# **Temperature Repeater**

# KCD2-RR-Ex1

# Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Resistance and RTD input (Pt100, Pt500, Pt1000)
- · Resistance output
- Accuracy 0.1 %
- Line fault detection (LFD) for Pt100
- · Housing width 12.5 mm
- Up to SIL 2 acc. to IEC 61508

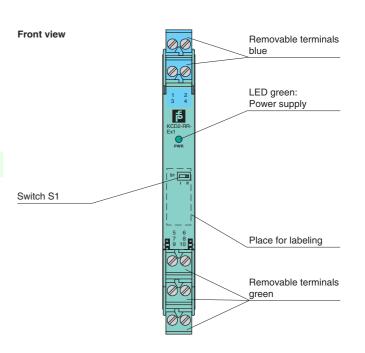
## **Function**

This isolated barrier is used for intrinsic safety applications.

It transfers resistance values of RTDs or potentiometers from hazardous areas to safe areas.

A 2-, 3-, or 4-wire technique is available depending on the required accuracy.

The input card of the control system measures the same load as if it were connected directly to the resistance in a hazardous area.

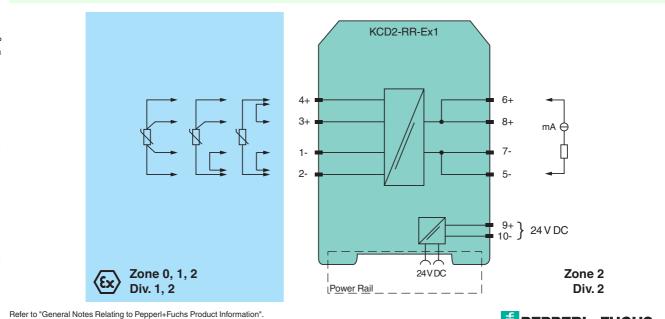


CE

Assembly

SIL 2

# Connection



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General specification         Analog input byee         Analog input byee           Functional stafey related parameters         Supplementers         Supplementers           Supplementers         Supplementers         Supplementers           Supplementers         Power Rail or lemmals P+, 10-           Rated voltage         U         1990 VOC           Prover consumption         0.50 W (24 V and in A some current)           Prover consumption         0.50 W (24 V and in A some current)           Prover consumption         0.50 W (24 V and in A some current)           Connection         Iterimista 1, 2, 3, 4           Connection         6.05 G relations volta           Connection Some         6.01 G relations volta           Lead relation         9.04 HTOO           Lead relation         9.04 HTOO           Lead relation         9.04 HTOO           Lead relation         9.04 HTOO           Connection Sol         010 UnA           Connection Sol         010 UnA           Connection Sol         010 UnA           Connection Sol         010 Line for a 0.1.10 (relation or a sole diaconnection (resauring current 5 mA))           Partial agrand         010 Line for a sole diaconnection (resauring current 5 mA))           Connection         01		
Functional safely related parameter         Surface           Stopp in provide state of the stopp in th	General specifications	
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Connection         Power Pail or terminals 9, 10°-           Reade variage         U         1030 V OG           Reade united         U         1030 V OG           Reade united         V         420 nA           Reade united         V         420 nA           Reade united         V         420 nA           Connection adia         V         420 nA           Connection adia         V         10° A           Connection adia         V         0 V		SIL 2
Bates Younge         U,         1900 YOC           Brippio         within the suppior belancia.           Bried current         V.           Owner Consumption         Commention           Development L.         Commention           Commention aide         Field aids           Commention aide         Field aids           Line fault direction         Values, all P100           Line fault direction         Values, all P100           Line fault direction         0           Commention         Herminals 1, 2, 3, 4           Line fault direction         0           Commention         Herminals 5, 7, 6, 8           Connection aide         Control aide           Connection         Herminals 5, 7, 6, 8           Current         0         0, 10 rel           Available voltage         0, 12 rel         Acto 20, depending on load disconnected (masuring current 1 mA) espectators           Available voltage         0, 12 rel         Acto 20, depending on load disconnected (masuring current 2 mA) espectators           Available voltage         Value fault disconnected (masuring current 2 mA) espectators           Available voltage         Value fault disconnected (masuring current 2 mA) espectators           Connectin subator espectators         Value fault discone contr		
Ripciwith the supply toleranceRadid current< <20 AAA		
Raide Quinet         QuinA           Power ordsample         QuinA           Power ordsample         QuinA           Connection idle         Heid Idle           Connection idle         Heid Idle           Connection idle         Heid Idle           Connection idle         State It Idle           Line fault detection         Yes , at P100           Land residuance         State It Idle           Land residuance         State It Idle           Land residuance         State It Idle           Available voltage         9.V           Land fault detection         Br A           Connection         Br A           Connection idle         control idle           Connection         terminals 7, 76, 84           Current         010 PA           Available voltage         -0.42 V           Full taignal         <10 for x - 400 2, depending on load deconnected (measuring current 5.0 mA)		
Power consumption		
