

LVDT Position Sensors Monitor Shell Expansion, Bearing Vibration in Gas Turbines

The Macro Sensors HLR 750 Series of ¼" diameter LVDT Position Sensors play an important role in the predictive maintenance of gas turbines as part of process control systems used to monitor shell expansion and bearing vibration. Installed on turbine shells, these hermetically sealed AC-LVDTs measure shell expansion, providing linear output that operators can utilize to determine proper thermal growth of a turbine shell during start up, operation and shutdown.

HLR 750 Series LVDT Position Sensors are also used to monitor bearing vibration to detect bearing clearance limits that is indicative of bearing wear. If bearings start to wear, operators want to be able to schedule turbine maintenance service rather than have a turbine stripped off and shut down due to excessive vibration.

HLR 750 Series LVDTs offer reliable, contactless position measurement and temperature ranges of -65° (-55°C) up to 300 °F (150 °C) that are critical in these power plant applications. Available in full-scale measurement ranges from ± 1 inch to ± 10 inches, these stainless steel position sensors feature high resolution, excellent repeatability typically better than 0.01% of full scale and non-linearity of less than 0.25% of full range output. Other notable features of these rugged linear position sensors include:

- A UL/ULC rating for continuous operation in Class I, Division I, Groups A, B, C and D and Class I, Zone 2, Group IIC hazardous locations (NEC 500 and 505)
- A through-bore design that makes the sensor's core accessible from both ends for better mechanical support and core guidance, as well as facilitating bore cleaning
- Lead wires exit through a radially mounted ½" NPT male rigid conduit fitting for easy attachment to an explosion-proof junction box
- Electronics are supplied and supported for the HLR 750 series, which work well with either conventional differential input LVDT signal conditioners or ratiometric signal conditioning circuits. For added protection against environmental elements, electronics can be installed in explosion-proof enclosures and connected to LVDTs using a suitable conduit.

