

HIGH TEMPERATURE

Hermetically Sealed
AC-LVDT Position Sensors
MACRO HSTA 750 | HSTAR 750

Overview

Macro Sensors' HSTA and HSTAR 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 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 axial (HSTA) or radial (HSTAR) 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), HSTA/HSTAR 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 HSTA/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. On special order, the HSTA/HSTAR 750 Series can be constructed for resistance to mild nuclear radiation (3x107 Rads), as well as for immersion in pressurized fluids and to withstand higher operating temperatures.

All HSTA/HSTAR 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 HSTA/HSTAR 750 Series LVDT.

Benefits

- Ranges of ±0.05" to ±10" [±1.25 mm to ±250 mm]
- 400°F (200°C) operating temperature
- Environmentally sealed to IEC IP-68
- Non-linearity less than ±0.25% of FRO
- Through-bore design (HSTAR)
- Mating plug for connector included

Applications

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

General Specifications

Input Voltage	3.0 Vrms (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 +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

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 mild radiation option, add -080 after model number with range.
- For multiple options, add sum of dash numbers after model number with range.

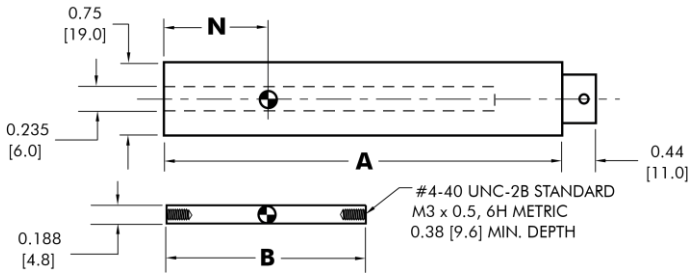
Specifications

Model ▶ / Parameter ▼	HSTA 750 -050	HSTA 750 -125	HSTA 750 -250	HSTA 750 -500	HSTA 750 -1000	HSTA 750 -2000	HSTA 750 -3000	HSTA 750 -4000	HSTA 750 -5000	HSTA 750 -7500	HSTA 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

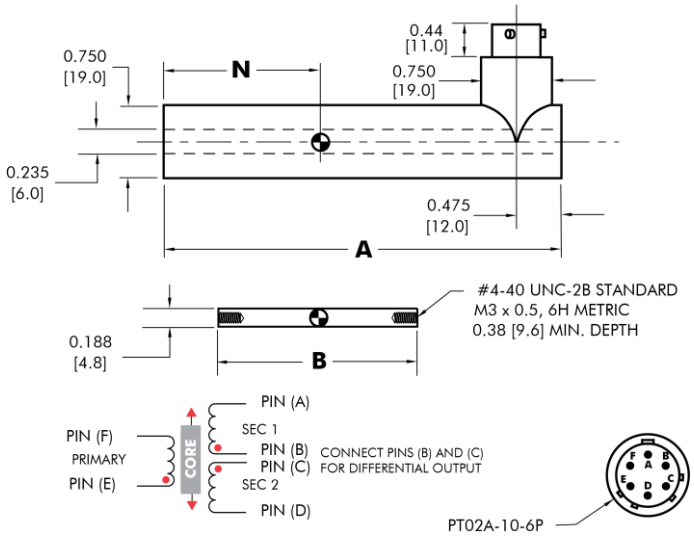
Model ▶ / Parameter ▼	HSTAR 750 -050	HSTAR 750 -125	HSTAR 750 -250	HSTAR 750 -500	HSTAR 750 -1000	HSTAR 750 -2000	HSTAR 750 -3000	HSTAR 750 -4000	HSTAR 750 -5000	HSTAR 750 -7500	HSTAR 750 -10000
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Dimensions

HSTA 750



HSTAR 750



ABOUT MACRO SENSORS

Macro Sensors, founded by Howard A. Schaevitz, has more than three hundred man-years of experience in just one thing: the design and manufacture of LVDTs. We believe that you need solutions, not simply products. When you call us, you get the benefit of our experience and our commitment.

Most products listed are in stock for immediate delivery, and we strive to offer the finest customer service in the industry: technical support from people who understand LVDTs and how to apply them to your benefit, and a commitment to excellent pricing, quality products, and deliveries that you can truly rely on. Macro Sensors also has a comprehensive network of representatives and distributors in the U.S. and around the world to provide you with local support.

We manufacture an enormous array of LVDTs, from modified standards to complete custom designs. Our customers consistently tell us it is Macro Sensors? quality and service that keeps them coming back. Let our experience go to work for you.

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