Input         Index solution           Connection side         Field solution           Connection side         Sin % of resistance value           Line fault detection         yes, at P1100           Land resistance         Sin % of resistance value           Transmission range         0 10 mA           Available voltage         9 V           Line fault detection         8 mA           Connection side         connection side           Connection side         connection side           Connection side         0 42 V           Fault signal         <10 to or 400 t, deponding on load disconnected (measuring current 5 0 3 mA)		
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Line at idencion         yes, al P1100           Land resistance         <10 % of resistance value		
Lead resistance 10 % of resistance value  Transmission range 0 10 % A  Available voltage 0 10 mA  Available voltage 0 10 mA  Available voltage 0 10 mA  Connection 38 A  Connection 38 Control 38  Connection 38  Connectio		
Transision range010 mAAvailable vortage9 VLine laut detection8 AAOutput		
Available voltage         9 V           Line fault detection         8 nA           Output         Output           Connection side         control side           Connection side         control side           Connection side         control side           Connection side         010 nA           Available voltage         04 2 V           Fault signal         < 10 Ω r > 400 Ω. depending on lead disconnected (measuring current < 0 mA)		
Line faul detection         8nA           Output         Connection side         control side           Connection side         control side         control side           Connection side         01 0 nA         control side           Available voltage         04 2V         control side         control side           Fault signal         c10.0 cr x00.0. depending on lead disconnected (measuring current ± 0.3 mA)         control side           Tansfer characteristics         control side disconnected in 2/4 wire (measuring current ± 0.3 mA)         control side           Previous         control side disconnected in 2/4 wire (measuring current ± 0.3 mA)         control side           Previous         control side disconnected in 2/4 wire (measuring current ± 0.3 mA)         control side           Previous         control side disconnected in 2/4 wire (measuring current ± 0.3 mA)         control side           Previous         control side disconnected in 2/4 wire (measuring current ± 0.3 mA)         control side           Previous         control side disconnected in 2/4 wire (measuring current ± 0.3 mA)         control side           Inducates         control side disconnected in 2/4 wire (measuring current ± 0.3 mA)         control side           Inducates         control side disconnected in 2/4 wire (measuring current ± 0.3 mA)         control side           Inducates	Ŭ	
OutputreferenceConnection sideconnection labeleConnection sideterminals 5, 7, 6, 8, 8Current0 10 mAAvailable voltage0 4 2VFault signal <t0.02 v=""> 400 Q. depending on lead disconnected (measuring current ≤ 1 mA) &gt; &gt; 400 Q. terminal 3 lead disconnected in 2:4-wire (measuring current ≤ 0.3 mA)Transfer characteristicsAccuracy0 1%Deviation<math>\frac{4}{2}</math> wire <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. g. <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. <math>\frac{1}{m^2}</math>, <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to <math>\frac{1}{m}</math>, e. <math>\frac{1}{m^2}</math>, <math>\frac{1}{m^2}</math> 1 mA accuracy reduces in proportion to</t0.02>		
Connection side         control side           Connection         terminals S, 7, 6 + 8 +           Current         0 10 mA           Available voltage         0 4 2 V           Full signal         <10 0, 2 + 00, 0, depending on lead disconnected (measuring current ≤ 1 mA)		8 nA
Connection         terminals 5, 7, 6+, 8+           Current         0 10 mA           Available Voltage         0 42 V           Fault signal         <10.10 rs > 400.0, depending on lead disconnected (measuring current ≤ 1 mA) > 400.0, Lerminal 3 lead disconnected in 2.4-4 wire (measuring current ≤ 0.3 mA)           Accuracy         0.1.3 %           Deviation         Impact the interpretation in 2.4-4 wire (measuring current ≤ 0.3 mA)           Leveracy         0.1.3 %           Deviation         Impact the interpretation is proportion to Impact the interpretation is applicable)           Impact Thm A: 0.0.1 % of Lo Offsety or ± 0.2 (the larger value is applicable)           Impact Thm A: eccuracy reduces in proportion to Impact the interpretative stability reduces in proportion to	•	
Current         0         10 mA           Available voltage         0         42 V           Fault signal         <10.00 x 400.0, deminal 3 lead disconnected (measuring current ≤ 0.3 mA)		
Available voltage       04 2 V         Fault signal       <1012 or > 400 Ω, depending on lead disconnected (neasuring current < 1 mA)		
Fault signal       >10 Ω or > 400 Ω, terminal 3 lead disconnected (measuring current 5 0.3 mÅ)         Transfer characteristics       >400 Ω, terminal 3 lead disconnected in 2-/4-wire (measuring current 5 0.3 mÅ)         Deviation       0.1%         Deviation       4-wire         m_2 1 mA: ±0.1% of R_m or ± 0.1Ω (the larger value is applicable)       1/m < 1 mA: no.1 mA: ±1% of R_m or ± 0.1Ω (the larger value is applicable)		
