# **Features**

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Voltage input 0 V ... -20 V
- · Vibration sensor inputs
- Voltage/current field supply
- Voltage output 0 V ... -20 V

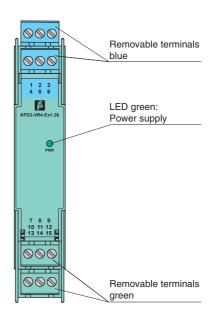
# **Function**

This isolated barrier is used for intrinsic safety applications. It provides a floating output to power a vibration sensor (e. g., Bently Nevada) or accelerometer in a hazardous area and transfers the voltage signal from that sensor to the safe area.

The device is designed to provide a voltage or current supply to the vibration sensor. Depending on connection the barrier provides 3.6 mA, 5.3 mA, or 8.9 mA supply current for 2-wire sensors, or 18 V at 20 mA for 3-wire sensors.

# **Assembly**

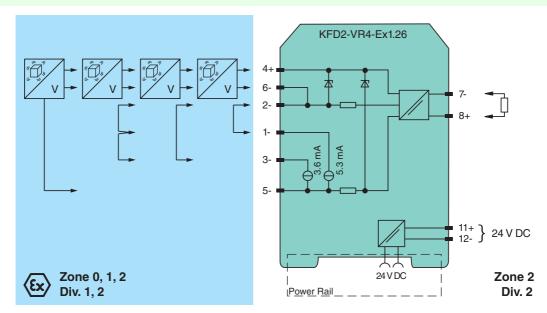
Front view







# Connection

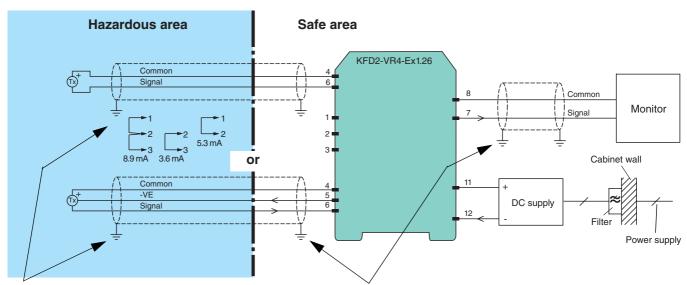


| Analog input   Signal type   Signal type   Signal type   Power Rail or terminals 11+, 12-   Railed voltage   U <sub>n</sub>   19 - 30 V DC   Ripide   Within the supply telerance   Power loss   51 2 W   19 - 30 V DC   Ripide   Within the supply telerance   Power consumption   51 10 W   Ripide   Signal type   51 10 W   Ripide   Signal typ  |   |                |  |
|---|---|----------------|--|
| Supply   Connection   | -                                       |                |  |
| Connection         Power Fall or terminals 11+, 12-           Ripple         19-,30 V DC           Power loss         ≤ 12-W           Power consumption         ≤ 12-W           Power consumption         ≤ 12-W           Connection         Imput resistance         10-bit lemmaks 4 (common), 1, 3 and 5 (supply -), 2 and 6 (signal -)           Connection         Imput resistance         0.0 kit lemmaks 4 (common), 6-2-           Output rated operating current         terminals 4 (common), 5-3 in M and 7 m A at -10 V, 20 °C (98 °F)           Transmission range         0 20 V           Output         terminals 4 (common), 3-3 in M a + 0.7 m A at -10 V, 20 °C (98 °F)           Commodified         terminals 4 (common), 3-3 in M a + 0.7 m A at -10 V, 20 °C (98 °F)           Using Commodified         terminals 4 (common), 3-3 in M a + 0.7 m A at -10 V, 20 °C (98 °F)           Visiting         0 20 V           Output         commonition in terminals 7 v, 8+           Load         2 9 kΩ (3 www searce), 2.2 kΩ (2-wire searce)           Visiting         0 20 V           Output         Attention of the provision o   | • |                | Analog input   |
| Pace   19 30 V DC   19  |   |                |  |
| Player   Power loss   | Connection                              |                |  |
| Power consumption   | ū                                       | $U_n$          |  |
| Power consumption   | Ripple                                  |                | within the supply tolerance  |
| Imput   | Power loss                              |                | ≤ 1.2 W  |
| Commodo In put resistance         1 of kD terminals 4 (common, 1, 1, 3 and 5 (supply-), 2 and 6 (signal -) input resistance           Cutput rated operating current included (common, 1, 5 - 10 nA at -21 V terminals 4 (common, 1, 5 - 10 nA at -21 V v > 20 mA at -18 V terminals 4 (common, 1, 5 - 10 nA at -21 V v > 20 mA at -18 V terminals 4 (common, 1, 5 - 10 nA at -21 V v > 20 mA at -18 V terminals 4 (common, 1, 5 - 10 nA at -21 V v > 20 mA at -18 V terminals 4 (common, 1, 5 - 10 nA at -21 V v > 20 mA at -18 V terminals 4 (common, 1, 5 - 10 nA at -21 V v > 20 mA at -18 V terminals 4 (common, 1, 5 - 10 nA at -21 V v > 20 mA at -18 V terminals 7 v > 20 mA at -19 V v > 2  | Power consumption                       |                | ≤ 1.6 W  |
| Input residence Output rated operating current   dominals 4 (common), 6-12-   terminals 4 (common), 1-15 at mA 4.0 4 mA 4-10 V torminals 4 (common), 1-15 at mA 4.0 4 mA 4-10 V torminals 4 (common), 1-15 at mA 4.0 4 mA 4-10 V torminals 4 (common), 1-15 at mA 4.0 4 mA 4-10 V torminals 4 (common), 1-15 at mA 4.0 4 mA 4-10 V torminals 4 (common), 1-15 at mA 4.0 4 mA 4-10 V torminals 4 (common), 1-15 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4.0 4 mA 4-10 V torminals 4 (common), 3-13 at mA 4-10 V torminals 4 (common), 3-10  | Input                                   |                |  |
