

MPT502 Dual Pressure and Temperature Transmitter

4-20 mA Output, Threaded Mount

Introduction

Piezo-Metrics Model MPT502 is a flush mountable, miniature, low cost, general use dual pressure and temperature transmitter that automatically compensates for line resistance and power supply changes. These transmitters are made of corrosive resistant titanium (6AL4V) and utilize high reliability semiconductor strain gages bonded directly to the inside surface of the machined diaphragm.

Pressure on the diaphragm is applied through the hole in the 10-32 threaded nose which is then converted to an electric signal proportional to the pressure.

The Model MPT502 is available in either Gage (PSIG), Absolute (PSIA), or Sealed Reference (PSIR) pressure configurations. The Absolute and Sealed Reference configurations utilize a welded Titanium hermetic header. The hermetic header is located just behind the strain gage diaphragm section of the sensor and seals the sensitive gages in a vacuum which dramatically increases stability and reliability. Long term stability versions are available.



Applications

- Test & measurement equipment
- Production equipment & controls
- Energy Controls
- Laboratory instruments & equipment
- Liquid level
- Calibration Equipment

Performance Options *

	Pressure Output Spec's		Temperature Output Spec's	Units
	A	C		
Balance (Zero) **	4.00 ± 0.50	4.00 ± 0.20	4.00 ± 0.50 (@ 30°F)	mA
Full Scale Sensitivity	16.0 ± 0.50	16.0 ± 0.20	16.00 ± 0.50 (@ 130°F)	mA
Static Error Band (Best Fit Straight Line)	± 0.50	± 0.25	± 0.50	%FS (BFSL)
Thermal Balance (Zero) Shift	± 0.02	± 0.01	N/A	%FS/°F
Thermal Sensitivity Shift	± 0.02	± 0.01	N/A	%FS/°F

Standard Long Term Stability	± 2.00 %FS/Year Max. (Pressure Transducer Output)				
Long Term Stability Options	L10 = <1.0	L5 = <0.5	L2 = <0.2	L1 = <0.1	%FS/year

Mechanical

Pressure Ranges	50, 100, 200, 300, 500, 1k, 2k, 3k, 5k, 7K * PSI
Other ranges possible	Consult Factory
Over Pressure (No change out of spec.)	2.0x Range
Burst Pressure	6.0x Range

Electrical

Input Voltage (Standard)	24.0 Volts DC
Input Voltage Range (Operational)	12.0 - 30.0 Volts DC (See Load Chart)
Maximum Input Voltage	32 V for short periods
Input Load Resistance (Standard)	500 Ohms (See Load Chart)
Insulation Resistance Minimum	50 MOhms @ 50 VDC

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Environmental

Storage and Operating Temperature	0° to 180°F
Compensated Temperature Range <i>(Pressure & Temperature)</i>	30° to 130°F *
Other Temperature Compensated Ranges	Consult Factory
Acceleration	100g's any axis
Media Compatibility (wetted surface)	Liquids & Gases compatible with Titanium 6AL4V

Outline

Technical drawing of the MPT502 sensor. The drawing shows a cross-section of the pressure port with dimensions: .39 DIA. MAX. (9.91) and .31 WRENCH FLATS (7.87). The pressure port is .06 DIA. REF. (1.52). The sensor body has a BUNA-N O-RING (SUPPLIED) and a 10-32UNF-2A PRESSURE FITTING. The length is labeled "L" DIM. The cable is 3.0 FT. STD * (0.91 Meters) with a diameter of .375 DIA. (9.53). The cable is (4) CONDUCTOR PVC CABLE 26 AWG (7/34) STRANDED and has a SHIELD.

Dimensions in Inches (mm)

Schematic

Schematic diagram of the MPT502 sensor. It shows a PRESSURE SENSOR and a TEMPERATURE SENSOR connected to an E-PACK. The output wires are labeled: (+) RED, (-) BLACK, (+) GREEN, (-) WHITE, and SHIELD.

Voltage vs Load
(Pressure Bridge)

Graph of Series Load Resistance (OHMS) vs Power Supply Voltage (VDC). The operating range is shown as a shaded area.

Unit Type	"L" DIM
Gage	3.65 MAX. (92.7)
Absolute or Sealed Reference	4.00 MAX. (101.6)

Ordering Format

Model _____ MPT502X - XXXX - X

Performance Specification _____

Pressure Range PSI _____

Header Option _____

G = Gage (No Header)
A = Absolute (With Header)
R = Sealed Reference (With Header)

Long-term Stability Option _____

MPT502C - 500A - L5

LTS < 0.50 %FS/yr (Leave blank if no LTS)

Absolute Pressure

0 - 500 PSI

C Performance Options

Model MPT502

Example

* Custom Performance Options and special cable length available - Consult Factory.

** Balance (Zero) set point: Gage (PSIG) & Sealed Reference (PSIR) - (Zero) set at "0"PSIG atmospheric pressure. Absolute (PSIA) - (Zero) set at "0"PSIA pressure relative to an absolute vacuum.