

Potentiometer Converter

KFD2-PT2-Ex1-Y98312

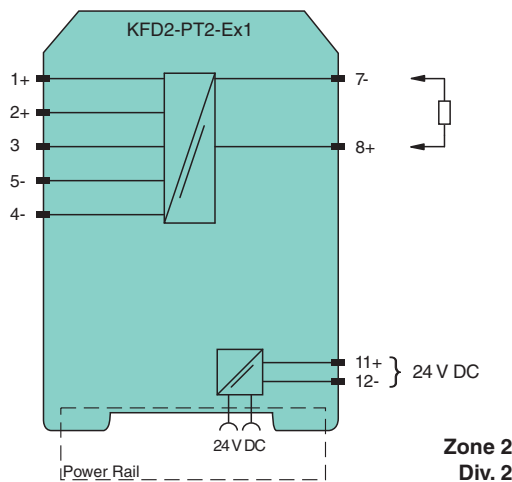
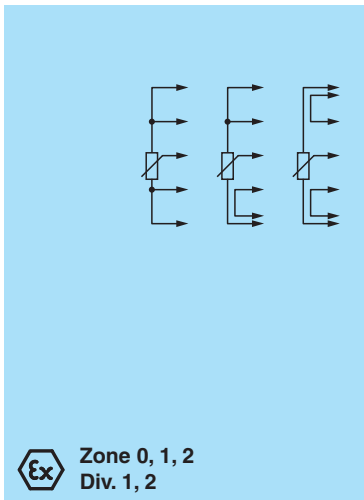
- 1-channel
- 24 V DC supply (Power Rail)
- Potentiometer input
- Voltage output 0 V ... 10 V
- Accuracy 0.05 %
- Up to SIL 2 acc. to IEC/EN 61508



Function

The transformer isolated barrier supplies power to the potentiometers in the hazardous area. The loop voltages are transmitted. The transformer isolated barrier is available with current and voltage outputs (terminals 7 and 8). It can be operated in the 3-, 4- or 5-wire mode with the potentiometer. In the 5-wire mode of operation, the potentiometer voltage is measured at terminals 2 and 5 and automatically readjusted. For a 4-wire connection on the transformer isolated barrier, terminals 4- and 5- are bridged. With the resistance adjustment on the front housing panel, it is possible to adjust the final value. For potentiometer resistances greater than 500 Ω, the potentiometer can be used to compensate for lead resistances up to 5 % of the potentiometer value. During adjustment, the potentiometer is set to 100 % of its value and the output signal is adjusted to 100 % of the required value. This adjustment can be repeated setting the potentiometer to 0 %. Terminals 4 and 5 as well as 1 and 2 must be bridged for a 3-wire connection to the potentiometer.

Connection



Technical Data

General specifications	
Signal type	Analog input
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 2
Supply	
Connection	Power Rail or terminals 11+, 12-
Rated voltage	U_r 20 ... 35 V DC
Ripple	within the supply tolerance

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

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Technical Data

Power dissipation		0.6 W
Power consumption		0.7 W
Input		
Connection side		field side
Connection		terminals 4-, 5-, 3+, 2+, 1+
Potentiometer		
Nominal resistance		500 Ω to 100 kΩ
Supply voltage		approx. 4.7 V
Lead resistance		5 % of the potentiometer resistance at ≥ 500 Ω (can be equalized by user)
Output		
Connection side		control side
Connection		terminals 7-, 8+
Voltage output		0 ... 10 V
Output resistance		max. 30 Ω
Transfer characteristics		
Accuracy		0.05 %
Deviation		
Linearity		≤ ± 5 mV
Influence of ambient temperature		≤ 0.5 mV/K
Rise time		10 to 90 % ≤ 8 ms; 10 to 90 % within 1 % of span ≤ 25 ms
Galvanic isolation		
Output/power supply		functional insulation, rated insulation voltage 50 V AC
Indicators/settings		
Control elements		potentiometer
Configuration		via potentiometer
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Conformity		
Electromagnetic compatibility		
		NE 21:2006
Degree of protection		IEC 60529:2001
Protection against electrical shock		UL 61010-1
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 120 g
Dimensions		20 x 107 x 115 mm (0.8 x 4.2 x 4.5 inch) (W x H x D), housing type B1
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		BAS 00 ATEX 7171
Marking		⊕ II (1)G [Ex ia Ga] IIC, ⊕ II (1)D [Ex ia Da] IIIC, ⊕ I (M1) [Ex ia Ma] I
Voltage	U _o	10.4 V
Current	I _o	46 mA
Power	P _o	120 mW
Supply		
Maximum safe voltage	U _m	250 V (Attention! The rated voltage can be lower.)
Output		
Maximum safe voltage	U _m	250 V (Attention! The rated voltage can be lower.)
Certificate		
Marking		TÜV 02 ATEX 1797 X
Galvanic isolation		⊕ II 3G Ex nA II T4

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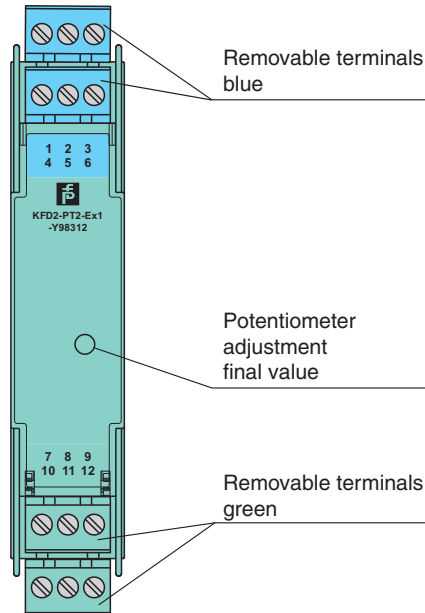
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Technical Data





Input/Output	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/power supply	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity	
Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012 , EN 60079-15:2010
International approvals	
FM approval	
Control drawing	116-0129
UL approval	
Control drawing	116-0173 (cULus)
IECEX approval	
IECEX certificate	IECEX BAS 10.0060 IECEX BAS 10.0061X
IECEX marking	[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 .

Assembly

Front view





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
	UPR-03-S	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m




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Matching System Components

	K-DUCT-BU	Profile rail, wiring comb field side, blue
	K-DUCT-BU-UPR-03	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue

Accessories

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

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Application

Because of the high transfer accuracy, the unit is well suited for precise path or positioning requirements per potentiometer, reference element, etc.

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