| Description   | Connection                              |                | terminals 4 (common), 1, 3 and 5 (supply -), 2 and 6 (signal -)  |
| terminals 4 (common), 1: 5.3 mA ±0.4 mA ±1.0 V; 20 °C (68 °F)   | Input resistance                        |                | 10 kΩ terminals 4 (common), 6-/2-  |
| Output         Connection         terminals 7, 8+           Load         > 9 kΩ (β-wire sensor), > 2 kΩ (2-wire sensor)           Voltage         0   | Output rated operating current          |                | terminals 4 (common), 1-: 5.3 mA ±0.4 mA at -10 V  |
| Output         torminals 7, 8+           Connection         ≥9 kΩ (3-wire sensor), ≥2 kΩ (2-wire sensor)           Voltage         020 V           Output resistance         24 Ω γp., 27 Ω maximum           Since this is much lises than the end-to-end resistance of a zener barrier, it may be necessary to specify a monitor intended for use without a barrier. Please follow the advice of the monitor manufacturer.           Transfer characteristics         DC transfer error (with 10 kΩ load) > 10mV           Deviation         DC transfer error (with 10 kΩ load) > 10mV           After calibration         additional error with AC superimposed is 45 mV at 20°C (68°F) at any point within the span, provided that the alternating component of the fibre flut span of 20 V <sub>kQ</sub> (= 100 g peak acceleration at 100 mV/g) is acceptable. (< 100 ppm of span)kM at any point within the span  | Transmission range                      |                |  |
| Connection  Lord  Voltage  Output resistance  2 9 kΩ (3-wire sensor), ≥ 2 kΩ (2-wire sensor)  Output resistance  2 4Ω typ., 27 to maximum Since this is much less than the ond-to-ond resistance of a zener barrier, it may be necessary to specify a monitor intended for use without a barrier. Please follow the advice of the monitor manufacturer.  Transfer characteristics  Deviation  After calibration  After calibration  After calibration  Influence of ambient temperature  Bandwidth  -0.1 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (< 100 pm of span)/K at any point within the span and 20 V <sub>pp</sub> (= 100 g peak acceleration at 100 mV/g) is acceptable.  (< 100 pm of span)/K at any point within the span  -0.1 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20 kHz  Trine detay relative to input  (x 10 dB at 10 kHz; -1 dB at 20   |   |                |  |
| Voltage   | •                                       |                | terminals 7 8+   |
| Voltage         020 V           Output resistance         24 Ω Yp. 27 Ω maximum<br>Since this is much less than the end-to-end resistance of a zener barrier, it may be necessary to specify a monitor intended for use without a barrier. Please follow the advice of the monitor manufacturer.           Transfer characteristics         Deviation         Deviation         Deviation additional error with 10 kΩ load) < 10mV         Atter callbration additional error with AC superimposed is ±5 mV at 20 °C (68 °F) at any point within the span, provided that the alternating component of the input voltage is not excessive, e. g. square waves (0 20 kHz); 5 Vpp. = sine waves (0 20 kHz); the full span of 20 Vpp. (= 100 g peak acceleration at 100 mV/g) is acceptable. (< 100 ppm of span/Nx at any point within the span           Bandwidth         2.1 ±0.33.         2.0 ±18 ±20 kHz           Pilipple         in 200 kHz bandwidth < 20 mV <sub>ms</sub> in 200 kHz bandwidth < 3 mV <sub>ms</sub> Electrical isolation         2.1 ±0.33.           Directive conformity         1.0 ±2.006           Electromagnetic compatibility         NE 21:2006           Electromagnetic compatibility         NE 21:2006           Directive conformity         NE 21:2006           Electromagnetic compatibility         NE 21:2006           Directive conformity         1.0 ±60529           Use of the specification         2.0 ± 182 ±3           Machanical specification         2.0 ± 182 ±3           Dimensions  |   |                | ·  |
| Output resistance         24 Ω γp., 27 Ω maximum           Since this is much less than the end-to-end resistance of a zener barrier, it may be necessary to specify a monitor intended for use without a barrier. Please follow the advice of the monitor manufacturer.           Transfer characteristice         DC transfer error (with 10 kΩ load) < 10 mV   |   |                |  |
