



Potentiometer Converter

KFD2-PT2-Ex1-5

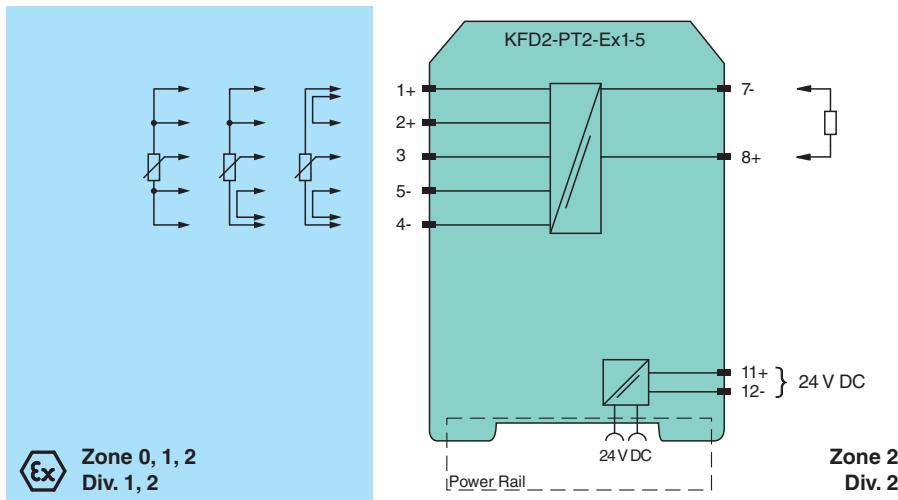
- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Potentiometer input
- Current output 4 mA ... 20 mA
- Lead resistance compensation adjustment
- Accuracy 0.05 %



Function

This isolated barrier is used for intrinsic safety applications. It provides the source voltage to a potentiometer and transfers its wiper position from hazardous areas to safe areas. It then converts the signal to a 4 mA ... 20mA current output. The unit can be used in a 3-, 4-, or 5-wire configuration depending on the required measurement accuracy. Terminals 2 and 5 are used as the sense line for the potentiometer lead resistance compensation in a 5-wire configuration. The barrier's potentiometer can be used to compensate for lead resistance up to 5 % of the hazardous area potentiometer value.

Connection



Ex Zone 0, 1, 2
Div. 1, 2

Technical Data

General specifications

Signal type	Analog input	
Supply		
Connection	Power Rail or terminals 11+, 12-	
Rated voltage	U_r	20 ... 35 V DC
Ripple	within the supply tolerance	
Power dissipation	1 W	
Power consumption	1.3 W	
Input		
Connection side	field side	
Connection	terminals 4-, 5-, 3+, 2+, 1+	

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Technical Data

Potentiometer	
Types of measuring	3-, 4-, 5-wire technology
Nominal resistance	800 Ω to 100 kΩ
Supply voltage	approx. 4.7 V
Lead resistance	5 % of the potentiometer resistance (adjustable)
Output	
Connection side	control side
Connection	terminals 7-, 8+
Current output	4 ... 20 mA, load ≤1 kΩ
Transfer characteristics	
Accuracy	0.05 %
Deviation	
Linearity	± 10 μA
Influence of ambient temperature	≤ 1 μA/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 21:2012
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 DC
Current	I _o 31.4 mA
Power	P _o 82 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	TÜV 02 ATEX 1797 X
Marking	⊕ II 3G Ex nA II T4
Galvanic isolation	
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	

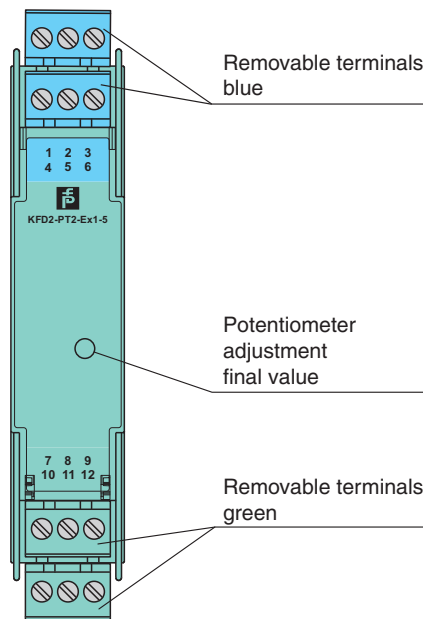
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Technical Data

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



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Application

Jumpers must be used on terminals 1, 2 and 4, 5 in 3-wire configurations. A jumper must be used between terminals 4 and 5 in 4-wire connections. In the 5-wire mode of operation, the potentiometer voltage is measured at terminals 2 and 5 and automatically readjusted.

The front side 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 %.