

Temperature Field-Mounted Transmitter

PEK301HF

With HART Protocol



Application Area

Field mounted temperature transmitter PEK301HF with HART- protocol for converting a wide variety of input signals from Resistance Temperature Devices (RTDs) with 2-, 3-, and 4-wire connection and Thermocouples (TCs) into a scalable 4 to 20 mA analogue output signal.

Input Types

This Transmitter can be used with a wide variety of temperature sensors, including 2-, 3-, and 4-wire RTDs, most popular thermocouples. The following is a general list of transmitter input types:

- Platinum RTDs, 2-, 3-, and 4-wire
- Copper RTDs
- Nickel RTDs
- Thermocouples

- High Performance and Accuracy in total ambient temperature range
- Digital Communication and Universal configuration with HART protocol communicator or PC-based configuration
- Self-diagnostics function ensures long-term performance and lower cost of ownership
- High Resolution LCD display and a bar-graph with an indicator for alarms
- 2-wire technology, Loop-powered 4-20mA temperature Transmitter analogue output with HART protocol
- Supporting internal cold junction compensation for Thermocouples
- Wide voltage supply range from 10V DC without load up to 15V DC with 250 Ω load

Technical Data

Power Supply			
Supply Voltage	Minimum		10V DC without load 15V DC with 250Ω load
	Maximum		32V DC
Output			
Output Signal		4 to 20 mA with HART Protocol 7.0	
Signal on Alarm		Under Range 3.9 mA Over Range 21 mA as NAMUR STD	
Load		Max. 23mA	
Transmission Behavior		Loop Current Linear in Input Range	
Input Types and Ranges			
Input Sensor	Type	Measurement Range	Minimum Resistance Ranges
Resistor Temperature Device (RTD)	PT100	-200°C to 850°C (-328°F to 1562°F)	10K
	PT200	-40°C to 649°C (-40°F to 1200°F)	10K
	PT500	-200°C to 250°C (-328°F to 482°F)	10K
	PT1000	-200°C to 250°C (-328°F to 482°F)	10K
Thermocouple	B(PtRh30-PtRh6)	0°C to 1820°C (-32°F to 3308°F)	500K
	E(NiCr-CuNi)	-270°C to 1000°C (-454°F to 1832°F)	50K
	J(Fe-CuNi)	-210°C to 1200°C (-346°F to 2192°F)	50K
	K(NiCr-Ni)	-270°C to 1372°C (-454°F to 2501°F)	50K
	N(NiCrSi-NiSi)	-270°C to 1372°C (-454°F to 2372°F)	50K
	R(PtRh13-Pt)	-50°C to 1768°C (-58°F to 3214.4°F)	500K
	S(PtRh10-Pt)	-50°C to 1768°C (-58°F to 3214.4°F)	500K
	T(Cu-CuNi)	-270°C to 400°C (-454°F to 752°F)	50K
Performance Characteristic			
Accuracy		+/- 1°C according to sensor type	
Stability	RTD (for 24 month)	+/-0.2 % of output reading or +/-0.2 °C (wichever is greater)	
	Thermocouple (for 12 month)	+/-0.3 % of output reading or +/-0.5 °C (wichever is greater)	
5 Years Stability	RTD	+/-0.5 % of output reading or +/-0.5 °C (wichever is greater)	
	Thermocouple	+/-0.7 % of output reading or +/-1 °C (wichever is greater)	
Noise suppression for noise frequency		50/60 Hz	
Update time		< 0.5 sec	
Response Time		650 ms	