| Since this is much less than the end-to-end resistance of a zener barrier, if may be necessary to specify a monitori retineded for use without a barrier. Please follow the advice of the monitor manufacturer.  Transfer characteristics  Deviation  After calibration  Influence of ambient temperature  Bandwidth  4. Ot transfer error (with 10 kΩ load) < 1 om V  additional error with AC superimposed is s 5 mV at 20 °C (68 °F) at any point within the span, provided that the alternating component of the input voltage is not excessive, e. g.  - square waves (0 20 kHz); 5 Vrgp, - square square square waves (0 20 kHz); 5 Vrgp, - square  | -                                       |                |  |
| Deciration   DC transfer error (with 10 kΩ load) < 10mV   After calibration   After calibration   After calibration   After calibration   After calibration   After calibration   Additional error (with 10 kΩ load) < 10mV   Assuperimposed is ±5 mV at 20 °C (68 °F) at any point within the span, provided that the alternating component of the input voltage is not excessive, e. g.   |   |                | Since this is much less than the end-to-end resistance of a zener barrier, it may be necessary to specify a  |
| additional error with AC superimposed is ±5 mV at 20 °C (88 °F) at any point within the span, provided that the alternating component of the input voltage is not excessive, e. gsquare waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> sine v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves (0 20 kHz); bf v <sub>inj</sub> or sine waves ( | Transfer characteristics                |                |  |
| alternating component of the input voltage is not excessive, e. g. square waves (o 20 kHz): The put of 20 Vpp (= 100 g peak acceleration at 100 mV/g) is acceptable.  Influence of ambient temperature  Bandwidth   | Deviation                               |                | ·  |
| Influence of ambient temperature  | After calibration                       |                | - square waves (0 20 kHz): 5 V <sub>pp</sub>   |
| Bandwidth   | Influence of ambient temperature        |                |  |
| Filipple   In 200 kHz bandwidth < 20 mV <sub>ms</sub> in 20 kHz bandwidth < 3 mV <sub>ms</sub>  | ·                                       |                |  |
| Filipple   In 200 kHz bandwidth < 20 mV <sub>ms</sub> in 20 kHz bandwidth < 3 mV <sub>ms</sub>  | Time delay relative to input            |                |  |
| Output/power supply         functional insulation, rated insulation voltage 50 V AC           Directive conformity         Electromagnetic compatibility  | •                                       |                | in 200 kHz bandwidth < 20 mV <sub>rms</sub>  |
| Directive conformity   Electromagnetic compatibility   Directive 2004/108/EC   EN 61326-1:2006   Electromagnetic compatibility   Directive 2004/108/EC   EN 61326-1:2006   Electromagnetic compatibility   NE 21:2006   Electromagnetic compatibili   | Electrical isolation                    |                |  |
| Electromagnetic compatibility Directive 2004/108/EC  Conformity  NE 21:2006  Electromagnetic compatibility NE 21:2006  Degree of protection IEC 60529  Protection against electrical shock  Ambient conditions  Ambient temperature -20 60 °C (-4 140 °F)  Mechanical specifications  Degree of protection IP20  Mass approx. 25 g  Dimensions  Anounting Data for application in connection with Ex-areas  EC-Type Examination Certificate Apower Power Po Supply  Maximum safe voltage Um Agneria St (25 V (Attention! The rated voltage can be lower.)  EC-Type Examination Certificate Group, category, type of protection Maximum safe voltage Um Courpet Courpet Maximum safe voltage Um Courpet Courpe   | Output/power supply                     |                | functional insulation, rated insulation voltage 50 V AC  |
