



## Solenoid Driver

### KFD2-RCI-1

- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Output 20.4 mA at 13.5 V DC
- 19 V DC ... 30 V DC input
- Test pulse immunity
- Line fault detection (LFD)
- Up to SIL 3 acc. to IEC/EN 61508

# CE SIL3

## Function

This signal conditioner provides galvanic isolation between field circuits and control circuits.

The device can be used in emergency shutdown applications with HART positioners.

Via the logic input the positioner is energized or de-energized (emergency shutdown). Independent of the status, a second input enables HART communication with the positioner. With this the asset management system can request for example diagnostic information or can initiate a partial stroke test.

The HART communication also works with de-energized positioner.

If the device is operated via Power Rail, additionally a collective error message is available.

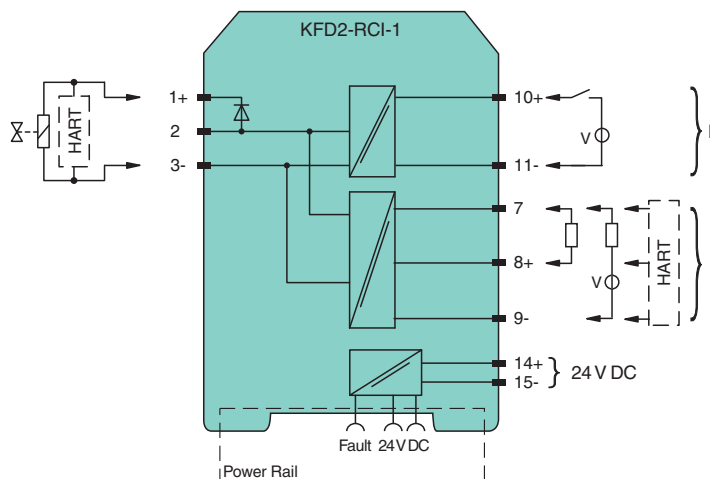
## Application

The device supplies power to safety valve controller with HART functionality.

The device is controlled by means of a logic circuit. Voltage signals in a range of 19 V DC to 30 V DC are accepted as 1-signal. The 0-signal must be within a range of 0 V DC to 5 V DC. The current consumption of the logic input is about 40 mA. At full load, 13.5 V at 20.4 mA is available for the hazardous area load. Line fault detection of the field circuit is indicated by a red LED. The fault signal switches on if the field voltage is > 16 V for lead breakage (LB) or < 1 V for short circuit (SC).

This device provides the HART pass-through for maintenance and diagnostic of the solenoid valve. The HART communication is available both in ON condition and in OFF condition of the solenoid.

## Connection



## Technical Data

### General specifications

Signal type Digital Output

### Functional safety related parameters

## Technical Data

Safety Integrity Level (SIL)	SIL 3	
<b>Supply</b>		
Connection	Power Rail or terminals 14+, 15-	
Rated voltage	$U_r$	19 ... 30 V DC
Rated current	$I_r$	< 35 mA
Power consumption	< 0.8 W	
<b>Input</b>		
Connection side	control side	
Connection	terminals 10+, 11-	
Test pulse length	max. 2 ms from DO card	
Input current	40 mA at 19 ... 30 V DC	
Signal level	1-signal: 19 ... 30 V DC 0-signal: 0 ... 5 V DC	
Power consumption	< 1.2 W	
Operating mode	loop powered	
<b>Output</b>		
Connection side	field side/control side	
Connection	terminals 1+, 3- (terminals 1+, 2 for test loop)	
Internal resistor	$R_i$	approx. 275 $\Omega$
Current	$I_e$	$\leq 20.4$ mA
Voltage	$U_e$	$\geq 13.5$ V
Open loop voltage	$U_s$	> 16 V
Voltage	1-signal: > 13.5 V	
Current	1-signal: 20.4 A 0-signal: 4.2 mA	
Load	max. 650 $\Omega$	
Response time	< 40 ms input to output	
Line fault detection	short circuit voltage < 1 V , open circuit voltage > 16 V	
<b>Output II</b>		
Connection	terminal 7: source (-) or sink (+), terminal 8: source (+), terminal 9: sink (-)	
Current	11 mA (source or sink mode)	
Voltage	9 ... 30 V sink mode from external supply	
Load	max. 650 $\Omega$ , source mode , for HART $\geq 230$ $\Omega$	
Communication	pass-through of HART signal between input II and output	
<b>Galvanic isolation</b>		
Field circuit/control circuit	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 <sub>eff</sub>	
Output II/power supply	functional insulation, rated insulation voltage 50 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>		
Electromagnetic compatibility		
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)	
<b>Conformity</b>		
Electromagnetic compatibility	NE 21:2012	
Degree of protection	IEC 60529:2001	
<b>Ambient conditions</b>		
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)	
<b>Mechanical specifications</b>		
Degree of protection	IP20	
Connection	screw terminals	

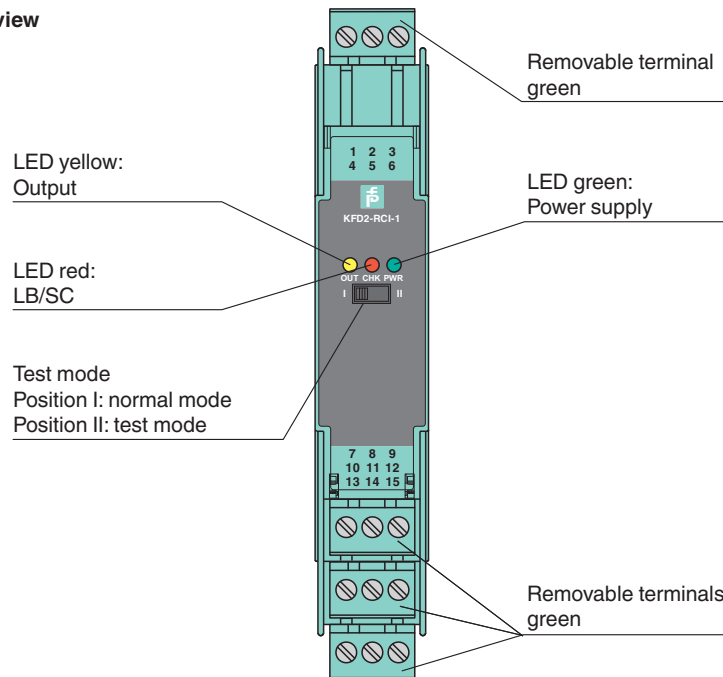
Release date: 2023-05-12 Date of issue: 2023-05-12 Filename: 70155717\_eng.pdf

## Technical Data







Mass	approx. 150 g
Dimensions	20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) (W x H x D) , 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> .

## 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>KF-ST-5GN</b>	Terminal block for KF modules, 3-pin screw terminal, green
	<b>KF-CP</b>	Red coding pins, packaging unit: 20 x 6