

HLR 750 Series

Position Sensors for Hazardous Locations



Description

Macro Sensors' HLR 750 Series of 3/4 inch diameter high reliability LVDT position sensors are specifically designed for use in gas turbine environments. Rated for operation to 300°F (150°C), these hermetically sealed AC-LVDTs are listed for Class I, Division 2, Groups A, B, C, D and Class I, Zone 2, Group IIC hazardous locations by Underwriters Laboratories. Constructed entirely of stainless steel for environmental robustness, they feature a through-bore design which makes the LVDTs' cores accessible from both ends for better mechanical support and core guidance and facilitates cleanout in dusty or dirty locations. An HLR LVDT's lead wires exit through a radially mounted 1/2-14 NPT male threaded conduit fitting for easy attachment to an explosion-proof junction box as well as rigid or flexible conduit.

Available in measuring ranges from ± 1 inch to ± 10 inches, HLR 750 Series position sensors feature the high resolution, excellent repeatability, and low hysteresis (typically better than 0.01% of full scale output for each) that is associated with time-proven LVDT technology. The maximum linearity error of these sensors is $\pm 0.25\%$ of full

Features

- UL/ULC Listed for Class I, Division 2 and Class I, Zone 2 Hazards
- Ranges of ± 1 inch to ± 10 inches
- 300°F operating temperature
- All stainless steel construction
- 1/2" conduit leads outlet

Applications

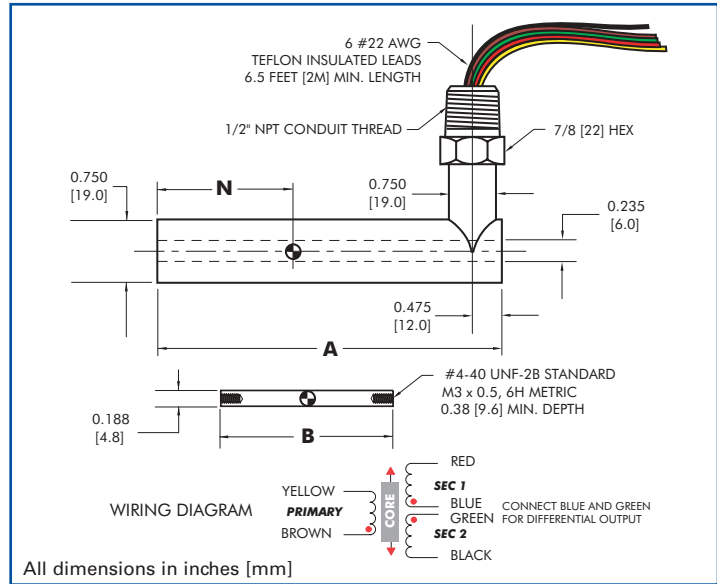
- Gas turbine servo controls
- Fuel valve position feedback
- Petrochemical process plants
- Pulp plants and paper mills

range output, using a best-fit straight line derived by the least squares method. A particularly desirable feature of HLR 750 Series LVDTs is that the sum of their secondary voltages is essentially constant and independent of core position, so they can be used equally well with either conventional differential input LVDT signal conditioners or with ratiometric signal conditioning circuits.

HLR 750 Series LVDTs offer reliable contactless position measurement for critical applications in power plants using gas turbines such as fuel valve position feedback, vane pitch servo controls, governor controls, and generator shell expansion measurement. Their temperature rating permits these LVDTs to serve in many applications in steam turbine power plants as well. They also are ideal for throttle position sensing on engine-driven compressors in natural gas pumping stations, height measurement for head boxes and slicers in paper mills, edge detectors and web tension controls in plastic film plants, and real time position sensing for all types of valves in chemical process plants.

General Specifications

- Input Voltage:** 3.0 Vrms (nominal)
- Input Frequency:** 2.5 - 3.0 kHz
- Linearity Error:** $\pm 0.25\%$ of FRO
- Repeatability Error:** <math>< 0.01\%</math> of FSO
- Hysteresis Error:** <math>< 0.01\%</math> of FSO
- Operating Temperature:** -65°F to +300°F (-55°C to +150°C)
- Thermal Coefficient of Sensitivity:** 0.01%/°F (nominal) (0.02%/°C nominal)
- Vibration Tolerance:** 20 g to 2kHz
- Shock Survival:** 1000 g, 11 ms



Specifications

Model	HLR 750 -1000	HLR 750 -2000	HLR 750 -3000	HLR 750 -4000	HLR 750 -5000	HLR 750 -6000	HLR 750 -7500	HLR 750 -10000
Nominal Range (inches)	±1.00	±2.00	±3.00	±4.00	±5.00	±6.00	±7.50	±10.00
Nominal Range (mm)	±25	±50	±75	±100	±125	±150	±190	±250
Sensitivity (mV/V/.001 in)	0.34	0.20	0.21	0.17	0.11	0.10	0.11	0.075
Sensitivity (mV/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
Dimension "A" (inches)	7.34	10.91	13.65	16.17	18.65	18.65	23.85	31.65
Dimension "A" (mm)	186.4	277.1	346.7	410.7	473.7	473.7	605.8	803.9
Dimension "B" (inches)	4.00	5.30	6.20	6.20	6.20	5.30	7.00	9.50
Dimension "B" (mm)	101.6	134.6	157.5	157.5	157.5	134.6	177.8	241.3
Dimension "N" (inches)	3.32	5.07	6.29	7.65	8.94	8.94	11.52	15.42
Dimension "N" (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
Weight - Body (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
Weight - Core (g)	14.2	18.4	22.1	22.1	22.1	18.4	25.0	34.0

Ordering Information

For standard HLR 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 both options, add -016 after model number with range
 For accessories and compatible support electronics, please visit our website at www.macrosensors.com.



Innovators in Position Sensing

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