| Directive 2004/108/EC         EN 61326-1:2006           Conformity         NE 21:2006           Degree of protection         IEC 80529           Protection against electrical shock         UL 61010-1           Ambient temperature         20 60 °C (-4 140 °F)           Mechanical specifications           Degree of protection         IP20           Mass         approx. 15 g           Dimensions         20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in), housing type B2           Mounting         on 35 mm DIN mounting rail acc. to EN 60715:2001           Data for application in connection with Ex-areas           BAS 02 ATEX 7206, for additional certificates see www.pepperl-fuchs.com           Group, category, type of protection         IQ II (1)GD, [Ex iaj] IIC, [Ex iaD], (-20 °C ≤ T <sub>amb</sub> ≤ 60 °C) [circuit(s) in zone 0/1/2]           Input         Ex ia IIC, Ex iaD           Voltage         U <sub>0</sub> 26.4 V           Current         I <sub>0</sub> 90 mA           Power         P <sub>0</sub> 570 mW           Supply         Maximum safe voltage         U <sub>m</sub> 253 V (Attention! The rated voltage can be lower.)           Output         Maximum safe voltage         U <sub>m</sub> 253 V (Attention! The ra   | Directive conformity                    |                |  |
| Conformity           Electromagnetic compatibility         NE 21:2006           Degree of protection         IEC 60529           Protection against electrical shock         UL 61010-1           Ambient conditions         -20 60 °C (-4 140 °F)           Mechanical specifications         -20 60 °C (-4 140 °F)           Degree of protection         IP20           Mass         approx. 125 g           Dimensions         20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in) , housing type B2           Mounting         on 35 mm DIN mounting rail acc. to EN 60715:2001           Data for application in connection with Ex-areas         Secondary (type of protection           EC-Type Examination Certificate         BAS 02 ATEX 7206 , for additional certificates see www.pepperl-fuchs.com           Group, category, type of protection         © II (1)GD, [Ex ia] IIC, [Ex iaD], (-20 °C ≤ T <sub>amb</sub> ≤ 60 °C) [circuit(s) in zone 0/1/2]           Input         Ex ia IIC, Ex iaD           Voltage         U <sub>o</sub> 26.4 V           Current         I <sub>o</sub> 90 mA           Power         P <sub>o</sub> 570 mW           Supply         Maximum safe voltage         U <sub>m</sub> 253 V (Attention! The rated voltage can be lower.)           Output         Maximum safe voltage         U <sub>m</sub> 253 V (Attention! The rat   | Electromagnetic compatibili             | ty             |  |
| Electromagnetic compatibility Degree of protection Elec 60529 Protection against electrical shock Ambient conditions Ambient temperature Ambient temperature  -20 60 °C (-4 140 °F)  Mechanical specifications  Degree of protection Mass Degree of protection Mass Dimensions Data for application in connection with Ex-areas EC-Type Examination Certificate Group, category, type of protection Input Voltage Voltage Voltage Power Po Supply Maximum safe voltage Waximum safe voltage Waximum safe voltage Group, category, type of protection Maximum safe voltage Vm Maximum safe voltage Vm Maximum safe voltage Vm Maximum safe voltage Vm Group, category, type of protection Maximum safe voltage Vm Maxi   | Directive 2004/108/EC                   |                | EN 61326-1:2006  |
| Degree of protection Protection against electrical shock Ambient conditions Ambient temperature  -20 60 °C (-4 140 °F)  Mechanical specifications  Degree of protection Mass  Dimensions  Dimensions  Deat for application in connection with Ex-areas  EC-Type Examination Certificate  Group, category, type of protection  Voltage  Current  Io  Maximum safe voltage  Um  Maximum safe voltage  Um  Maximum safe voltage  Group, category, type of protection  Maximum safe voltage  Group, category, type of protection  Maximum safe voltage  Um  Data for application in connection with Ex-areas  EC-Type Examination Certificate  Ex is IIC,   | Conformity                              |                |  |
| Protection against electrical shock  Ambient conditions  Ambient temperature  Mechanical specifications  Degree of protection  Mass  Dimensions  Data for application i connection with Ex-areas  EC-Type Examination Certificate  Around Input  Voltage  Volt   | Electromagnetic compatibili             | ty             | NE 21:2006   |
