

**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 SIL2 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.

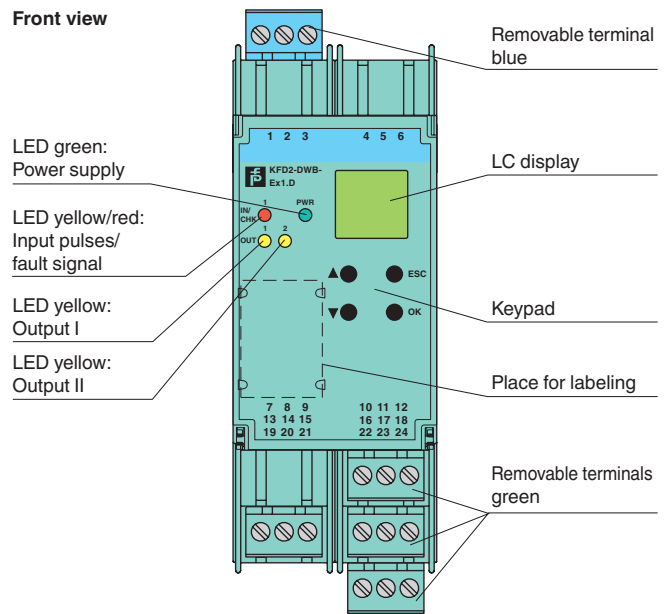
An overspeed or underspeed condition is signaled via the relay outputs. Line fault detection of the field circuit is indicated by a red LED, Power Rail and relay. The start-up override feature sets relay outputs to default conditions programmed by the user for up to 1,000 seconds.

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

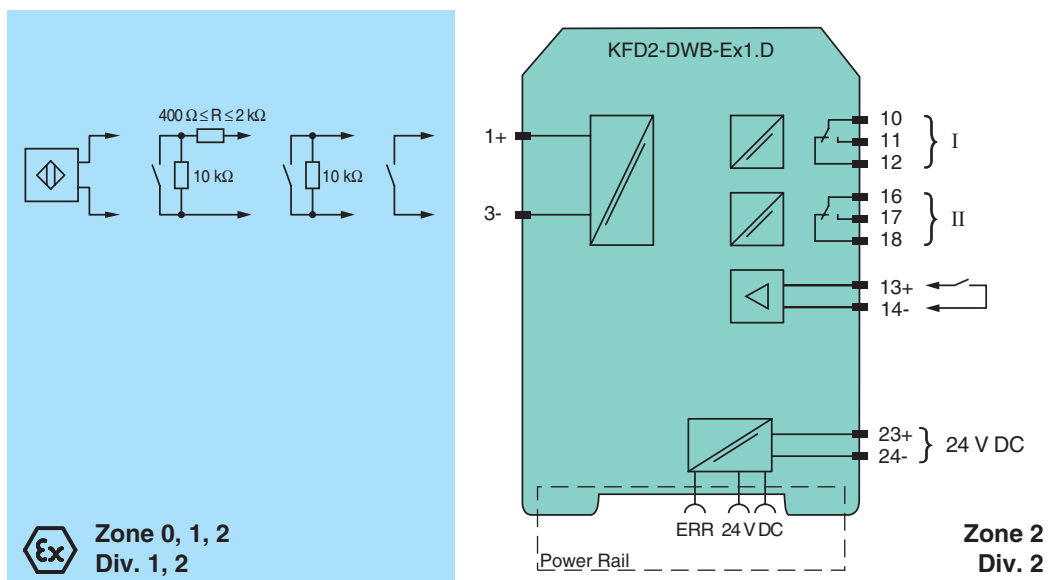
A unique collective error messaging feature is available when used with the Power Rail system.

