

# HSI 750 Series

## Hermetically Sealed 4-20 mA LVDT Position Transmitters



### Description

The HSI 750 Series of 3/4 inch diameter, loop-powered 4-20 mA LVDT position transmitters is designed for a wide range of position monitoring and feedback applications. These rugged and robust devices are constructed entirely of TIG-welded stainless steel and hermetically sealed against hostile environments to IEC standard IP-68. The input/output connections are made through a sealed axial connector, and a mating connector plug is supplied with each unit.

HSI 750 Series transmitters offer the frictionless operation, high resolution, excellent repeatability, and low hysteresis associated with LVDT technology, along with the convenience and simplicity of precalibrated 4-20 mA current loop operation. Units operate either as 2-wire loop-powered or 3-wire sourcing externally powered. The built-in electronics operate over a wide range of loop supply voltages and resistances, and are designed to operate with many PLCs, digital indicators, A/D converters, computer-based data processors, and QC data collection systems.

### Features

- Standard measurement ranges of 1 to 10 inches
- 4 to 20 mA input/output
- Non-linearity of  $\pm 0.25\%$  of FRO or better
- Hermetically sealed for harsh environments
- In-line connector, mating plug included

### Applications

- Control Valve Position Indication
- Waste Water Treatment Facilities
- Pumping Station Controls
- Fossil Fueled Power Plants
- Agri-chemical Dispensing

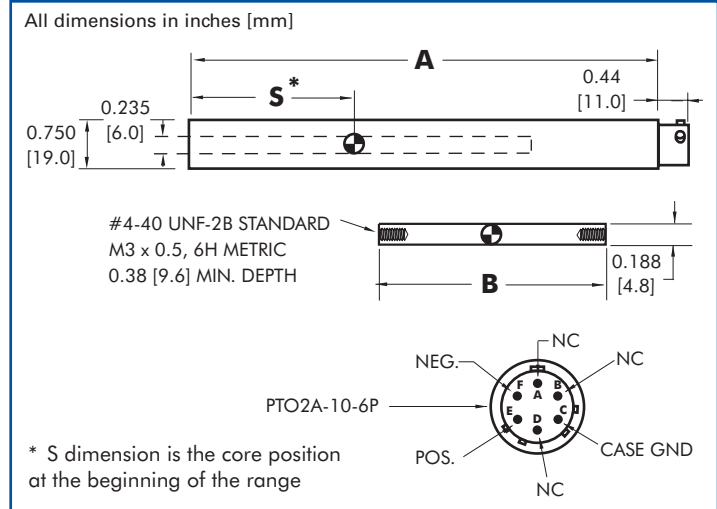
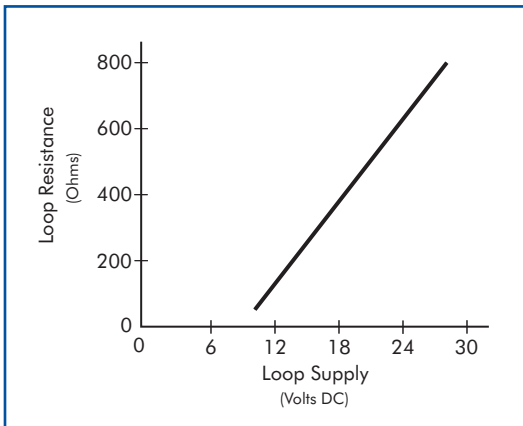
Available in ranges of 1 inch (25 mm) to 10 inches (250 mm), the linearity error for an HSI 750 Series sensor is  $\pm 0.25\%$  of full range output or better using a statistically best-fit straight line derived by the least squares method. A version with  $\leq \pm 0.10\%$  linearity error is also available.

HSI 750 position transmitters have an open bore at one end into which the LVDT's core enters. Normally, 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 that requires the opposite directional sense, HSI 750 transmitters are available with reversed output slope, which gives 20 mA when the core is first inserted, decreasing to 4 mA as the core moves inward. HSI 750 LVDTs are also available with metric-threaded cores and/or low friction Teflon™ bore liners, the ordering information for which is detailed on the reverse page.

**General Specifications**

- Loop Supply Voltage:** 9 V to 28 V DC
- Loop Resistance (Min.):** 50 Ohms
- Output:** 4-20 mA
- Output Noise & Ripple:**  $\leq 10 \mu\text{Arms}$
- Frequency Response (-3dB):** 50 Hz (nominal)
- Linearity Error:**  $\leq \pm 0.25\%$  of FRO  
 $\leq \pm 0.10\%$  optional
- Repeatability Error:**  $\leq 0.025\%$  of FRO
- Hysteresis Error:**  $\leq 0.025\%$  of FRO
- Operating Temperature:**  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Thermal Coefficient of Scale Factor:**  $-0.027\%/^{\circ}\text{C}$  (nominal)
- Thermal Coefficient of Zero Offset:**  $\pm 0.01\%/^{\circ}\text{C}$  (max.)
- Vibration Tolerance:** 20 g to 2 kHz
- Shock Survival:** 100 g, 11 ms

**Loop Resistance vs. Minimum Loop Supply Voltage**



**Specifications**

Model ▶	HSI 750 -1000	HSI 750 -2000	HSI 750 -4000	HSI 750 -6000	HSI 750 -10000
<b>Parameter ▼</b>					
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

**Ordering Information**

For standard HSI 750, order by model number with range.  
 For reversed output HSI 750, order by model number with range and add suffix "R".  
 For HSI 750 with metric threaded core, order as above and add -006 after range.  
 For HSI 750 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  $\leq \pm 0.10\%$  of FSO linearity error option, add -200 after model number with range.  
 For accessories, please visit our website at [www.macrosensors.com](http://www.macrosensors.com).



*Innovators in Position Sensing*

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