| Ambient conditions  Ambient temperature  -20 60 °C (-4 140 °F)  Mechanical specifications  Degree of protection  Mass  approx. 125 g  Dimensions  Council 119 x 115 mm (0.8 x 4.7 x 4.5 in), housing type B2  Mounting  Data for application in connection with Ex-areas  EC-Type Examination Certificat  Group, category, type of protection  Input  Voltage  Uo  26.4 V  Current Power Power Po Stopply  Maximum safe voltage Um  253 V (Attention! The rated voltage can be lower.)  EC-Type Examination Certificat  Maximum safe voltage Um  253 V (Attention! The rated voltage is lower.)  EC-Type Examination Certificat  Maximum safe voltage Um  253 V (Attention! The rated voltage is lower.)  EC-Type Examination Certificat  Group, category, type of protection  Statement of conformity  TÜV 99 ATEX 1499 X , observe statement of conformity Group, category, type of protection  Statement of conformity  Will 3G Ex nAll T4 [device in zone 2]  | Degree of protection                    |                | IEC 60529  |
| Ambient temperature   -20 60 °C (-4 140 °F)   | Protection against electrical           | shock          | UL 61010-1   |
| Mechanical specifications         Degree of protection       IP20         Mass       approx. 125 g         Dimensions       20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in) , housing type B2         Mounting       on 35 mm DIN mounting rail acc. to EN 60715:2001         Data for application in connection with Ex-areas         EC-Type Examination Certificate       BAS 02 ATEX 7206 , for additional certificates see www.pepperl-fuchs.com         Group, category, type of protection       (a) II (1)GD, [Ex ia] IIC, [Ex iaD], (-20 °C ≤ T <sub>amb</sub> ≤ 60 °C) [circuit(s) in zone 0/1/2]         Input       Ex ia IIC, Ex iaD         Voltage       Uo       26.4 V         Current       Io       90 mA         Power       Po       570 mW         Supply       Maximum safe voltage       Um       253 V (Attention! The rated voltage can be lower.)         Output       253 V (Attention! The rated voltage is lower.)         EC-Type Examination Certificate       DMT 01 ATEX E 133         Group, category, type of protection       Su I (M1) [Ex ia] I         Statement of conformity       TÜV 99 ATEX 1499 X , observe statement of conformity         Group, category, type of protection       Su II 3G Ex nA II T4 [device in zone 2]  | Ambient conditions                      |                |  |
| Degree of protection         IP20           Mass         approx. 125 g           Dimensions         20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in), housing type B2           Mounting         on 35 mm DIN mounting rail acc. to EN 60715:2001           Data for application in connection with Ex-areas           EC-Type Examination Certificate         BAS 02 ATEX 7206, for additional certificates see www.pepperl-fuchs.com           Group, category, type of protection  | Ambient temperature                     |                | -20 60 °C (-4 140 °F)  |
| Mass       approx. 125 g         Dimensions       20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in) , housing type B2         Mounting       on 35 mm DIN mounting rail acc. to EN 60715:2001         Data for application in connection with Ex-areas         EC-Type Examination Certificate       BAS 02 ATEX 7206 , for additional certificates see www.pepperl-fuchs.com         Group, category, type of protection       ⑤ II (1)GD, [Ex ia] IIC, [Ex iaD], (-20 °C ≤ T <sub>amb</sub> ≤ 60 °C) [circuit(s) in zone 0/1/2]         Input       Ex ia IIC, Ex iaD         Voltage       Uo       26.4 V         Current       Io       90 mA         Power       Po       570 mW         Supply         Maximum safe voltage       Um       253 V (Attention! The rated voltage can be lower.)         Output       Maximum safe voltage       Um       253 V (Attention! The rated voltage is lower.)         EC-Type Examination Certificate       DMT 01 ATEX E 133         Group, category, type of protection       ⑥ I (M1) [Ex ia] I         Statement of conformity       TÜV 99 ATEX 1499 X , observe statement of conformity         Group, category, type of protection       ⑥ II 3G Ex nA II T4 [device in zone 2]  | Mechanical specifications               | 3              |  |
