Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Output 20.4 mA at 13.5 V DC
- 19 V DC ... 30 V DC input
- Line fault detection (LFD)
- Conformal coating
- Up to SIL 3 acc. to IEC 61508

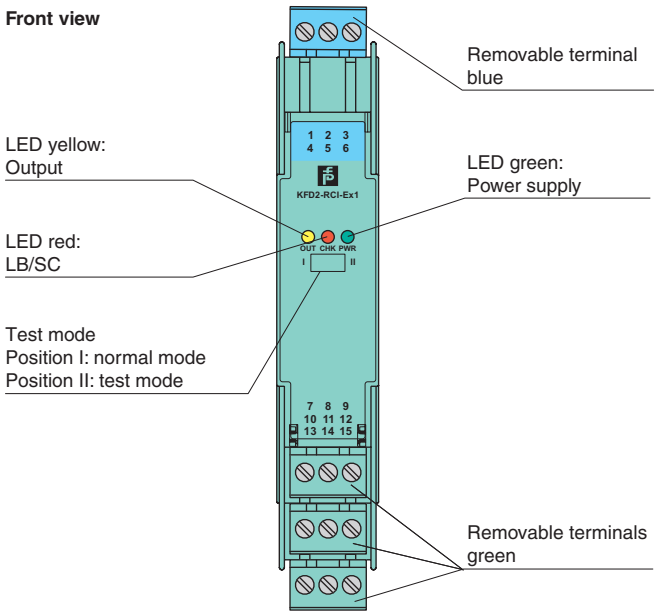
Function

This isolated barrier is used for intrinsic safety applications. The device can be used in shut down applications with HART positioners.

Via the logic input the positioner is energized or de-energized (shut down). 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 deenergized positioner.

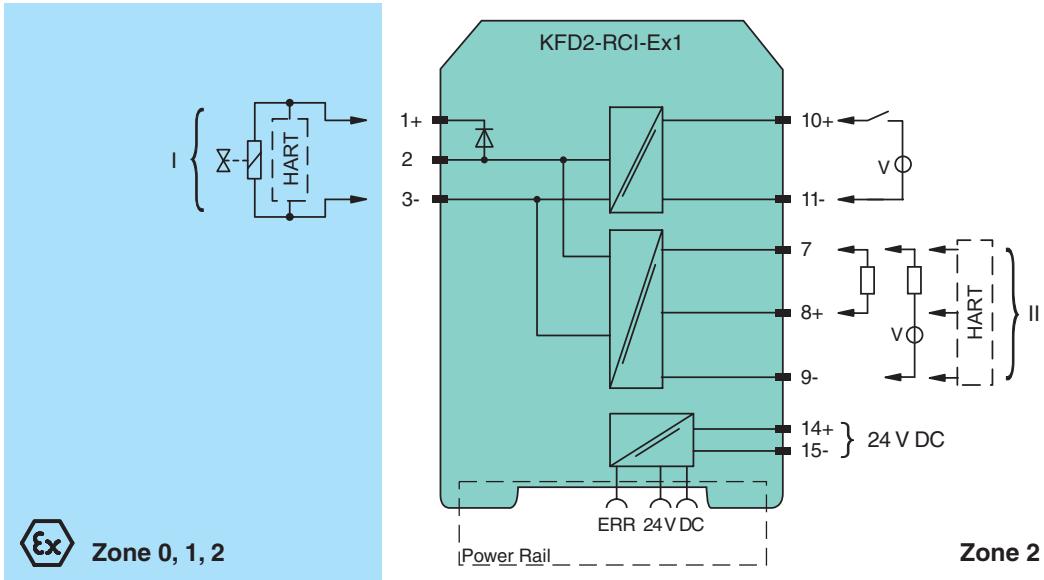
A unique collective error messaging feature is available when used with the Power Rail system.

Assembly



SIL 3

Connection



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General specifications		
Signal type		Digital Output
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Supply		
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
Input		
Connection side		control side
Connection		terminals 10+, 11-
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
Output		
Connection side		field side/control side
Output I		
Connection		terminals 1+, 3- (terminals 1+, 2 for test loop)
Current	I_e	≤ 20.4 mA
Voltage	U_e	≥ 13.5 V
Current		1-signal: 20.4 mA 0-signal: 4.2 mA
Voltage		1-signal: > 13.5 V
Load		≤ 650 Ω
Response time		< 40 ms input to output
Line fault detection		short circuit voltage < 1 V , open circuit voltage > 16 V
Output II		
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		≤ 650 Ω , source mode , for HART ≥ 230 Ω
Communication		pass-through of HART signal between input II and output
Galvanic isolation		
Input/power supply		functional insulation acc. to IEC 62103, rated insulation voltage 50 V_{eff}
Output II/power supply		functional insulation acc. to IEC 62103, rated insulation voltage 50 V_{eff}
Indicators/settings		
Display elements		LEDs
Control elements		DIP-switch
Configuration		via DIP switches
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 21:2012
Degree of protection		IEC 60529:2001
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 119 x 115 mm (0.8 x 4.7 x 4.5 inch) , housing type B2
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-Type Examination Certificate		CESI 09 ATEX 037
Marking		⟨Ex⟩ II (1)GD [Ex ia] IIC; [Ex iaD] [circuit(s) in zone 0/1/2/20/21/22]
Equipment		terminals 1+, 2 / 3-
Voltage	U_o	25.4 V
Current	I_o	93.6 mA
Power	P_o	595 mW (linear characteristic)

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Supply		
Maximum safe voltage	U_m	253 V (Attention! The rated voltage can be lower.)
Input		
Maximum safe voltage	U_m	253 V (Attention! The rated voltage can be lower.)
Collective error message		
Maximum safe voltage	U_m	253 V (Attention! The rated voltage can be lower.)
Certificate		PF 09 CERT 1438 X
Marking		Ⓔx II 3G Ex nA IIC T4 Gc
Galvanic isolation		
Output I/other circuits		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
CSA approval		
Control drawing		116-0335
IECEx approval		
IECEx certificate		IECEx CES 09.0008
IECEx marking		[Ex ia] IIC , [Ex iaD]
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-BU(-UPR-03)

Function

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

It is controlled by means of a logic circuit. Voltage signals in a range of 19 V DC ... 30 V DC are accepted as 1-signal. The 0-signal must be within a range of 0 V DC ... 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 error 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-trough for maintenance and diagnostic of the solenoid valve. The HART communication is available both in ON condition and in OFF condition of the solenoid.

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