

PTI 750 Series

Intrinsically Safe LVDT Position Transmitters



Description

The PTI 750 series of loop-powered LVDT position transmitters was specifically designed for use in hazardous locations. They have been certified by Factory Mutual (FM) as Intrinsically Safe (IS) when used with suitable barriers in Class I, Division 1 and 2, Group C, D, E, F, G, and Type 4X locations, and as Non-Incendive (NI) in Class I, Division 2, Group C and D locations. These 4-20 mA transmitters are offered in measuring ranges of 1 to 10 inches (25 to 250 mm) to provide reliable, contactless position monitoring and feedback for control valves and servo actuators used in all types of hazardous environments.

PTI 750 series transmitters are rugged and robust devices constructed entirely of TIG-welded stainless steel and hermetically sealed against hostile environments to IEC IP-68. The 2-wire loop input/output connections are made through a sealed axial connector and a NEMA-4 rated mating plug is supplied with each unit.

PTI 750 series transmitters used for Intrinsically Safe operation in hazardous locations must be installed in accordance with ANSI/ISA 12.6 using approved barriers that meet the IS Entity Parameters indicated on the reverse page. The barrier's internal resistance must be added to the total loop resistance to determine the minimum loop voltage needed by the system, as shown graphically on the reverse page. The two wires for operating the transmitter are run to a non-hazardous or "safe" area, where the Entity-

Features

- Intrinsically Safe (IS) Rated with Barriers for Class I, Division 1, Group C and D Hazlocs
- Non-Incendive (NI) for Class I, Division 2, Group C and D Hazlocs
- Measurement Ranges of 1 inch to 10 inches
- Precalibrated 4-20 mA Loop-Powered Operation
- Non-Linearity less than $\pm 0.5\%$ of FRO
- Hermetically Sealed for Harsh Environments
- NEMA-4 Mating Connector Plug Supplied

Applications

- Control Valve Position Indication
- Petro-chemical Plants
- Pumping Station Controls
- Refinery Operations
- Agri-chemical Dispensing
- LNG Storage Tank Expansion/Contraction

compatible barrier, loop power supply, and loop load connections are located.

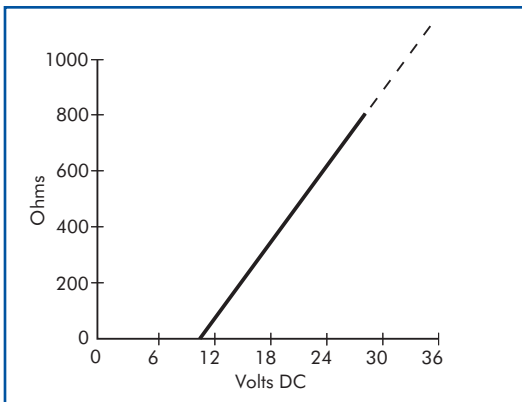
PTI 750 series position transmitters utilize built-in electronics to offer the frictionless operation, high resolution, excellent repeatability, and low hysteresis associated with LVDT technology, along with the convenience and simplicity of a precalibrated current loop output. They operate over a wide range of loop supply voltages and with loop resistances up to 800 Ohms, so they will work with a broad variety of servo controllers and PLCs, loop-powered analog or digital indicators, and computer-based data acquisition and processing systems. PTI 750 series transmitters have a maximum linearity error of $\pm 0.5\%$ of full range output using a statistically best-fit straight line derived by the least squares method.

PTI 750 LVDTs have an open bore at one end into which the core enters. Loop current will be 4 mA when the core is first inserted, increasing to 20 mA when the core is at full range within the transmitter's body. For position sensing requiring the opposite directional sense, PTI 750 transmitters are available with reversed output slope, which give 20 mA when the core is first inserted, decreasing to 4 mA as the core moves inward. PTI 750 LVDTs are also available with metric-threaded cores and/or low friction Teflon™ bore liners as detailed on the reverse page.

