# Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Input frequency 1 mHz ... 5 kHz
- 2 relay contact outputs
- Start-up override
- · Configurable by keypad
- Line fault detection (LFD)
- Up to SIL 2 acc. to IEC 61508/IEC 61511

### Function

This isolated barrier is used for intrinsic safety applications. It monitors for an overspeed or underspeed condition of a digital signal (NAMUR sensor/mechanical contact) from a hazardous area by comparing the input frequency to the user programmed reference frequency.

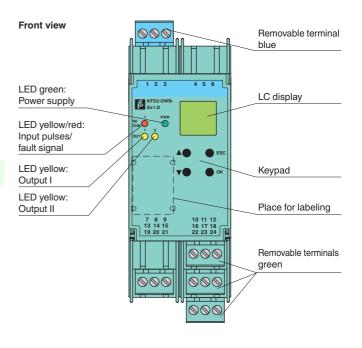
An overspeed or underspeed condition is signaled via the relay outputs. Line fault detection of the field circuit is indicated by a red LED, Power Rail and relay. The start-up override feature sets relay outputs to default conditions programmed by the user for up to 1,000 seconds.

The unit is easily programmed by the use of a keypad located on the front of the unit.

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

For additional information, refer to the manual and www.pepperl-fuchs.com.

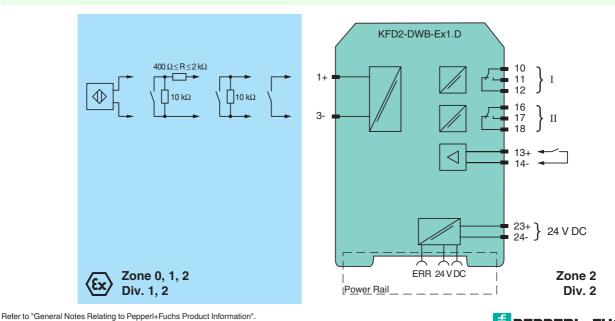






**SIL** 2

# Connection



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Open circuit voltage/short-circuit current         18 V / 5 mA           Output         Connection           Connection side         control side           Connection         output I: terminals 10, 11, 12           Control in Connection         output I: terminals 10, 17, 18           Control in Connection         output I: terminals 10, 17, 18           Control in Connection         output I: terminals 10, 17, 18           Connection         signal, rolwy           Contact loading         250 V AC / 2 A / cos q ≥ 0.7; 40 V DC / 2 A           Meabanical life         5 x 10 <sup>2</sup> switching cycles           Energized/De-enorgized dolly         approx. 20 ms           Collective error message         Power Rail           Input I         non 0.1 % of measured value, > 0.001 Hz           Accuracy         0.1 % of measured value, > 0.001 Hz           Accuracy         0.1 % of measured value, > 0.001 Hz           Accuracy         0.03 %/K (30 ppm)           Output I, II         reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub> Input II         reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub> Output I, II against eachother         reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 30 V <sub>eff</sub> Start-up overfide/ower supp	Input II	startup override: 1 1000 s, adjustable in steps of 1 s
current         Current           Output         Connection side         control side           Connection side         control side         output I: terminals 10, 11, 12 output I: terminals 10, 11, 73           Contact loading         250 V AC / 24 / cos 9 - 07, 40 V DC / 2 A           Contact loading         250 V AC / 24 / cos 9 - 07, 40 V DC / 2 A           Contact loading         250 V AC / 24 / cos 9 - 07, 40 V DC / 2 A           Contact loading         250 V AC / 24 / cos 9 - 07, 40 V DC / 2 A           Contact loading         250 V AC / 24 / cos 9 - 07, 40 V DC / 2 A           Contact loading         250 V AC / 24 / cos 9 - 07, 40 V DC / 2 A           Contact loading         250 V AC / 24 / cos 9 - 07, 40 V DC / 2 A           Collective error message         Power message           Collective error message         Power message message           Contact loading         0.01 5000 Hz           Accuracy         0.1 % of measured value, > 0.001 Hz           Accuracy         0.1 % of measured value, > 0.001 Hz           Accuracy         0.1 % of measured value, > 0.001 Hz           Accuracy         0.00 % (60 pem)           Colput I, II         Influence of anbint tomperature           Influence of anbint tomperature         0.000 Kg (50 pem)           Coutput I, II         Influence of anbint tompera	Active/Passive	I > 4 mA (for min. 100 ms) / I < 1.5 mA
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Contact loading         250 VAC / 2 A / cos è ≥ 0.7; 40 VDC / 2 A           Mechanical life         5 x 10 <sup>7</sup> switching cycles           Energized Decentergized delay         2pore: 20 ms / approx. 20 ms / approx. 20 ms           Collective error message         Power Rail           Transfer characteristics         -           Measurement range         0.015000 Hz           Resolution         0.1% of measured value , > 0.001 Hz           Accuracy         0.1% of measured value , > 0.001 Hz           Measuring time         < 100 ms		output II: terminals 16, 17, 18
Mechanical life         5 x 10 <sup>7</sup> switching cycles           Energized/De-enenergized/De-energized/De-energized/De-energized/De-energized/De-e	Output I, II	• •
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Measurement range         0.001 5000 Hz           Resolution         0.1 % of measured value , ≥ 0.001 Hz           Accuracy         0.1 % of measured value , > 0.001 Hz           Measuring time         < 100 ms           Influence of ambient temperature         0.003 %/K (30 ppm)           Output I, II         Esponse delay         ≤ 200 ms           Galvanic isolation         reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub> Output I, II against eachother         reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub> Output I, II dyther circuits         reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub> Output I, II dyther circuits         reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub> Output I, II dyther circuits         functional insulation acc. to IEC 62103, rated insulation voltage 300 V <sub>eff</sub> Output I, II dyther circuits         functional insulation acc. to IEC 62103, rated insulation voltage 300 V <sub>eff</sub> Output I, II dyther circuits         space for labeling         space for labeling           Infectors/settings         LEDs , display         space for labeling at the front           Directive conformity         EN 61326-1:2013 (industrial locations)         EN 61326-1:2013           Directive 2014/30/EU         EN	Transfer characteristics	
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Measuring time         < 100 ms           Influence of ambient temperature         0.003 %/K (30 ppm)           Output I, II	Resolution	0.1 % of measured value , $\geq$ 0.001 Hz
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Connection         screw terminals           Mass         300 g		
Mass 300 g	• .	IP20
5		screw terminals
Dimensions 40 x 119 x 115 mm (1.6 x 4.7 x 4.5 inch) , housing type C3	Mass	-
	Dimensions	40 x 119 x 115 mm (1.6 x 4.7 x 4.5 inch) , housing type C3