> 400 Q. terminal 3 lead disconnected in 2/4-wire (measuring current ≤ 0.3 mA)           Transfer characteristics	· · · · · · · · · · · · · · · · · · ·	
Transfer characteristics       Accuracy         Accuracy       0.1%         Deviation       4-wire         III,= 1 TmA: 9.01% of Rm or ± 0.1 Ω (the larger value is applicable)       IIII TmA: accuracy reduces in proportion to Im.         e. g. Im = 0.1 TmA: ± 1% of Rm or 1.0 (the larger value is applicable).       3-wire         IIII uence of ambient temperature       IIII TMA: ± 0.1 Ω Offset) or ± 0.2 Ω (the larger value is applicable)         IIII uence of ambient temperature       IIIII TMA: ± 1% of Rm or 1.0 (the larger value is applicable)         IIIII uence of ambient temperature       signal response time 5.2 ms (10 00 %)         response to application of Im.; Rm > 80 Ω and Im < 5mA: < 5ms	Fault signal	
Accuracy       0.1 %         Deviation       4-wire         In all controls       In all controls of Rm or ± 0.1 Ω (the larger value is applicable).         In Max 1 % of Rm or ± 0.1 Ω (the larger value is applicable).       Set (the larger value is applicable).         Influence of ambient temperature       In all mAx 1 % of 10 00 fteel or ± 0.2 Ω (the larger value is applicable).         Influence of ambient temperature       In all mAx Rm > 100 Ω to 00 ± 00 00 (the larger value is applicable).         Influence of ambient temperature       In all mAx Rm > 100 Ω to 00 ± 00 00 (the larger value is applicable).         Influence of ambient temperature       In all mAx Rm > 100 Ω to 00 ± 00 00 (the larger value is applicable).         Influence of ambient temperature       In all mAx Rm > 100 Ω to 00 ± 00 00 (the larger value is applicable).         In all mAx Rm > 100 Ω to 00 ± 00 00 (the larger value is applicable).       In all max Rm > 100 Ω to 00 ± 00 00 (the larger value is applicable).         In all max Rm > 100 Ω to 00 ± 00 00 ± 00 00 ± 00 00 ± 00 ± 00	Transfer characteristics	> $700$ s2, terminal o lead disconnected in 2.74 with (measuring current $\geq$ 0.3 mA)
Deviation       4-wire         Imp ≥ 1 mA: ±0.1 % of B <sub>m</sub> or ± 0.1 Ω (the larger value is applicable)       Imp ≥ 1 mA: ±0.1 % of B <sub>m</sub> or ± 0.1 Ω (the larger value is applicable).         Swire       Imp ≥ 1 mA: ±0.1 % of B <sub>m</sub> or ± 0.1 Ω (the larger value is applicable)         Jm ≥ 1 mA: ±0.1 % of D <sub>m</sub> or ± 0.2 Ω (the larger value is applicable)         Influence of ambient temperature       Imp ≥ 1 mA: ±0.1 Ω (the larger value is applicable)         Imp ≥ 1 mA: ±0.1 % of D <sub>m</sub> or ±0.2 Ω (the larger value is applicable)       Imp ≥ 1 mA: ±0.1 Ω (the larger value is applicable)         Imp ≥ 1 mA: ±0.1 % of D <sub>m</sub> or ±0.2 Ω (the larger value is applicable)       Imp ≥ 1 mA: ±0.1 Ω (the larger value is applicable)         Imp ≥ 1 mA: ±0.1 % of D <sub>m</sub> or ±0.2 Ω (the larger value is applicable)       Imp ≥ 1 mA: ±0.1 Ω (the larger value is applicable)         Imp ≥ 1 mA: ±0.1 % of D <sub>m</sub> or ±0.1 Ω (the larger value is applicable)       Imp ≥ 1 mA: ±0.1 Ω (the larger value is applicable)         Imp ≥ 1 mA: ±0.1 % of D <sub>m</sub> or ±0.2 Ω (the larger value is applicable)       Imp ≥ 1 mA: ±0.1 Ω (the larger value is applicable)         Imp ≥ 1 mA: ±0.1 % of D <sub>m</sub> or ±0.2 Ω (the larger value is applicable)       Imp ≥ 1 mA: ±0.1 Ω (the larger value is applicable)         Imp ≥ 1 mA: ±0.1 % of D <sub>m</sub> ≥ 0.0 Ω (the larger value is applicable)       Imp ≥ 1 mA: ±0.1 Ω (the larger value is applicable)         Imp ≥ 1 mA: ±0.1 % of D <sub>m</sub> ≥ 0.0 Ω (the larger value is applicable)       Imp ≥ 1 mA: ±0.1 Ω (the larger value is applicable)         Imp ≥ 1 mA: ±0.1 % of D <sub>m</sub> ≥		01%
$I_m > 1 mA : a 0.1 % of R_m or s 0.1 Ω (the larger value is applicable)I_m < 1 mA : accuracy reduces in proportion to I_m.e. g. I_m = 0.1 mA : 1 % of R_m or s 0.2 Ω (the larger value is applicable).SwireI_m < 1 mA : accuracy reduces in proportion to I_m.e. g. I_m = 0.1 mA : 1 % o 0.1 Ω Offset) or s 0.2 Ω (the larger value is applicable)I_m < 1 mA : accuracy reduces in proportion to I_m.e. g. I_m = 0.1 mA : (15 % o.0.1 Ω Offset) or s 1.1 Ω (the larger value is applicable)I_m < 1 mA : accuracy reduces in proportion to I_m.e. g. I_m = 0.1 mA : (15 % o.0.1 Ω Offset) or s 1.1 Ω (the larger value is applicable)I_m < 1 mA or R_m > 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (25 333 K)I_m < 1 mA or R_m < 100 \Omega : 0.01 % K in the range -20 +60 °C (20 100 % K in the range -20 +60 °C (20 100 % K in the range -20 +60 °C ($		
$I_m < 1$ mA: accuracy reduces in proportion to $I_m$ $I_m < 1$ mA: (a.01 % · 0.1 $\Omega$ Offset) or a 0.2 $\Omega$ (the larger value is applicable) $I_m < 1$ mA: (a.01 % · 0.1 $\Omega$ Offset) or a 0.2 $\Omega$ (the larger value is applicable) $I_m < 1$ mA: accuracy reduces in proportion to $I_m$ e. g. $I_m = 0.1$ mA: (a 1 % · 0.1 $\Omega$ Offset) or a 1.1 $\Omega$ (the larger value is applicable) $I_m < 1$ mA: accuracy reduces in proportion to $I_m$ e. g. $I_m = 0.1$ mA: (a 1 % · 0.1 $\Omega$ Offset) or a 1.1 $\Omega$ (the larger value is applicable) $I_m < 1$ mA: $mA > m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mA M_m < 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mat (a 1 m / m > 100 M_m < 5 mA: < 20 msresponse to application of I_m R_m > 100 \Omega : 0.01 % Kn the range - 20 +60 °C (253 333 K)I_m < 1 mat (a 1 m / m > 100 M_m < 1 mat (a 1 m / m < 100 K m to 1 m < 100 Km to 1 m $	Deviation	