Switch on Delay	750 ms	
Influence of Ambient	Negligible	
Load Influence	Negligible	
Power Supply Influence	Negligible	
Resolution	1μA	
Electromagnetic Compatibility (EMC) standards		
Electromagnetic Compatibility (EMC) Standards	IEC/EN 61326-1 : 2006 IEC/EN 61326-2-3 : 2006	
EMC	ESD	4KV Contact 8KV Air
	Radiated	80-1000MHz @ 10V/m AM
	Burst	1KV
	Surge	0.5KV Line-Line 1KV Line-Earth
	Conducted	150KHz to 80MHz @ 10V
	Magnetic	50Hz @ 30A/m
	Emission	30-230MHz, 30dB (uV/m) @ 10m 230-1000MHz, 37dB (uV/m) @ 10m
Explosion Proof	EXia/Eexd IIC T6	
Vibration Effect	10 to 60 Hz : 0.21 mm peak Displacement 60 to 500 Hz : 3g	
Operating Temperature	Without LCD: -40°C to +85°C With LCD: -20°C to 70°C	
Relative humidity	0% to 95%	
Protection rating (Enclosure)	IP65 (IP66 ,IP67 Optional)	
Others		
Display Type	Graphical Display, 8×17 Characters, 102x64 Pixels, FSTN Pos. Transflective	
Weight	Approx. 1,500 g	
Display Range	Pressure: -9999.9 Current: 99.999	
Materials	Aluminum die cast (SS 316 Optional)	

Electrical Connection

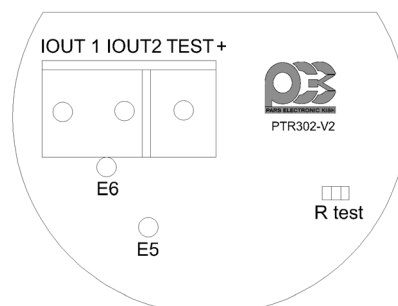
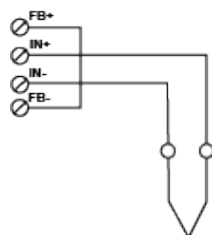
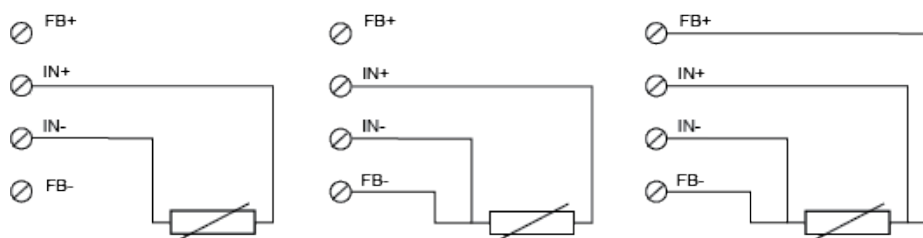


Diagram of connectors PEK301HF

Connection	Description
IOUT1	HART Supply Connector (without polarization)
IOUT2	HART Supply Connector (without polarization)
	Communicator Connector (without polarization)
Test+	Communicator Connector (without polarization)
IN+	Sensor Connection
IN-	Sensor Connection
FB+	Sensor Connection
FB-	Sensor Connection

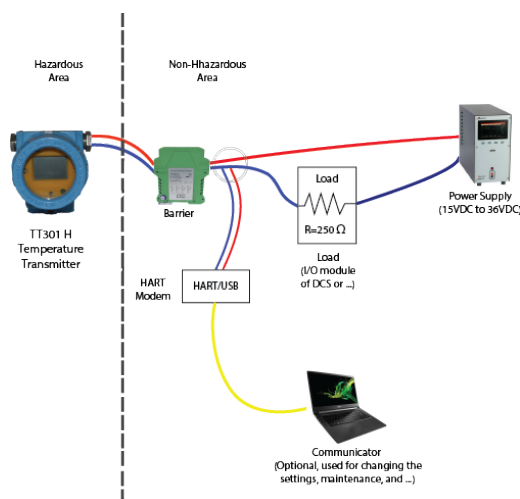


Thermocouple (TC) Connection



RTD Connections (-2, -3 and -4)

Electrical Field Connection Diagram



Electrical Field Connection Diagram PEK301HF