| Dimensions       20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in), housing type B2         Mounting       on 35 mm DIN mounting rail acc. to EN 60715:2001         Data for application in connection with Ex-areas         EC-Type Examination Certificate       BAS 02 ATEX 7206, for additional certificates see www.pepperl-fuchs.com         Group, category, type of protection       SAS 02 ATEX 7206, for additional certificates see www.pepperl-fuchs.com         Group, category, type of protection       Ex ia IIC, Ex iaD IIC, Ex iaD IIC, Ex iaD         Voltage       Uo       26.4 V         Current       Io       90 mA         Power       Po       570 mW         Supply         Maximum safe voltage       Um       253 V (Attention! The rated voltage can be lower.)         Output         Maximum safe voltage       Um       253 V (Attention! The rated voltage is lower.)         EC-Type Examination Certificate       DMT 01 ATEX E 133         Group, category, type of protection       Si I (M1) [Ex ia] I         Statement of conformity       TÜV 99 ATEX 1499 X , observe statement of conformity         Group, category, type of protection,       Si II 3G Ex n A II T4 [device in zone 2]   | Degree of protection                    |                | IP20   |
| Mounting       on 35 mm DIN mounting rail acc. to EN 60715:2001         Data for application in connection with Ex-areas         EC-Type Examination Certificate       BAS 02 ATEX 7206 , for additional certificates see www.pepperl-fuchs.com         Group, category, type of protection   | Mass                                    |                | approx. 125 g  |
| Data for application in connection with Ex-areas         EC-Type Examination Certificate       BAS 02 ATEX 7206 , for additional certificates see www.pepperl-fuchs.com         Group, category, type of protection       ★ II (1)GD, [Ex ia] IIC, [Ex iaD], (-20 °C ≤ T <sub>amb</sub> ≤ 60 °C) [circuit(s) in zone 0/1/2]         Input       Ex ia IIC, Ex iaD         Voltage       Uo       26.4 V         Current       Io       90 mA         Power       Po       570 mW         Supply       Aximum safe voltage       Um       253 V (Attention! The rated voltage can be lower.)         Output       Maximum safe voltage       Um       253 V (Attention! The rated voltage is lower.)         EC-Type Examination Certificate       DMT 01 ATEX E 133       ★ I (M1) [Ex ia] I         Statement of conformity       TÜV 99 ATEX 1499 X , observe statement of conformity         Group, category, type of protection,       ★ II 3G Ex nA II T4 [device in zone 2]   | Dimensions                              |                | 20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in) , housing type B2   |
| with Ex-areas         EC-Type Examination Certificate       BAS 02 ATEX 7206 , for additional certificates see www.pepperl-fuchs.com         Group, category, type of protection       (x) II (1)GD, [Ex ia] IIC, [Ex iaD], (-20 °C ≤ T <sub>amb</sub> ≤ 60 °C) [circuit(s) in zone 0/1/2]         Input       Ex ia IIC, Ex iaD         Voltage       Uo       26.4 V         Current       Io       90 mA         Power       Po       570 mW         Supply       Maximum safe voltage       Um       253 V (Attention! The rated voltage can be lower.)         Output       Maximum safe voltage       Um       253 V (Attention! The rated voltage is lower.)         EC-Type Examination Certificate       DMT 01 ATEX E 133         Group, category, type of protection       (x) I (M1) [Ex ia] I         Statement of conformity       TÜV 99 ATEX 1499 X , observe statement of conformity         Group, category, type of protection,       (x) II 3G Ex nA II T4 [device in zone 2]   | Mounting                                |                | on 35 mm DIN mounting rail acc. to EN 60715:2001   |
| Group, category, type of protection ⟨ □   I (1)GD, [Ex ia]   IIC, [Ex iaD], (-20 ° C ≤ T <sub>amb</sub> ≤ 60 ° C) [circuit(s) in zone 0/1/2]    Input   |   |                |  |
| Input Ex ia IIC, Ex iaD  Voltage Uo 26.4 V  Current Io 90 mA  Power Po 570 mW  Supply  Maximum safe voltage Um 253 V (Attention! The rated voltage can be lower.)  Output  Maximum safe voltage Um 253 V (Attention! The rated voltage is lower.)  EC-Type Examination Certificate DMT 01 ATEX E 133  Group, category, type of protection   | • •                                     |                | BAS 02 ATEX 7206, for additional certificates see www.pepperl-fuchs.com  |
