Features

- 1-channel isolated barrier
- 230 V AC supply
- 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

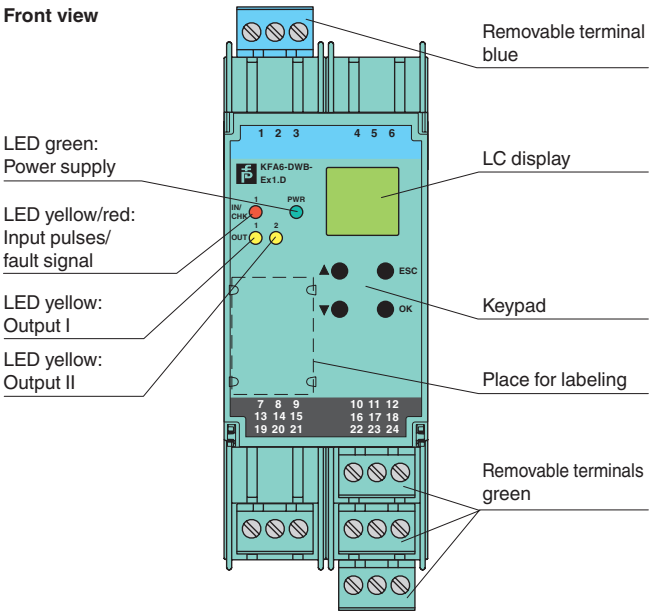
This isolated barrier is used for intrinsic safety applications. It monitors for an overspeed or underspeed condition of a discrete signal (NAMUR sensor/mechanical contact) from a hazardous area by comparing the input frequency to the user programmed reference frequency.

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

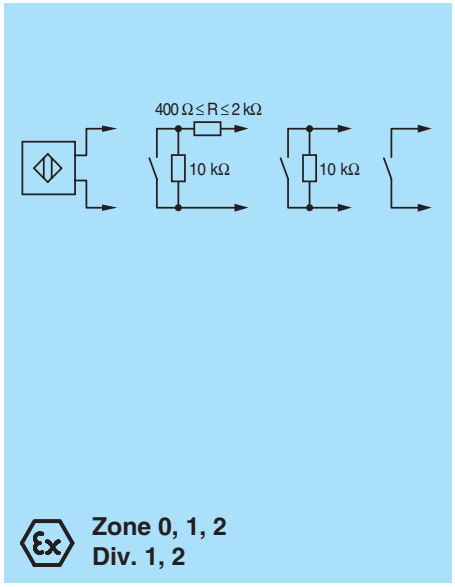
The unit is easily programmed by the use of a keypad located on the front of the unit.

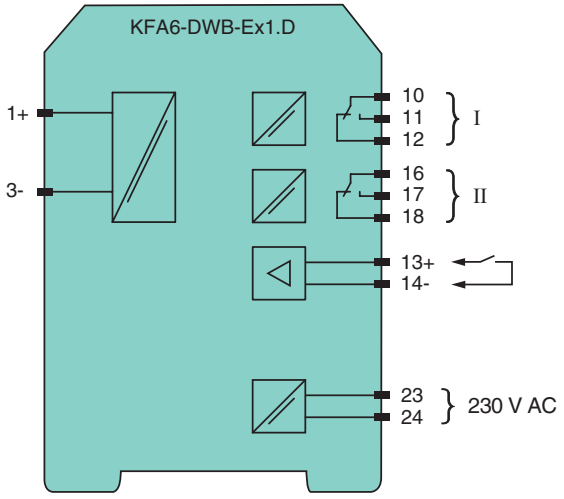
For additional information, refer to the manual and www.pepperl-fuchs.com.