For additional information, refer to the manual and [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

**Assembly**




**Connection**



Release date 2014-08-19 09:49 Date of issue 2015-02-27 231203\_eng.xml

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

<b>General specifications</b>		
Signal type		Digital Input
<b>Supply</b>		
Connection		terminals 23+, 24- or power feed module/Power Rail
Rated voltage	$U_n$	20 ... 30 V DC
Rated current	$I_n$	approx. 100 mA
Power loss/power consumption		$\leq 1.8 \text{ W} / 1.8 \text{ W}$
<b>Input</b>		
Connection		Input I: intrinsically safe: terminals 1+, 3- Input II: non-intrinsically safe: terminals 13+, 14-
Input I		acc. to EN 60947-5-6 (NAMUR), see system description for electrical data
Pulse duration		$> 50 \mu\text{s}$
Input frequency		0.001 ... 5000 Hz
Lead monitoring		breakage $I \leq 0.15 \text{ mA}$ ; short-circuit $I > 6.5 \text{ mA}$
Input II		startup override: 1 ... 1000 s, adjustable in steps of 1 s
Active/Passive		$I > 4 \text{ mA}$ (for min. 100 ms) / $I < 1.5 \text{ mA}$
Open circuit voltage/short-circuit current		18 V / 5 mA
<b>Output</b>		
Connection		output I: terminals 10, 11, 12 output II: terminals 16, 17, 18
Output I, II		signal, relay
Contact loading		250 V AC / 2 A / $\cos \phi \geq 0.7$ ; 40 V DC / 2 A
Mechanical life		$5 \times 10^7$ switching cycles
Energized/De-energized delay		approx. 20 ms / approx. 20 ms
Collective error message		Power Rail
<b>Transfer characteristics</b>		
Input I		
Measurement range		0.001 ... 5000 Hz
Resolution		0.1 % of measured value, $\geq 0.001 \text{ Hz}$
Accuracy		0.1 % of measured value, $> 0.001 \text{ Hz}$
Measuring time		$< 100 \text{ ms}$
Influence of ambient temperature		0.003 %/K (30 ppm)
Output I, II		
Response delay		$\leq 200 \text{ ms}$
<b>Electrical isolation</b>		
Input I/other circuits		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output I, II against each other		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output I, II/other circuits		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Start-up override/power supply and collective error		functional insulation acc. to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2004/108/EC		EN 61326-1:2006
Low voltage		
Directive 2006/95/EC		EN 61010-1:2010
<b>Conformity</b>		
Electromagnetic compatibility		NE 21:2006
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
Mass		300 g
Dimensions		40 x 119 x 115 mm (1.6 x 4.7 x 4.5 in) , housing type C3
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
<b>Data for application in connection with Ex-areas</b>		
EC-Type Examination Certificate		TÜV 99 ATEX 1408 , for additional certificates see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a>
Group, category, type of protection		 II (1)GD, I (M1) [Ex ia] IIC, [Ex iaD], [Ex ia] I (-20 °C $\leq T_{amb} \leq 60$ °C)
Supply		
Maximum safe voltage	$U_m$	40 V DC (Attention! $U_m$ is no rated voltage.)
Input I		
Voltage	$U_o$	10.1 V
Current	$I_o$	13.5 mA

Release date 2014-08-19 09:49 Date of issue 2015-02-27 231203\_eng.xml

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com

Power	$P_o$	34 mW (linear characteristic)
Input II		terminals 13+, 14- non-intrinsically safe
Maximum safe voltage	$U_m$	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	$U_m$	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)
Statement of conformity		TÜV 02 ATEX 1885 X
Group, category, type of protection, temperature class		⊕ II 3G Ex nA nC IIC T4
Output I, II		
Contact loading		50 V AC/2 A/cos $\phi > 0.7$ ; 40 V DC/1 A resistive load
Electrical isolation		
Input I/other circuits		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 94/9/EC		EN 60079-0:2012 , EN 60079-11:2012 , EN 60079-15:2010 , EN 60079-26:2007
<b>International approvals</b>		
FM approval		
Control drawing		16-538FM-12
<b>General information</b>		
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 <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .

## 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!*