

Product Bulletin

PT SERIES Combined Pressure/Temperature Sensor

- Pressure: 0-5 Vdc output
- Temperature: NTC in-stream thermistor
- 50% faster temperature response time
- Precise superheat control for AC/Ref
- Standards: 0-150 and 0-500 psi



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Texas Instruments' PT series pressure/temperature sensor provides system designers with twice the output information in a single package, from the same source point. Originally developed for demanding under-hood automotive environments, the PT sensor is made to withstand the rigors of today's applications.

Pressure: The pressure transducer is a 0-5 Vdc output design that requires no end-user amplification.

Similar to other TI pressure transducers, the voltage output is ratio-metric to supply voltage. With a data conversion circuit referenced to supply voltage, accuracy can be maintained regardless of supply voltage variation.

Temperature: The temperature sensor is an NTC thermistor (resistance decreases with increasing temperature) with either 10K Ω or 100K Ω value @ 25°C. Unlike other integrat-

ed packages, TI's PT sensor places the thermistor directly in the measurement medium (fluid stream), which provides a 50% faster response time and greater accuracy over encased or pipe-mounted thermistors.

Packaged with an AMP Micro-Quadlok System™ connector, the sensor has a steel or brass housing, and is available in two standard pressure ranges: 0-150 or 0-500psi with a variety of pressure fittings.

Technical Specifications

Pressure Ranges

0-150 psi thru 0-650 psi;
See reverse for standards

Performance (pressure)

Accuracy (linearity, hysteresis, repeatability) $\pm 0.75\%$ Span

Temperature (nominal) $\pm 0.16\%$ Span per °C

Performance (temperature)

Accuracy $\pm 1\%$ (delta R/R)
Resistance @ 25°C 10K or 100K Ω
Operating Temperature*: -40°C to 135°C

Electrical

Supply Voltage (Vcc) 4.5-5.5 Vdc
Output Voltage 0.5-4.5 Vdc typical

Supply Current 15.0mA max.
Output Current 8.0mA
Output Load Range 10K-50K Ω
Output Response Time 10mS
Overvoltage Protection 16Vdc
Reverse Voltage Protection 14Vdc

Physical

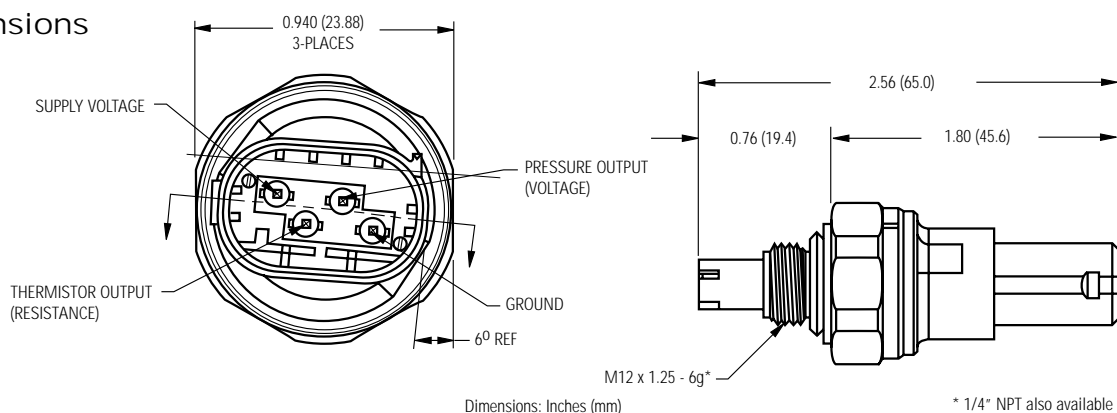
Proof Pressure $\geq 2x$
Burst Pressure $\geq 3x$
Cycle Life $\geq 1M$ Cycles
Vibration 5g
Drop 1m any axis
Electrical Connection 4 pin AMP MQS
Weight 1.5oz. max.

*Refer to chart for seal compatibility

Micro-Quadlok System™ is a trademark of Tyco Electronics Corp.

PT Series Combined Pressure/Temperature Sensor

Dimensions



Ordering Information

EXAMPLE:

Series **PT** pressure/temperature

Pressure Connection **01** M12 x 1.25 - 6g Steel

Pressure Range **0150** From 0-150 psi (0150) to 0-650 psi (0650) (others available upon request)

Pressure Reference **A** Absolute **S** Sealed gage

Room Temp Resistance **01** 10KΩ@25°C **02** 100KΩ@25°C

Internal Gasket **N** Neoprene (see table for other options)

External O-Ring* **N** Neoprene (see table for other options)

Standard for 0-150 psi

Standard for 0-500 psi

* Only for M12 thread; For NPT threads enter X.

Seal Compatibility Guide

Type	Seal Material	Media Compatibility Contact TI for more information)	Maximum Seal Temperature Range
H	HNBR (Hydrogenated Nitrile)	Refrigerants, petroleum oils, lubricants, detergent solutions	-20°C to +135°C
N	Neoprene	Refrigerants (feons ammonia)	-40°C to +120°C
V	Fluorocarbon (Viton™)	Fertilizers, freons, butanes, oils, trichloroethylene	-26°C to +135°C
B	Nitrile (BUNN, NBR)	Petroleum oils, lubricants, detergent solutions	-20°C to +100°C
E	Ethylene Propylene	Steam, soaps, polar solvents, brake fluid, acetone, Skydrol™	-40°C to +135°C
F	Fluorosilicone	Chlorinated solvents, oils, fuels, air	-45°C to +135°C

Skydrol™ – trademark of Monsanto Co.

Viton™ – trademark of E.I. duPont de Nemours Co.

Only available as an internal gasket

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Standards

Item	Sample Order #	Pressure	Pressure Fitting	Thermistor
1	PT010150A01NN	8.8 - 149 psia*	12mm plated steel	10kOhm @ 25°C
2	PT010500A02NN	26.8 - 510 psia*	12mm plated steel	100kOhm @ 25°C
3	PT040150A01NN	8.8 - 149 psia*	1/4" NPT male brass	10kOhm @ 25°C
4	PT040500A02NN	26.8 - 510 psia*	1/4" NPT male brass	100kOhm @ 25°C
5	PT040500A01NN	26.8 - 510 psia*	1/4" NPT male brass	10kOhm @ 25°C

* For psis or psig at sea level subtract 14.7

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