



Rotation Speed Monitor KFD2-DWB-1.D

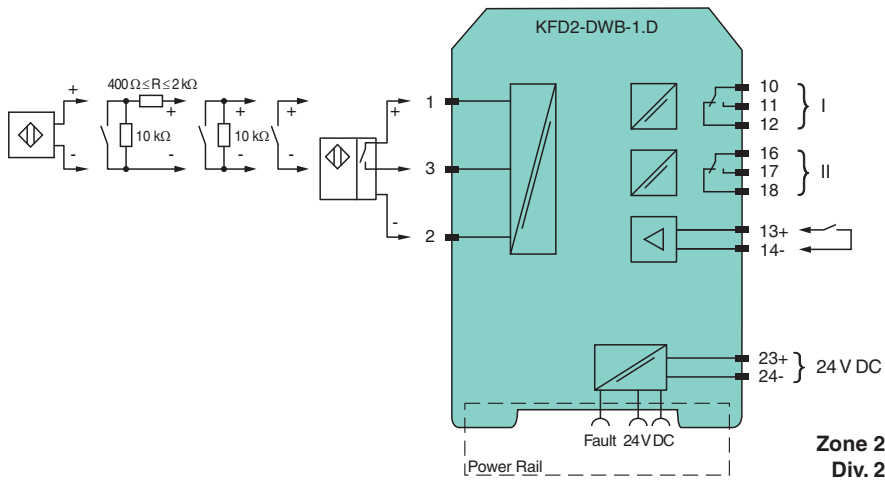
- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Input frequency 1 mHz ... 12 kHz
- 2 relay contact outputs
- Start-up override
- Configurable by keypad
- Line fault detection (LFD)
- Up to SIL 2 acc. to IEC/EN 61508 / IEC/EN 61511



Function

This signal conditioner monitors for an overspeed or underspeed condition of a digital signal (NAMUR sensor/ mechanical contact) 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 startup 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.

Connection



Technical Data

| General specifications | |
|--------------------------------------|--|
| Signal type | Digital Input |
| Functional safety related parameters | |
| Safety Integrity Level (SIL) | SIL 2 |
| Supply | |
| Connection | terminals 23+, 24- or power feed module/Power Rail |
| Rated voltage | U_r 20 ... 30 V DC |
| Rated current | I_r approx. 100 mA |
| Power dissipation/power consumption | ≤ 1.8 W / 1.8 W |
| Input | |

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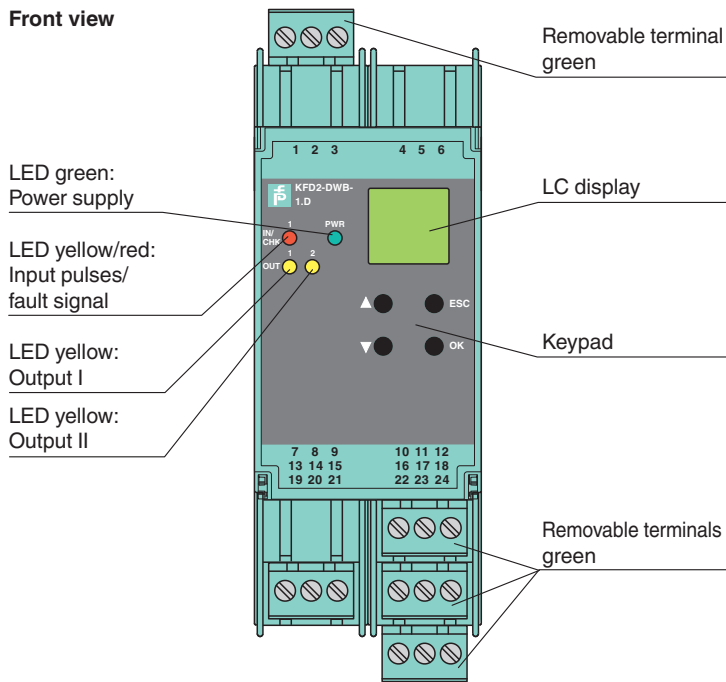
Technical Data

