

Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Increased input load
- Output 45 mA at 11.2 V DC
- Logic input, non-polarized
- Error message output
- Line fault detection (LFD)
- Up to SIL2 acc. to IEC 61508

Function

This isolated barrier is used for intrinsic safety applications.

It supplies power to solenoids, LEDs, and audible alarms, located in a hazardous area.

It is controlled via a logic signal. The input has two defined states: 1-Signal = 16 V DC ... 30 V DC, 0-Signal = 0 V DC ... 5 V DC.

At full load, 11.2 V at 45 mA is available for the hazardous area application.

If the field impedance is $> 10 \text{ k}\Omega$ for lead breakage or $< 50 \Omega$ for short circuits a line fault is detected.

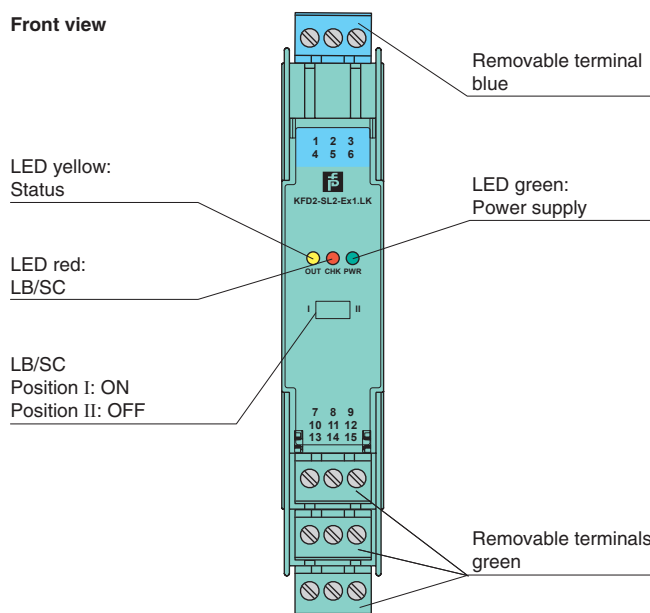
During an error condition, the fault indication output de-energizes.

A fault is signaled by LEDs acc. to NAMUR NE44 and a separate collective error message output.

Application

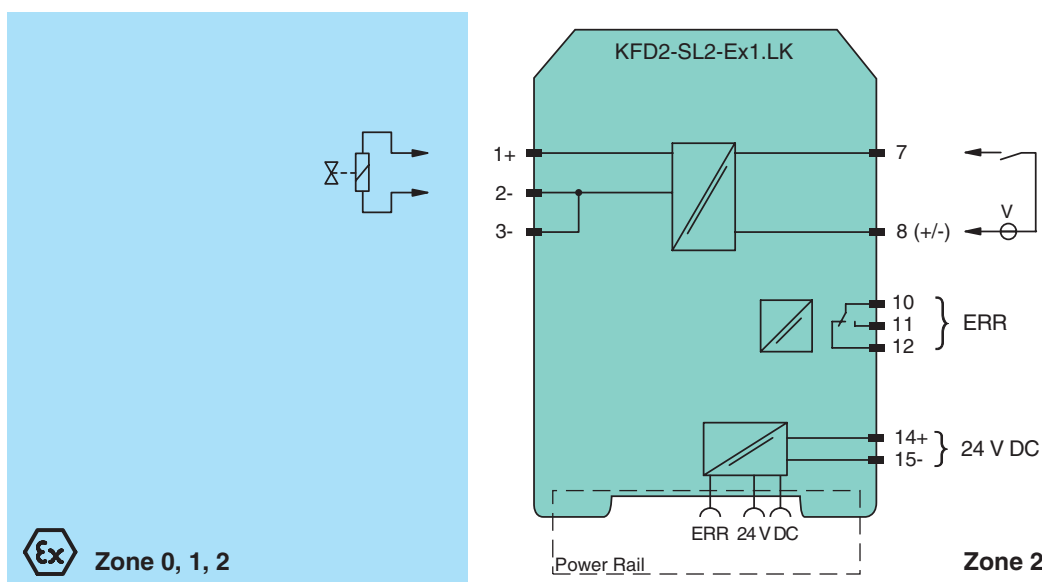
e. g. Yokogawa ProSafe DO card SDV541, SDV531 with deactivated test pulse and deactivated line fault detection