Assembly



Connection





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General specifications		
Signal type		Digital Input
Supply		
Connection		terminals 23, 24
Rated voltage	U_n	230 V AC ± 10 %
Rated current	I_n	18 mA
Power dissipation/power consumption		≤ 2 VA / 2 VA
Input		
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)
Pulse duration		> 50 µs
Input frequency		0.001 ... 5000 Hz
Lead monitoring		breakage I ≤ 0.15 mA; short-circuit I > 6.5 mA
Input II		startup override: 1 ... 1000 s, adjustable in steps of 1 s
Active/Passive		I > 4 mA (for min. 100 ms)/ I < 1 mA
Open circuit voltage/short-circuit current		18 V / 5 mA
Output		
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 ϕ ≥ 0.7 ; 40 V DC / 2 A
Mechanical life		5 x 10^7 switching cycles
Energized/De-energized delay		approx. 20 ms / approx. 20 ms
Transfer characteristics		
Input I		
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		
Response delay		≤ 200 ms
Electrical isolation		
Input I/other circuits		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Output I, II against eachother		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Output I, II/other circuits		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Start-up override/power supply		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Low voltage		
Directive 2014/35/EU		EN 61010-1:2010
Conformity		
Electromagnetic compatibility		NE 21:2006
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		300 g
Dimensions		40 x 119 x 115 mm (1.6 x 4.7 x 4.5 inch) , housing type C3
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EC-Type Examination Certificate		TÜV 99 ATEX 1408
Group, category, type of protection		⟨Ex⟩ II (1)G [Ex ia Ga] IIC ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Supply		
Maximum safe voltage	U_m	253 V AC (Attention! U_m is no rated voltage.)
Input I		terminals 1+, 3-: Ex ia
Voltage	U_o	10.1 V
Current	I_o	13.5 mA

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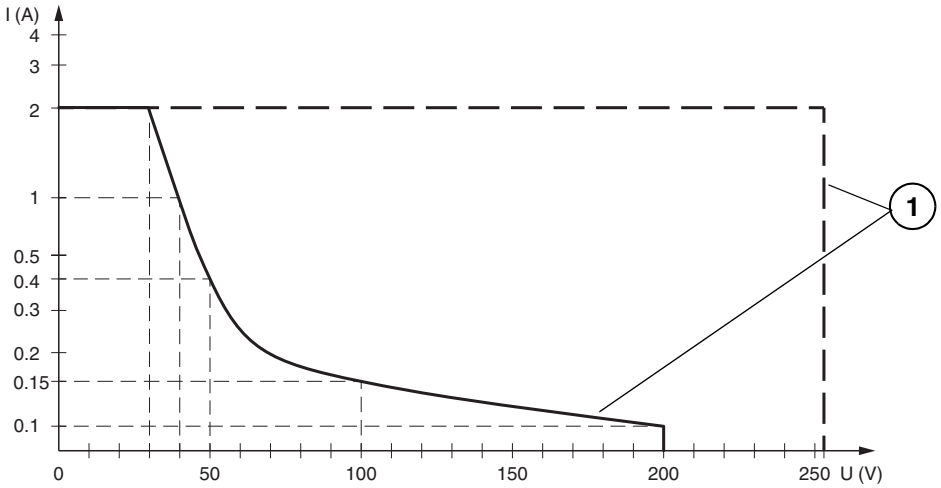
Power	P_o	34 mW (linear characteristic)
Input II		terminals 13+, 14- non-intrinsically safe
Maximum safe voltage	U_m	40 V (Attention! The rated voltage can be lower.)
Output I, II		terminals 10, 11, 12; 16, 17, 18 non-intrinsically safe
Maximum safe voltage	U_m	253 V (Attention! The rated voltage can be lower.)
Contact loading		253 V AC/2 A/cos ϕ > 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		Ⓔx II 3G Ex nA nC IIC T4 Gc
Output I, II		
Contact loading		50 V AC/2 A/cos ϕ > 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 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		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.

Maximum Switching Power of Output Contacts



Resistive load DC

Resistive load AC

1 max. 10^5 switching cycles

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