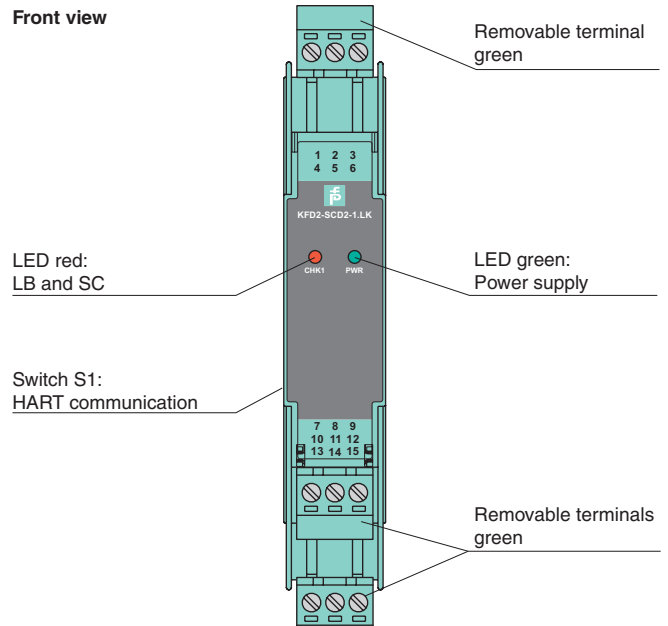
If the loop resistance for digital communication is too low, an internal resistor of 250 Ω between terminals 8 and 9 is available, which may be used as the HART communication resistor.

Terminal 3 is connected to terminal 2 via a 100 Ω resistor. Terminal 3 can be used for an earth leakage connection in combination with the KFD2-ELD-Ex16.

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

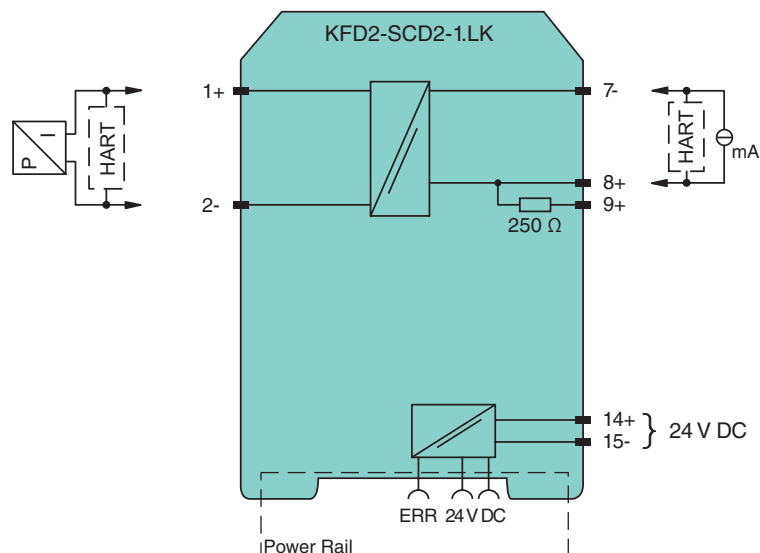


CE

SIL 2

HART
COMMUNICATION PROTOCOL

Connection



General specifications		
Signal type		Analog output
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 2
Supply		
Connection		Power Rail or terminals 14+, 15-
Rated voltage	U_r	20 ... 35 V DC
Ripple		within the supply tolerance
Power dissipation		0.8 W at 20 mA into 10 V (equivalent to 500 Ω) load
Power consumption		1 W at 20 mA
Input		
Connection side		control side
Connection		terminals 7-, 8+, (9+)
Voltage drop		approx. 4 V or internal resistance 200 Ω at 20 mA
Input resistance		> 100 k Ω , 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 side		field side
Connection		terminals 1+, 2-
Voltage		≥ 14 V at 20 mA
Current		4 ... 20 mA
Load		100 ... 700 Ω
Transfer characteristics		
Accuracy		0.05 %
Deviation		
After calibration		at 20 °C (68 °F): ≤ 10 μ A incl. non-linearity, calibration, hysteresis, supply and load changes
Influence of ambient temperature		≤ 1 μ A/K
Rise time		< 100 μ s, 10 ... 90 % step change
Galvanic 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}
Indicators/settings		
Display elements		LEDs
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 21:2011
Degree of protection		IEC 60529:2001
Protection against electrical shock		EN 61010-1:2010
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
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
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .
Accessories		
Optional accessories		- power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-GY(-UPR-03)

Additional information

Lead monitoring, input characteristics

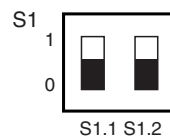
During lead breakage ($> 16\text{ V}$) in the field the input resistance is $> 100\text{ k}\Omega$, the field current is $< 1\text{ mA}$ and the red LED is flashing. During short circuit ($< 50\text{ }\Omega$) in the field the input resistance is approx. $20\text{ k}\Omega$, the input current and the field current are approx. 1 mA and the red LED is flashing.

The voltage drop at the current input (terminals 7-, 8+) is lower than 4 V . Thus, it corresponds to an input resistance of $200\text{ }\Omega$ 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
S1.1	0	SMART
S1.2	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.