Assembly



SIL2

Connection



General specifications		
Signal type		Digital Output
Supply		
Connection		Power Rail or terminals 14+, 15-
Rated voltage		19 ... 30 V DC
Power consumption		≤ 1.9 W at 45 mA output current
Input		
Connection		terminals 7, 8
Input current		1-signal: 3.5 mA over the entire range 0-signal: 1.5 mA at 5 V DC
Signal level		1-signal: 16 ... 30 V DC 0-signal: 0 ... 5 V DC
Output		
Output I		
Connection		terminals 1+, 2- or 3-
Internal resistor	R_i	270 Ω
Current	I_e	≤ 45 mA
Voltage	U_e	≥ 11.2 V
Open loop voltage	U_s	≥ 23.5 V
Output signal		These values are valid for the rated operational voltage 19 ... 30 V DC.
Energized/De-energized delay		≤ 20 ms / ≤ 20 ms
Line fault detection		signal at short-circuit $R_B < 50 \Omega$, lead breakage $R_B > 10 \text{ k}\Omega$; test current < 650 μA
Output II		
Connection		terminals 10, 11, 12, non-intrinsically safe
Contact loading		253 V AC/2 A/cos $\phi > 0.7$; 40 V DC/2 A resistive load
Mechanical life		2 x 10 ⁷ switching cycles
Energized/De-energized delay		≤ 20 ms / ≤ 20 ms
Electrical isolation		
Input/power supply		functional insulation acc. to EN 50178, rated insulation voltage 50 V _{eff}
Directive conformity		
Electromagnetic compatibility		
Directive 2004/108/EC		EN 61326-1:2006, EN 61000-6-4:2007
Low voltage		
Directive 2006/95/EC		EN 50178:1997
Conformity		
Electromagnetic compatibility		NE 21:2006
Protection degree		IEC 60529
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Protection degree		IP20
Mass		approx. 150 g
Dimensions		20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in), housing type B2
Data for application in connection with Ex-areas		
EC-Type Examination Certificate		ZELM 99 ATEX 0015, for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection		⊕ II (1)GD [Ex ia] IIC, [Ex iaD] [circuit(s) in zone 0/1/2]
Output I		
Voltage	U_o	28 V
Current	I_o	110 mA
Power	P_o	770 mW (linear characteristic)
Supply		
Maximum safe voltage	U_m	40 V (Attention! The rated voltage can be lower.)
Input		
Maximum safe voltage	U_m	60 V (Attention! The rated voltage can be lower.)
Collective error indication		
Maximum safe voltage	U_m	40 V (Attention! The rated voltage can be lower.)
Statement of conformity		
Group, category, type of protection, temperature class		⊕ II 3G Ex nA nC IIC T4
Output II		
Contact loading		50 V AC/2 A/cos $\phi > 0.7$; 40 V DC/1 A resistive load
Electrical isolation		
Output I/other circuits		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity		

Release date 2011-10-24 16:18 Date of issue 2011-10-24 808102_eng.xml

Directive 94/9/EC

EN 60079-0:2006, EN 60079-11:2007 , EN 60079-15:2005 , EN 61241-11:2006, EN 61241-0:2006

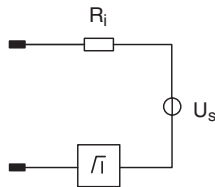
General information

Supplementary information

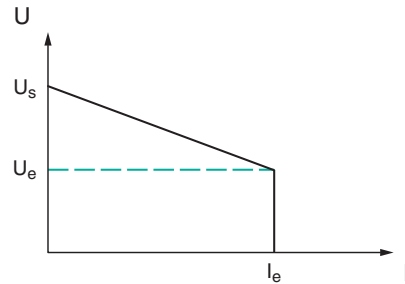
EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.

Output characteristics

Output circuit diagram



Output characteristic



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 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.

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!