3-wire           Ind: 201 % - 0.1 Ω Offset) or ± 0.2 Ω (the larger value is applicable)           Influence of ambient temperature           Influence of ambient temperature           Influence of ambient temperature           Influence of ambient temperature           Ising and the properties of the properis of the properimeter of the properimeter of the properimon of		
Image ≥ 1 mA: (±0, 1% − 0.1.2 Offset) or ± 0.2.2 ((the larger value is applicable)		
In eIn <td></td> <td></td>		
eegIm0.1 DX (±1 % - 0.1 Q Offset) or ± 1.1 Q (the targer value is applicable)Influence of ambient temperatureIm >1 mA Ar Rm < 100 Q: to Q1 %/K in the range -20 +60 °C (253 333 K)		
Influence of ambient temperature $I_m \ge 1 mA, R_m \ge 100 \Omega: 0.01 %/K in the range -20 +60 °C (253 333 K)I_m <1 mA or R_m <100 \Omega: temperature stability reduces in proportion to I_m or R_mRise timesignal response to application of I_m: R_m >50 \Omega and I_m < 5mA: <5msresponse to application of I_m: R_m >50 \Omega and I_m < 5mA: <2ms$		
Image: A mark of $R_m < 100 \ \Omega$ : temperature stability reduces in proportion to $I_m$ or $R_m$ Rise timesignal response to application of $I_m : R_m > 50 \ \Omega$ and $I_m < 5mA: < 5ms$ response to application of $I_m : R_m > 50 \ \Omega$ and $I_m < 5mA: < 10ms$ response to application of $I_m : R_m > 50 \ \Omega$ and $I_m < 5mA: < 20ms$ Galvanic isolationreinforced insulation acc. to EN 50178, rated insulation voltage $300 \ V_{eff}$ Input/Outputreinforced insulation acc. to EN 50178, rated insulation voltage $300 \ V_{eff}$ Output/power supplytinctional insulation, rated insulation voltage $300 \ V_{eff}$ Input/Soutputreinforced insulation acc. to EN 50178, rated insulation voltage $300 \ V_{eff}$ Output/power supplytinctional insulation, rated insulation voltage $300 \ V_{eff}$ Indicators/settingsEDDisplay elementsLEDConfigurationspace for labeling at the frontSoutput/power supplyspace for labeling at the frontDirective conformityEElectromagnetic compatibilityNe 12:2011 (industrial locations)Drective 2014/30/EUNE 21:2011Ambient temperaturesout $60 \ C (-4 \dots 140 \ F)$ Ambient temperature:20 \loc $0^\circ C (-4 \dots 140 \ F)$ Ambient temperature:20 \loc $0^\circ C (-4 \dots 140 \ F)$ Maximumserve terminalsMassapprox 100 gDirectionserve terminalsAmbient temperature:20 \loc $0^\circ C (-4 \dots 140 \ F)$ Ambient temperature:20 \loc $0^\circ C (-4 \dots 140 \ F)$ Massapprox 100 gDirection:20 \loc $0^\circ C (-4 \dots 140 \ F)$ <t< td=""><td>Influence of ambient temperature</td><td><math>I_m \ge 1 \text{ mA}, R_m \ge 100 \Omega</math>: 0.01 %/K in the range -20 +60 °C (253 333 K)</td></t<>	Influence of ambient temperature	$I_m \ge 1 \text{ mA}, R_m \ge 100 \Omega$ : 0.01 %/K in the range -20 +60 °C (253 333 K)
response to application of I <sub>m</sub> : R <sub>m</sub> > 50 Ω and I <sub>m</sub> < 5mA: < 5ms response to application of I <sub>m</sub> : R <sub>m</sub> > 30 Ω and I <sub>m</sub> < 5mA: < 20ms           Galvanic isolation         response to application of I <sub>m</sub> : R <sub>m</sub> > 30 Ω and I <sub>m</sub> < 5mA: < 20ms           Galvanic isolation         response to application of I <sub>m</sub> : R <sub>m</sub> > 30 Ω and I <sub>m</sub> < 5mA: < 20ms           Galvanic isolation         response to application of I <sub>m</sub> : R <sub>m</sub> > 30 Ω and I <sub>m</sub> < 5mA: < 20ms           Galvanic isolation         response to application of I <sub>m</sub> : R <sub>m</sub> > 30 Ω and I <sub>m</sub> < 5mA: < 20ms           Galvanic isolation         response to application of I <sub>m</sub> : R <sub>m</sub> > 30 Ω and I <sub>m</sub> < 5mA: < 20ms           Galvanic isolation         response to application of I <sub>m</sub> : R <sub>m</sub> > 30 Ω and I <sub>m</sub> < 5mA: < 20ms           Galvanic isolation         response to application of I <sub>m</sub> : R <sub>m</sub> > 30 Ω and I <sub>m</sub> < 5mA: < 20ms           Galvanic isolation         response to application of I <sub>m</sub> : R <sub>m</sub> > 30 Ω and I <sub>m</sub> < 5mA: < 20ms           Inductors/settings         functional insulation acc. to EN 50178, rated insulation voltage 300 V <sub>eff</sub> Output/power supply         functional insulation, rated insulation voltage 300 V <sub>eff</sub> Output/power supply         functional insulation, rated insulation voltage 300 V <sub>eff</sub> Output/power supply         functional insulation, rated insulation voltage 300 V <sub>eff</sub> Output/power supply         functional insulation, rated insulation voltage 300 V <sub>eff</sub> Output/power supply         functional insulat		
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Data for application in connection		
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Refer to "General Notes Relating to Pepperl+Fuchs Product Information". Pepperl+Fuchs Group www.pepperl-fuchs.com

