HERMETICALLY SEALED

AC-LVDT Position Sensors
MACRO HSA 750 | HSAR 750

Overview

Macro Sensors' HSA and HSAR 750 Series of 3/4 inch (19 mm) diameter AC-operated LVDTs are 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 (HSA) or radial (HSAR) connector. 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. The mating connector plug is supplied with the unit.

Available in ranges of ±0.050 inch (±1.25 mm) to ±10.0 inches (±250 mm), HSA/HSAR 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 ±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 HSA/HSAR 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/HSAR 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/HSAR 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/HSAR 750 Series LVDT.

Benefits

- Ranges of ±0.050 inch to ±10.0 inches
- Environmentally sealed to IEC IP-68
- Non-linearity less than ±0.25% of FRO

Applications

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

General Specifications

Input Voltage	3.0 V_{rms} (nominal)
Input Frequency	2.5 to 3.0 kHz
Linearity Error	≤±0.25% of FRO
Repeatability Error	<0.01% of FSO
Hysteresis Error	<0.01% 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

Ordering Information

- 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.

Specifications

MODEL ▶ / PARAMETER ▼	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	±5.00	±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	0.61	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

MODEL ▶ / PARAMETER ▼	HSAR 750 -050	HSAR 750 -125	HSAR 750 -250	HSAR 750 -500	HSAR 750 -1000	HSAR 750 -2000	HSAR 750 -3000	HSAR 750 -4000	HSAR 750 -5000	HSAR 750 -6000	HSAR 750 -7500	HSAR 750 -10000
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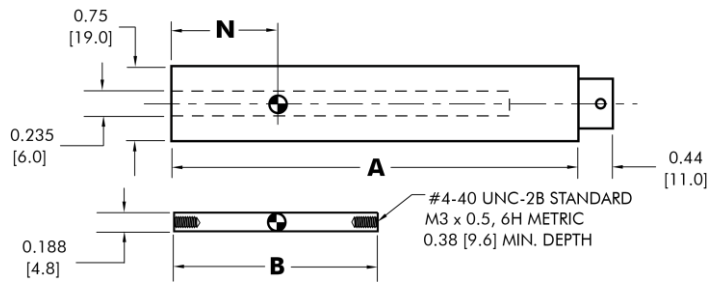
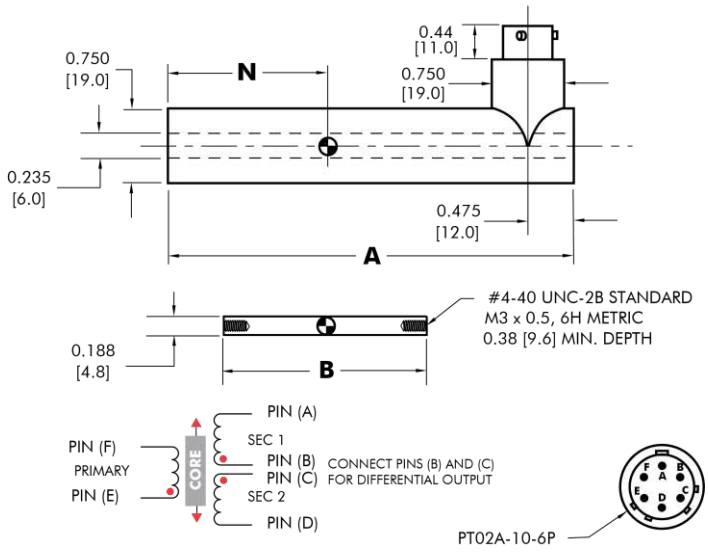
Dimensions

HSA 750



HSAR 750



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