| Voltage       Uo       26.4 V         Current       Io       90 mA         Power       Po       570 mW         Supply       Supply         Maximum safe voltage       Um       253 V (Attention! The rated voltage can be lower.)         Output       Waximum safe voltage       Um       253 V (Attention! The rated voltage is lower.)         EC-Type Examination Certificate       DMT 01 ATEX E 133         Group, category, type of protection       Way I (M1) [Ex ia] I         Statement of conformity       TÜV 99 ATEX 1499 X, observe statement of conformity         Group, category, type of protection,       Way I 3G Ex nA II T4 [device in zone 2]   | Group, category, type of protection     |                | $\langle \underline{\epsilon} x \rangle$ II (1)GD, [Ex ia] IIC, [Ex iaD], (-20 °C $\leq$ T <sub>amb</sub> $\leq$ 60 °C) [circuit(s) in zone 0/1/2] |
| Current       Io       90 mA         Power       Po       570 mW         Supply   | Input                                   |                | Ex ia IIC, Ex iaD  |
| Power Po 570 mW  Supply  Maximum safe voltage Um 253 V (Attention! The rated voltage can be lower.)  Output  Maximum safe voltage Um 253 V (Attention! The rated voltage is lower.)  EC-Type Examination Certificate DMT 01 ATEX E 133  Group, category, type of protection   | Voltage                                 | $U_{o}$        | 26.4 V   |
| Supply Maximum safe voltage U <sub>m</sub> 253 V (Attention! The rated voltage can be lower.)  Output Maximum safe voltage U <sub>m</sub> 253 V (Attention! The rated voltage is lower.)  EC-Type Examination Certificate DMT 01 ATEX E 133  Group, category, type of protection ⟨⟨x⟩ I (M1) [Ex ia] I  Statement of conformity TÜV 99 ATEX 1499 X , observe statement of conformity  Group, category, type of protection, ⟨⟨x⟩ II 3G Ex nA II T4 [device in zone 2]  | Current                                 | Io             | 90 mA  |
| Maximum safe voltage       U <sub>m</sub> 253 V (Attention! The rated voltage can be lower.)         Output       Maximum safe voltage       U <sub>m</sub> 253 V (Attention! The rated voltage is lower.)         EC-Type Examination Certificate       DMT 01 ATEX E 133         Group, category, type of protection       ⟨∑ I (M1) [Ex ia] I         Statement of conformity       TÜV 99 ATEX 1499 X , observe statement of conformity         Group, category, type of protection,       ⟨∑ I (3G Ex nA II T4 [device in zone 2]  | Power                                   | $P_{o}$        | 570 mW   |
| Maximum safe voltage       Um       253 V (Attention! The rated voltage is lower.)         EC-Type Examination Certificate       DMT 01 ATEX E 133         Group, category, type of protection  |   | U <sub>m</sub> | 253 V (Attention! The rated voltage can be lower.)   |
| EC-Type Examination Certificate  Group, category, type of protection  Statement of conformity  Group, category, type of protection,  □ I (M1) [Ex ia] I  □ TÜV 99 ATEX 1499 X , observe statement of conformity  □ I 3G Ex nA II T4 [device in zone 2]  | Output                                  |                |  |
| EC-Type Examination Certificate  Group, category, type of protection  Statement of conformity  Group, category, type of protection,  □ I (M1) [Ex ia] I  □ TÜV 99 ATEX 1499 X , observe statement of conformity  □ I 3G Ex nA II T4 [device in zone 2]  | •                                       | U <sub>m</sub> | 253 V (Attention! The rated voltage is lower.)   |
| Statement of conformity  Group, category, type of protection,  TÜV 99 ATEX 1499 X , observe statement of conformity  (x) Il 3G Ex nA Il T4 [device in zone 2]   | EC-Type Examination Certif              |                | DMT 01 ATEX E 133  |
| Statement of conformity  Group, category, type of protection,  TÜV 99 ATEX 1499 X , observe statement of conformity  (x) Il 3G Ex nA Il T4 [device in zone 2]   | Group, category, type of protection     |                | €x I (M1) [Ex ia] I  |
| Group, category, type of protection,  | Statement of conformity                 |                |  |
|   |   | protection,    | (EX) II 3G Ex nA II T4 [device in zone 2]  |