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EU-Type Examination Certifi	cate	BASEEFA 10 ATEX 0061
Marking		II (1)G [Ex ia Ga] IIC           II (1)D [Ex ia Da] IIIC           II (M1) [Ex ia Ma] I
Input		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
Voltage	Uo	12.4 V
Current	I <sub>o</sub>	17.4 mA
Power	Po	54 mW
Supply		
Maximum safe voltage	Um	253 V (Attention! The rated voltage can be lower.)
Type of protection [EEx ia]		
Output		
Maximum safe voltage	Um	253 V (Attention! The rated voltage can be lower.)
Certificate		BASEEFA 10 ATEX 0062X
Marking		⟨͡͡x⟩ II 3G Ex ec IIC T4 Gc
Galvanic isolation		
Input/Output		safe electrical isolation acc. to IEC/EN 60079-11:2012, voltage peak value 375 V
Input/power supply		safe electrical isolation acc. to IEC/EN 60079-11:2012, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013, EN 60079-11:2012, EN 60079-7:2015
International approvals		
FM approval		
Control drawing		116-0129 (cFMus)
UL approval		
Control drawing		116-0332 (cULus)
IECEx approval		IECEx BAS 10.0024 IECEx BAS 10.0025X
Approved for		[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I , Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.
Accessories		
Optional accessories		<ul> <li>power feed module KFD2-EB2(.R4A.B)(.SP)</li> <li>universal power rail UPR-03(-M)(-S)</li> <li>profile rail K-DUCT-BU(-UPR-03)</li> <li>insertion bridge EBP 2- 5</li> </ul>