General Specifications

- Loop Supply Voltage:** 10 V to 36 V DC
- Loop Resistance:** 800 Ω (max.) @ 28 V DC
- Output Current:** 4-20 mA, 2-wire loop
- Output Noise & Ripple:** <10 μArms
- Frequency Response (-3dB):** 50 Hz (nominal)
- Linearity Error:** <±0.5% of FRO
- Repeatability Error:** <0.01% of FRO
- Hysteresis Error:** <0.01% of FRO
- Operating Temperature:** -20°F to +185°F (-30°C to +85°C)
- Thermal Coefficient of Sensitivity (nominal):** -0.02% of FRO/°F (-0.04% of FRO/°C)
- Vibration Tolerance:** 10 g to 2 kHz
- Shock Survival:** 100 g, 11 ms

Loop Resistance vs. Supply Voltage

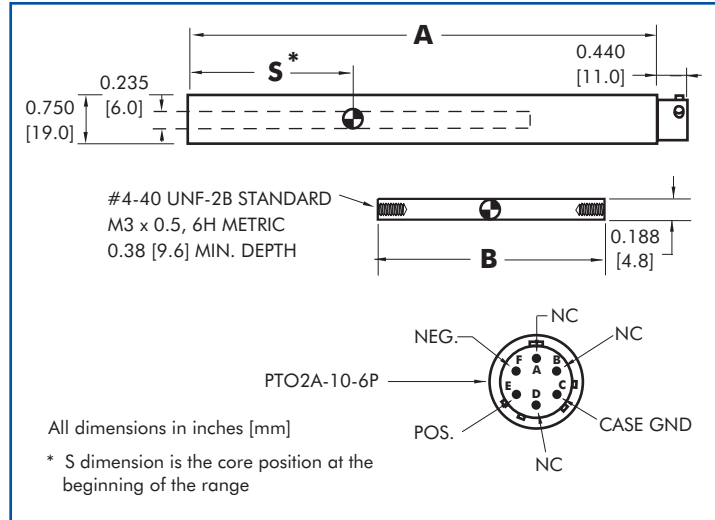


Entity Parameters

- V_{max}:** 36 Volts
- I_{max}:** 100 mA
- C_i:** 0 μF
- L_i:** 0 mH

Ordering Information

For standard PTI 750, order by model number with range.
 For reversed output PTI 750, order by model number with range and add suffix "R" after range.
 For PTI with metric threaded core, order as above and add -006 after range.
 For PTI with Teflon™ bore liner, order as above and add -010 after range.
 For metric threaded core and Teflon™ bore liner, order as above and add -016 after range
 For accessories, please visit our website at www.macrosensors.com.



Specifications

Model ▶	PTI 750 -500	PTI 750 -1000	PTI 750 -2000	PTI 750 -3000	PTI 750 -5000
Parameter ▼					
Nominal Range (inches)	1.00	2.00	4.00	6.00	10.00
Nominal Range (mm)	25	50	100	150	250
Scale Factor (mA/inch)	16.0	8.0	4.0	2.67	1.6
Scale Factor (mA/mm)	0.63	0.315	0.157	0.105	0.063
Dimension "A" (inches)	7.35	8.70	12.20	14.95	19.95
Dimension "A" (mm)	186.7	221.0	309.9	379.7	506.7
Dimension "B" (inches)	3.45	3.45	5.30	6.20	6.20
Dimension "B" (mm)	87.6	87.6	134.6	157.5	157.5
Dimension "S" (inches)	2.04	2.31	2.97	3.38	3.93
Dimension "S" (mm)	51.8	58.7	75.4	85.9	99.8
Weight, Body (ounces)	4.4	5.4	7.3	9.3	13.2
Weight, Body (grams)	124	153	207	263	374
Weight, Core (ounces)	0.40	0.40	0.65	0.78	0.78
Weight, Core (grams)	11.6	11.6	18.4	22.1	22.1



Innovators in Position Sensing

All specifications subject to change without notice.
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7300 US Route 130 North, Bldg. 22
 Pennsauken, NJ 08110-1541 USA
 tel: 856-662-8000
 fax: 856-661-8000
www.macrosensors.com
lvdts@macrosensors.com