| | | |
|---|--|---|
| Connection side | | field side |
| Connection | | Input I: 2-wire sensor: terminals 1+, 3- three wire sensor: terminals 1+, 2- and 3 input II: terminals 13+, 14- start-up override; |
| Input I | | 2- or 3-wire sensor, sensor acc. to EN 60947-5-6 (NAMUR) or mechanical contact |
| Open circuit voltage/short-circuit current | | 22 V / 40 mA |
| Input resistance | | 4.7 kΩ |
| Switching point/switching hysteresis | | logic 1: > 2.5 mA ; logic 0: < 1.9 mA |
| Pulse duration | | > 50 μs |
| Input frequency | | 0.001 ... 12000 Hz |
| Line fault detection | | breakage I ≤ 0.15 mA; short-circuit I > 4 mA |
| Input II | | startup override: 1 ... 1000 s, adjustable in steps of 1 s |
| Active/Passive | | I > 4 mA (for min. 100 ms) / I < 1.5 mA |
| Open circuit voltage/short-circuit current | | 18 V / 5 mA |
| Output | | |
| Connection side | | control side |
| 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 |
| Collective error message | | Power Rail |
| Transfer characteristics | | |
| Input I | | |
| Measurement range | | 0.001 ... 12000 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 |
| Galvanic 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 and collective error | | functional insulation acc. to IEC 62103, rated insulation voltage 50 V _{eff} |
| Indicators/settings | | |
| Display elements | | LEDs , display |
| Control elements | | Control panel |
| Configuration | | via operating buttons |
| Labeling | | space for labeling at the front |
| 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 |

Technical Data

| | |
|--|---|
| Connection | screw terminals |
| Mass | 300 g |
| Dimensions | 40 x 119 x 115 mm (1.6 x 4.7 x 4.5 inch) (W x H x D) , housing type C2 |
| Mounting | on 35 mm DIN mounting rail acc. to EN 60715:2001 |
| Data for application in connection with hazardous areas | |
| Certificate | PF 08 CERT 1216 X |
| Marking | Ⓜ 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 |
| Ambient conditions | |
| Ambient temperature | -20 ... 50 °C (-4 ... 122 °F) |
| Directive conformity | |
| Directive 2014/34/EU | EN 60079-0:2012+A11:2013 , EN 60079-15:2010 |
| International approvals | |
| UL approval | E223772 |
| General information | |
| Supplementary information | Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com . |

Assembly






Matching System Components



| | | |
|--|-----------------|---|
| | KFD2-EB2 | Power Feed Module |
| | UPR-03 | Universal Power Rail with end caps and cover, 3 conductors, length: 2 m |
| | UPR-03-M | Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m |

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Matching System Components

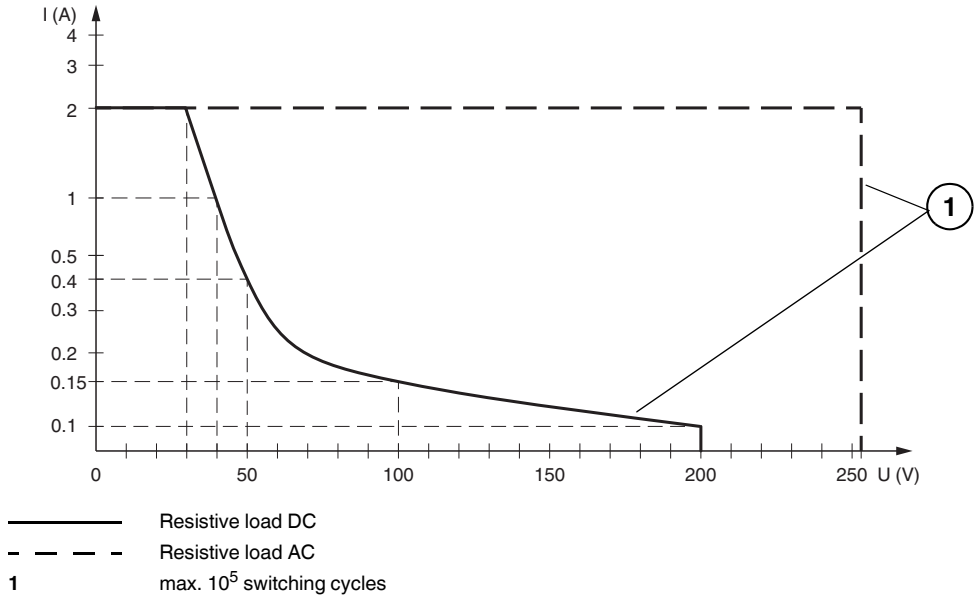
| | | |
|---|-------------------------|---|
|  | UPR-03-S | Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m |
|  | K-DUCT-GY | Profile rail, wiring comb field side, gray |
|  | K-DUCT-GY-UPR-03 | Profile rail with UPR-03-* insert, 3 conductors, wiring comb field side, gray |

Accessories

| | | |
|---|------------------|--|
|  | KF-ST-5GN | Terminal block for KF modules, 3-pin screw terminal, green |
|  | KF-CP | Red coding pins, packaging unit: 20 x 6 |

Characteristic Curve

Maximum Switching Power of Output Contacts



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