

# GHSAR 750-006 Series

## Spring-Loaded AC-LVDT Position Sensors



### Description

The Macro Sensors GHSAR 750 Series of 19.0 mm diameter spring-loaded AC-LVDTs are designed for a wide range of position measurement and dimensional gaging applications. These rugged hermetically sealed sensors are constructed entirely of stainless steel and intended for general industrial use. The coil windings are sealed against hostile environments to IEC standard IP-68. Electrical termination is through a radially mounted sealed connector, which results in a much reduced installed length. The mating connector plug is supplied with a unit. The through-bore design allows for air purging of the sensor's bearings to remove potential contaminants.

The sensor consists of a spring loaded shaft running in a precision sleeve bearing and connected to the core of an LVDT. The use of a precision sleeve bearing results in measurement repeatability of 0.6  $\mu\text{m}$  or better. The output from the LVDT can be connected to any standard LVDT signal conditioner and then passed to a gaging column display, digital readout, or computer based data acquisition system.

The probe shaft is fully extended by a spring exerting a nominal force of 170 to 570 grams depending upon total range. The contact tip

### Features

- Ranges of  $\pm 1$  mm to  $\pm 50$  mm
- Radial connector, mating plug included
- Repeatability of 0.6  $\mu\text{m}$
- Non-linearity less than  $\pm 0.25\%$  of FRO
- Coil environmentally sealed to IEC IP-68
- Through-bore design

### Applications

- Industrial gaging systems
- Electronic dial indicators
- Fabricated metal products gaging
- Materials testing apparatus
- Large shaft TIR measurements

supplied is an AGD standard number 9 made from chrome plated hardened tool steel. It is fully interchangeable with other AGD contact tips.

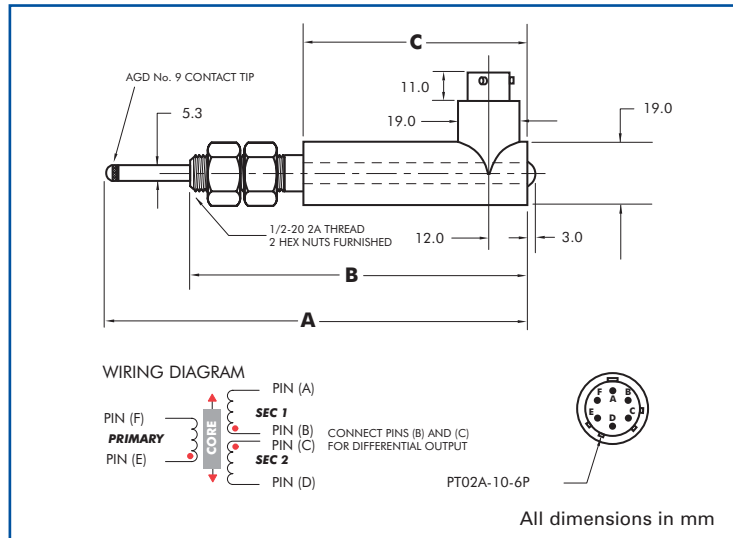
Available in ranges of  $\pm 1$  mm to  $\pm 50$  mm, the maximum linearity error for a GHSAR 750 Series sensor is  $\pm 0.25\%$  of full range output using a statistically best-fit straight line derived by the least squares method.

For simplified mounting the GHSAR 750 has a 1/2-20 UNF 2A thread on the front of the housing, permitting the user to install the LVDT in a mating threaded part or by using the two hex nuts furnished with the sensor. This results in a ready-to-use package for position measurements and longer range gaging applications.

All GHSAR 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 GHSAR 750 Series LVDT.

**General Specifications**

- Input Voltage:** 3.0 V<sub>rms</sub> (nominal)
- Input Frequency:** 2.5 to 3.0 kHz
- Linearity Error:** <math>\pm 0.25\%</math> of FRO
- Repeatability Error:** <math>< 0.6 \mu\text{m}</math>
- Operating Temperature:** -55°C to +105°C
- Thermal Coefficient of Sensitivity:** -0.02%/°C (nominal)



**Specifications**

| Model ▶               | GHSAR 750 -050 | GHSAR 750 -125 | GHSAR 750 -250 | GHSAR 750 -500 | GHSAR 750 -1000 | GHSAR 750 -2000 |
|-----------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| Nominal Range (mm)    | ±1             | ±3             | ±6             | ±12.5          | ±25             | ±50             |
| Sensitivity (mV/V/mm) | 240            | 153            | 98             | 26             | 24              | 14              |
| Primary Impedance (Ω) | 325            | 735            | 1400           | 1200           | 1250            | 2150            |
| Pretravel (mm)        | 3.0            | 3.3            | 2.5            | 2.5            | 1.3             | 0.5             |
| Overtravel (mm)       | 3.0            | 3.3            | 2.5            | 2.5            | 1.3             | 0.5             |
| Dimension "A" (mm)    | 117            | 134            | 153            | 268            | 322             | 531             |
| Dimension "B" (mm)    | 89             | 105            | 125            | 230            | 267             | 415             |
| Dimension "C" (mm)    | 50             | 66             | 85             | 149            | 186             | 276             |
| Weight (g)            | 82             | 96             | 113            | 170            | 179             | 290             |

**Ordering Information**

Order by model number with range  
 For accessories and compatible signal conditioners, please visit our website at [www.macrosensors.com](http://www.macrosensors.com).



*Innovators in Position Sensing*

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