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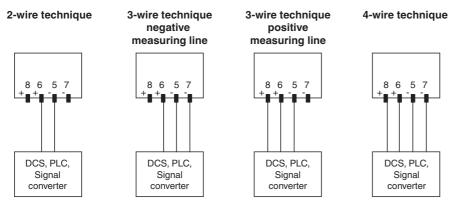
## Additional information

### Function

When a signal converter, a DCS or PLC is connected to terminals 5, 6, 7, and 8 (control side), the measuring current is transferred to terminals 2 and 4 (field side). The resulting voltage at terminals 1, and 3 is transferred to terminals 5, 6, 7, and 8. In the case of fast multiplex input cards, transmission problems might be experienced in connection with low resistance values and/or high sensor currents. For data see rise time.

The guoted accuracy is for a 4-wire technique connection. The accuracy in 3-wire technique will depend on the matching of the line resistance.

### Connection types control side (safe area)



### Connection types field side (hazardous area)

The resistance in the hazardous area can be measured with a 2-, 3- or 4-wire technique.

- 2-wire technique:
- Link terminals 1 and 2 and terminals 3 and 4. Connect the resistance to terminal 4 and terminal 2. Switch S1 in the position II. 3-wire technique:
- Link terminals 1 and 2. Connect the resistance to terminals 3 and 4 and terminal 2. Switch S1 in the position I. 4-wire technique

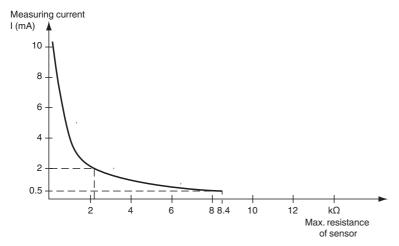
Connect the resistance to terminals 3 and 4 and terminals 1 and 2. Switch S1 in the position II.

#### Measurement range

The resistance repeater can convey a maximum of 10 mA and a maximum of 7 V. The maximum connectable resistance value can be calculated with the following equations

- Resistance value = 4.2 V / measuring current
- Resistance value = 9 V / measuring current 758  $\Omega$
- Use the smaller of these two resistance values as maximum allowed load.

The measuring current is determined by control.



An example of the maximum transferable resistance value:

- $8.4 \text{ k}\Omega$  at 0.5 mA measuring current
- 2.1 kΩ at 2 mA measuring current



## Line Fault Detection (LFD)

The output will indicate less than 10  $\Omega$  or greater than 400  $\Omega$  for a lead breakage at terminals 1, 2, 3 or 4 for measuring current of less than or equal to 1 mA i.e. out of range for Pt100.