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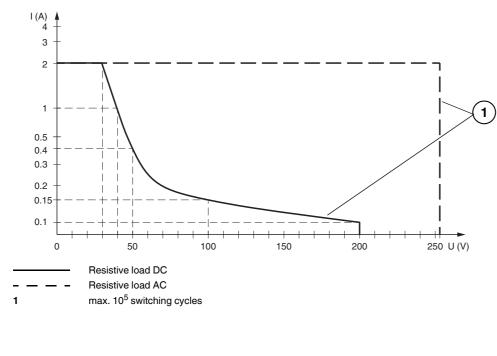
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Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection		
with hazardous areas		
EU-Type Examination Certificate		TÜV 99 ATEX 1408
Marking		<ul> <li>⟨𝔅⟩ II (1)G [Ex ia Ga] IIC</li> <li>⟨𝔅⟩ II (1)D [Ex ia Da] IIIC</li> <li>⟨𝔅⟩ I (M1) [Ex ia Ma] I</li> </ul>
Supply		
Maximum safe voltage	Um	40 V DC (Attention! U <sub>m</sub> is no rated voltage.)
Input I		terminals 1+, 3-: Ex ia
Voltage	Uo	10.1 V
Current	۱ <sub>۰</sub>	13.5 mA
Power	Po	34 mW (linear characteristic)
Input II		terminals 13+, 14- non-intrinsically safe
Maximum safe voltage	Um	40 V (Attention! The rated voltage can be lower.)
Output I, II		terminals 10, 11, 12; 16, 17, 18 non-intrinsically safe
Maximum safe voltage	Um	253 V (Attention! The rated voltage can be lower.)
Contact loading		253 V AC/2 A/cos $\phi$ > 0.7; 40 V DC/2 A resistive load (TÜV 99 ATEX 1471)
Certificate		TÜV 02 ATEX 1885 X
Marking		🐼 II 3G Ex nA nC IIC T4 Gc
Output I, II		
Contact loading		50 V AC/2 A/cos $\phi$ > 0.7; 40 V DC/1 A resistive load
Galvanic isolation		
Input 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		
FM approval		
Control drawing		16-538FM-12
UL approval		E223772
IECEx approval		IECEx TUN 03.0000
Approved for		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

# **Maximum Switching Power of Output Contacts**



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### 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. Collective error messages received from the Power Rail activate a galvanically-isolated mechanical contact.

### **Power Rail UPR-03**

The Power Rail UPR-03 is a complete unit consisting of the electrical insert 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!

