

# HSA 750 Series

## Hermetically Sealed AC-LVDT Position Sensors



### Description

Macro Sensors' HSA 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 general industrial use. The coil windings are sealed against hostile environments to IEC standard IP-68 and electrical termination is through a sealed axial connector. The mating connector plug is supplied with the unit.

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

### Features

- Ranges of  $\pm 0.050$  inch to  $\pm 10.0$  inches
- In-line connector, mating plug included
- Environmentally sealed to IEC IP-68
- Non-linearity less than  $\pm 0.25\%$  of FRO

### Applications

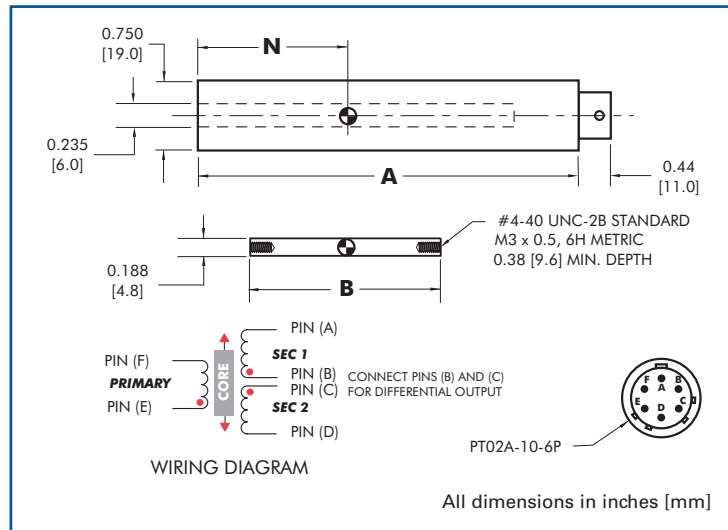
- Machine tool positioners
- Materials testing extensometers
- Hydraulic cylinder position
- Valve position sensing
- Automatic assembly equipment
- Corrosive environments

Macro Sensors offers several standard options that permit a user to customize HSA 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. On special order, the HSA 750 Series can be constructed for resistance to mild nuclear radiation, as well as for immersion in pressurized fluids and to withstand higher operating temperatures.

All HSA 750 Series LVDTs will operate properly with any conventional differential input LVDT signal conditioners, but operation with ratiometric LVDT signal conditioning is not recommended. Macro Sensors offers a full line of LVDT signal conditioners that will deliver optimum performance from any HSA 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 +220°F (-55°C to +105°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 ▶	HSA 750 -050	HSA 750 -125	HSA 750 -250	HSA 750 -500	HSA 750 -1000	HSA 750 -2000	HSA 750 -3000	HSA 750 -4000	HSA 750 -5000	HSA 750 -7500	HSA 750 -10000
Nominal Range (inches)	±0.050	±0.125	±0.25	±0.50	±1.00	±2.00	±3.00	±4.00	±5.0	±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	0.61	0.37	0.25	0.17	0.12	0.11	0.07
Sensitivity (mV/V/mm)	240	154	96	25	24	15	9.8	6.7	4.7	4.3	2.8
Primary Impedance (Ω)	325	735	1400	1200	1250	2150	2150	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	3.45	5.30	6.20	6.20	6.20	7.00	9.50
Dimension "B" (mm)	20.3	31.7	41.9	87.6	87.6	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	0.40	0.65	0.80	0.80	0.80	0.90	1.20
Weight - Core (g)	2.4	3.7	4.8	11.6	11.6	18	22	22	22	25.5	34

**Ordering Information**

- For standard HSA 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.
- For small diameter core option, add -020 after model number with range.
- For multiple options, add sum of dash numbers after model number with range.