| Electrical isolation      |   |
|---------------------------|---|
| Input/Output              | safe galvanic isolation acc. to IEC 60079-11, voltage peak value 375 V  |
| Input/power supply        | safe galvanic isolation acc. to IEC 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 50303:2000  |
| International approvals   |   |
| UL approval               |   |
| Control drawing           | 116-0316 (cULus)  |
| IECEx approval            | IECEX BAS 05.0078 IECEX BAS 10.0085X  |
| Approved for              | [Zone 0] [Ex ia] IIC, [Ex iaD], [Ex ia] I<br>Ex nA II T4  |
| 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.pepperlfuchs.com. |

### Installation



If the transducer and probe are isolated from ground, the cable screen may be left unconnected at this end but must be securely insulated. If the transducer circuitry is connected or decoupled to ground the screen must be securely grounded.

In general, please follow the recommendations of the transducer makers.

Cable screens should normally be grounded in the gland where the cable enters the barrier cabinet. If the cabinet doors are likely to be left open while transceivers are in use nearby, it is permissible to ground the cable screens to the DIN rail on which the barriers are mounted, but note that this may affect the R.F.I. immunity of other apparatus in the cabinet.

# **Function**

# Vibration monitoring sensors with 2-wire connection:

2-wire accelerometers and velocity indication devices are supplied with a fixed current and indicate what they are sensing by varying their own supply voltage - often by ±5 V about a quiescent level of about 10 V. Those sensors are connected to terminals 4 and 6 with a link between terminals 2 and 1 (5.3 mA) or terminals 2 and 3 (3.6 mA) or terminals 2 and both 1 and 3 (8.9 mA).

The terminal 5 circuit has 2 constant sources of current connected to it which are brought out on terminals 1 at 5.3 mA and 3 at 3.6 mA. That means that a 1 k $\Omega$  resistor, for example, connected between terminals 4 and 1 would have 5.3 mA flowing in it, connected between terminals 4 and 3 would have 3.6 mA flowing in it and connected between terminals 4 and both 1 and 3 would have 8.9 mA flowing in it.

## Example:

As an example, a 2-wire accelerometer requiring a minimum of 4 mA supply current and changing its own supply voltage by 100 mV for each "g" that it experiences would be connected between terminals 4 and 6 with a link between terminals 2 and 1. In that condition there may be around 10 V between terminals 4 and 6 under quiescent conditions. If it were capable of indication up to 50 g in each direction then the voltage between terminals 4 and 6 would vary between 5 V (indicating +50 g) and 15 V (indicating -50 g).

# Vibration monitoring sensors with 3-wire connection:

Commonly 3-wire analogue proximity sensors are used to indicate shaft position and can "see" movements due to vibration which they indicate as a varying voltage level on the 3<sup>rd</sup> wire. Those sensors are connected to terminals 4, 5 and 6 with power supplied through terminals 4 and 5 and the signal connected to terminal 6. For a 3-wire sensor taking 10 mA, terminal 5 would be at approximately -21 V with respect to the common terminal 4 and the signal on the 3<sup>rd</sup> wire, connected to terminal 6, would be able to vary over the 0 to -19 V, or so, with respect to the common.

Terminal 4, the most positive terminal on the field side, is regarded as "common". There is an open circuit voltage of about 24 V DC between terminals 4 and 5 but terminal 5 has a resistance of about 300  $\Omega$  in series with it so the voltage falls to about 21 V at 10 mA and about 18 V at 20 mA. DC voltages at terminals 6 and 2 (referred to the "common") are repeated at terminal 7 using terminal 8 as the "common" on the safe side of the unit.

#### **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!