

# HSTAR 750 Series

## Hermetically Sealed High Temperature AC-LVDT Position Sensors



### Description

Macro Sensors' HSTAR 750 Series of 3/4 inch (19 mm) diameter AC-operated LVDTs is designed for a wide range of position measurement applications. These are rugged hermetically sealed sensors, constructed entirely of stainless steel, and intended for use at high temperatures (400°F). The coil windings are sealed against hostile environments to IEC standard IP-68 and electrical termination is through a sealed radial connector located near one end. The mating connector plug is supplied with the unit.

The radial connector offers two important benefits. First, it results in a through-bore design, which permits access to either or both ends of the LVDT's core for better mechanical support and core guidance, and easier cleanout in dusty or dirty locations. The second advantage of the radial connector is shorter installed length compared to units of the same range with axial connectors.

Available in ranges of  $\pm 0.050$  inch ( $\pm 1.25$  mm) to  $\pm 10.0$  inches ( $\pm 250$  mm), HSTAR 750 Series sensors feature the high resolution, excellent repeatability, and low hysteresis associated with LVDT technology, as well as the highest sensitivity

### Features

- Ranges of  $\pm 0.050$  inch to  $\pm 10.0$  inches
- 400°F (200°C) operating temperature
- Radial connector; through-bore operation
- Environmentally sealed to IEC IP-68
- Non-linearity less than  $\pm 0.25\%$  of FRO

### Applications

- Beam scraper positioning feedback
- Hydraulic cylinder position
- Steam valve positioning
- Power generation applications
- Corrosive environments

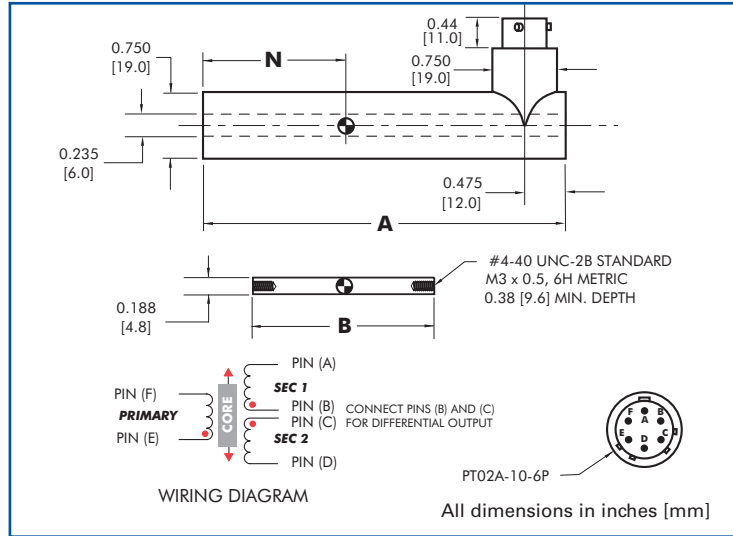
consistent with good linearity. The maximum linearity error for any of these sensors is  $\pm 0.25\%$  of full range output using a statistically best-fit straight line derived by the least squares method.

Macro Sensors offers several standard options that permit a user to customize HSTAR 750 LVDTs, including Teflon® bore liners and metric threaded cores, as well as smaller diameter and low mass cores. In addition, Macro Sensors can provide a range of mounting accessories and core extension rods. HSTA Series units can also be supplied to withstand exposure to mild radiation ( $3 \times 10^7$  Rads). On special order, the HSTAR 750 Series can also be constructed for immersion in pressurized fluids.

All HSTAR 750 Series LVDTs will operate properly with any conventional differential input LVDT signal conditioner. Ranges of 1.00 inches or greater will also work with ratiometric LVDT signal conditioning. Macro Sensors offers a full line of LVDT signal conditioners that will deliver optimum performance from any HSTAR 750 Series LVDT. For more information, please visit our website at [www.macrosensors.com](http://www.macrosensors.com).

**General Specifications**

- Input Voltage:** 3.0 V<sub>rms</sub> (nominal)
- Input Frequency:** 2.5 to 3.0 kHz
- Linearity Error:** <math>\pm 0.25\%</math> of FRO
- Repeatability Error:** <math>< 0.01\%</math> of FSO
- Hysteresis Error:** <math>< 0.01\%</math> of FSO
- Operating Temperature:** -65°F to +400°F (-55°C to +200°C)
- Thermal Coefficient of Sensitivity:** -0.01%/°F (nominal) (-0.02%/°C nominal)
- Vibration Tolerance:** 20 g to 2 kHz
- Shock Survival:** 1000 g, 11 ms



**Specifications**

Model	HSTAR 750 -050	HSTAR 750 -125	HSTAR 750 -250	HSTAR 750 -500	HSTAR 750 -1000	HSTAR 750 -2000	HSTAR 750 -3000	HSTAR 750 -4000	HSTAR 750 -5000	HSTAR 750 -7500	HSTAR 750 -10000
Nominal Range (inches)	±0.050	±0.125	±0.25	±0.50	±1.00	±2.00	±3.00	±4.00	±5.00	±7.50	±10.00
Nominal Range (mm)	±1.3	±3.0	±6.3	±12.5	±25	±50	±75	±100	±125	±190	±250
Sensitivity (mV/V/.001 in)	6.1	3.9	2.4	0.63	0.34	0.20	0.23	0.17	0.12	0.11	0.07
Sensitivity (mV/V/mm)	240	154	96	25	13.4	8.0	9.0	6.7	4.7	4.3	2.8
Primary Impedance (Ω)	325	735	1400	1200	785	575	1200	420	600	775	620
Dimension "A" (inches)	2.01	2.64	3.35	5.92	7.38	10.91	13.65	16.17	18.65	23.85	31.66
Dimension "A" (mm)	51.1	67.1	85.1	150.4	187.5	277.1	346.1	411	473.7	606	804
Dimension "B" (inches)	0.80	1.25	1.65	3.45	4.00	5.30	6.20	6.20	6.20	7.00	9.50
Dimension "B" (mm)	20.3	31.7	41.9	87.6	101.6	134.6	157.5	157.5	157.5	177.8	241.3
Dimension "N" (inches)	0.63	0.94	1.32	2.57	3.32	5.07	6.29	7.65	8.94	11.52	15.42
Dimension "N" (mm)	16	24	33	65	84	129	160	194	227	293	392
Weight - Body (ounces)	1.6	2.1	2.5	3.3	4.3	6.2	8.2	9.2	10.0	14.2	18.3
Weight - Body (g)	45	59	71	93	122	176	232	260	283	402	519
Weight - Core (ounces)	0.08	0.12	0.18	0.40	0.47	0.65	0.80	0.80	0.80	0.90	1.20
Weight - Core (g)	2.4	3.7	4.8	11.6	13.4	18	22	22	22	25.5	34

**Ordering Information**

- For standard HSTAR 750, order by model number with range.
- For metric threaded core option, add -006 after model number with range.
- For Teflon® bore liner option, add -010 after model number with range (not available with -080 option).
- For small diameter core option, add -020 after model number with range.
- For mild radiation option, add -080 after model number with range.
- For multiple options, add sum of dash numbers after model number with range.
- For accessories and compatible support electronics, please visit our website at [www.macrosensors.com](http://www.macrosensors.com).



*Innovators in Position Sensing*

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7300 US Route 130 North, Bldg. 22  
Pennsauken, NJ 08110-1541 USA  
tel: 856-662-8000  
fax: 856-317-1005  
[www.macrosensors.com](http://www.macrosensors.com)  
[lvdts@macrosensors.com](mailto:lvdts@macrosensors.com)

