



## HAZARDOUS LOCATIONS

Class I Division 1 Intrinsically Safe

Class I Division 2 Non-Incendive

UL & ATEX Listed

MACRO HLR 750 LVDT Position Sensor

### Overview

Macro Sensors HLR 750 Series LVDT position sensors are specially designed for use in gas turbine environments. These hermetically sealed AC-LVDTs are UL and ATEX listed and although these ratings share a common LVDT, each set of approvals retains specific operating requirements. Available in measuring ranges from  $\pm 1$  inch to  $\pm 10$  inches, HLR 750 Series LVDT position sensors feature high resolution, excellent repeatability, and low hysteresis (typically better than 0.01% of full scale output for each). The maximum linearity error of these sensors is  $\pm 0.25\%$  of full range output.

Constructed entirely of stainless steel for environmental robustness, they feature 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. An HLR LVDT's lead wires exit through a radially mounted 1/2-14 NPT male threaded fitting for easy attachment to conduit or an explosion-proof enclosure.

HLR 750 LVDTs can be customized with Teflon® bore liners and metric threaded core options. Macro Sensors also offers a full line of LVDT signal conditioners that will deliver optimum performance from any HLR 750 Series LVDT.

#### **Class 1, Div. 1**

**Groups A, B, C and D T3C Class 1, Zone 1, Group IIC**

**Ambient Temp: -50°C to 100°C (-58°F to 212°F)**

**Max. Input: 6V rms @ 2.5 kHz**

**ONLY WHEN INSTALLED PER MACROSENSORS 011600000113**

or

**Class 1, Div. 2 Groups A, B, C and D T3C**

**Class 1, Zone 2, AEx nA IIC T3**

**Ex nA IIC T3 Gc**

**Ambient Temp: -50°C to 150°C (-58°F to 300°F)**

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HLR 750 Position Sensors

### Benefits

- ◆ UL/ULc, ATEX listed
- ◆ Ranges of  $\pm 1$  inch to  $\pm 10$  inches
- ◆ All stainless steel construction
- ◆ 1/2" conduit leads outlet

### Applications

- ◆ Gas turbine servo controls
- ◆ Fuel valve position feedback
- ◆ Petrochemical process plants
- ◆ Pulp plants and paper mills

### Performance @ 25°C (77°F)

**Linearity Error**  $\leq \pm 0.25\%$  of Full Range

**Repeatability Error**  $\leq 0.01\%$  of Full Range

### Environmental Data

#### Operating Temperature

**Class I, Division 1** -50 to 100°C (-58 to 212°F)\*

**Class I, Division 2** -50 to 150°C (-58 to 300°F)

**Temperature Sensitivity** -0.02%/°C (-0.01%/°F) nominal

**Vibration Tolerance** 20 g to 2 kHz

**Shock Survival** 1000 g, 11 ms

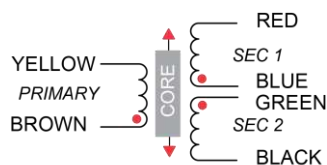
\*Maximum input: 6Vrms @ 2.5 kHz, and only when installed per Macro Sensors 01160000113 standards (see drawing)

### Electrical Data

**Input Voltage** 3 Vrms (nominal)  
6 Vrms (maximum)

**Input Frequency** 2.5 kHz (maximum)

#### Wiring Diagram



CONNECT BLUE AND GREEN  
FOR DIFFERENTIAL OUTPUT

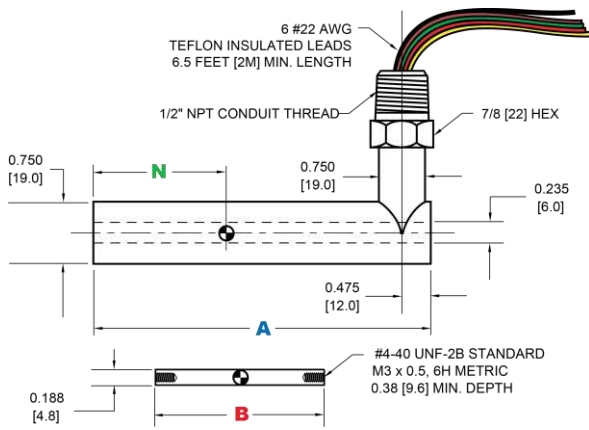
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## HLR 750 Position Sensors

### Ordering Information

HLR	750	10000	0	1	0
Series					
0.750" (19 mm) Body Diameter					
<b>Range</b>					
1000 = ±1.00" (±25 mm)	5000 = ±5.00" (±125 mm)				
2000 = ±2.00" (±50 mm)	6000 = ±6.00" (±150 mm)				
3000 = ±3.00" (±75 mm)	7500 = ±7.50" (±190 mm)				
4000 = ±4.00" (±100 mm)	10000 = ±10.00" (±250 mm)				
<b>Teflon Bore Liner Option</b>					
0 = No Liner Included					
1 = Teflon Bore Liner Included					
<b>Metric Threaded Core Option</b>					
0 = #4-40 UNC-2B Thread					
6 = M3 x 0.5, 6H Metric Thread					

### Dimensions



Parameter	Range Code	1000	2000	3000	4000	5000	6000	7500	10000
Range	inches	±1.00	±2.00	±3.00	±4.00	±5.00	±6.00	±7.50	±10.00
	mm	±25	±50	±75	±100	±125	±150	±190	±250
Sensitivity	V/inch	0.34	0.20	0.21	0.17	0.11	0.10	0.11	0.075
	V/mm	13.4	7.9	8.3	6.7	4.3	3.9	4.3	3.0
Primary Impedance	Ω	785	575	170	420	540	450	775	620
Body Length "A"	inches	7.34	10.91	13.65	16.17	18.65	18.65	23.85	31.65
	mm	186.4	277.1	346.7	410.7	473.7	473.7	605.8	803.9
Core Length "B"	inches	4.00	5.30	6.20	6.20	6.20	5.30	7.00	9.50
	mm	101.6	134.6	157.5	157.5	157.5	134.6	177.8	241.3
Core Position "C" (at null position)	inches	3.32	5.07	6.29	7.65	8.94	8.94	11.52	15.42
	mm	84.3	128.8	159.8	194.3	227.1	227.1	292.6	391.7
Weight - Body	ounces	10.3	12.2	14.2	15.1	16.0	16.0	22.6	24.3
	g	292	346	400	428	454	454	640	690
Weight - Core	ounces	0.50	0.65	0.78	0.78	0.78	0.65	0.88	1.20
	g	14.2	18.4	22.1	22.1	22.1	18.4	25.0	34.0

### NORTH AMERICA

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