

SPRING-LOADED LVDT

DC Operated Position Sensors
MACRO GHSE 750 | GHSER 750
GHSI 750 | GHSIR 750

Overview

Macro Sensors GHS 750 Series spring-loaded LVDTs are designed for a wide range of position measurement and dimensional gaging applications. These rugged, 3/4 inch diameter, hermetically sealed sensors are constructed entirely of stainless steel and are available in ranges of 0.100 inch (2.5 mm) to 4.00 inches (100 mm). The maximum linearity error for a GHS 750 Series sensor is ±0.10% of full range output. Units are supplied with built-in electronics for either DC operation with a pre-calibrated 0-10VDC output (GHSE) or 4-20 mA current loop operation (GHSI).

The sensor consists of a spring loaded shaft running in a precision sleeve bearing and connected to the core of the LVDT. The probe shaft is fully extended by a spring (k=0.23 lbs./in.), exerting a nominal force of 6 to 20 ounces depending upon total range. The hardened tool steel contact tip is an AGD standard number 9 and is fully interchangeable with other 4-48-threaded AGD contact tips. For simplified mounting, GHS sensors have a 1/2-20 UNF 2A thread on the front of the housing and are supplied with two hex nuts.

An air-extend/spring-retract option allows for a wide range of cycled position measurement and automated dimensional gaging applications. The shaft is extended by introduction of a low-pressure (10-40 psi), clean, dry air supply, with a regulated flow, through a barbed fitting on the end of the unit for 1/4 inch I.D. hose. With the release of pressure, an internal spring returns the probe to its retracted position.

Benefits

- Ranges of 0.100 inch to 4.00 inches
- Non-linearity less than ±0.10%
- Repeatability OF <0.01%
- 0-10VDC or 4-20mA outputs
- Rugged, stainless steel construction
- Coil environmentally sealed to IEC IP-68
- Axial or radial connectors w/ mating plug included
- Air-extend/spring-retract option

Applications

- Industrial gaging systems
- Electronic dial indicators
- Fabricated metal products gaging
- Materials testing apparatus
- TIR measurements
- Steam turbine shell expansion
- Safety valve seating verification
- Pinch and gap roller alignment

Environmental Data

Operating Temperature	-20 to 70°C (0 to 160°F)
Temperature Sensitivity	-0.027%/°C (-0.015%/°F) nominal
Ingress Protection	IP 68

Performance

Linearity Error*	≤ ±0.10% of Full Range
Repeatability Error	<0.01% of FRO

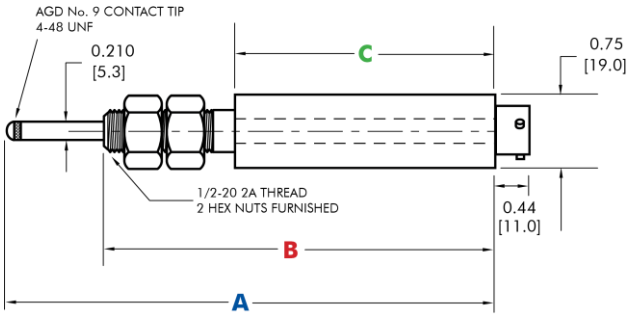
* -4000 units (4.00” [100mm] range) have linearity error of ≤±0.25% of full range

Electrical Data

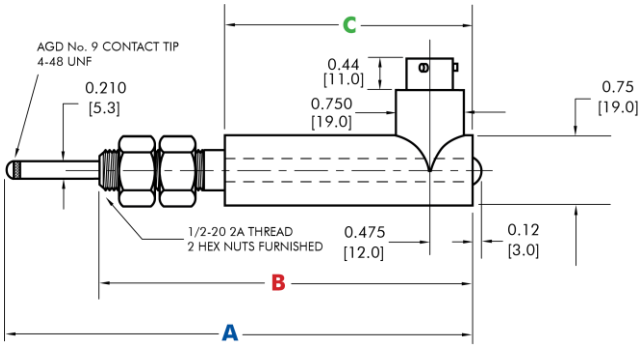
Output	0-10VDC	4-20mA
Input	12-26VDC	8-28VDC
Loop Resistance:	N/A	see graph at right
Current Consumption:	25 mA (max.)	-
Output Noise & Ripple:	≤0.005 Vrms	<10 µArms
Bandwidth; Electrical:	Range Dependent	(-3dB): DC to 50 Hz

Dimensions

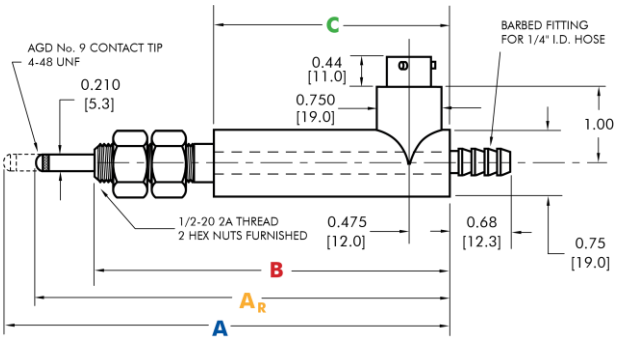
Axial Connector



Radial Connector



Air Extend/Spring Retract



Specifications

Parameter ▼	Code ▶	100	250	500	1000	2000	4000
Range	inches	0.100	0.250	0.500	1.00	2.00	4.00
	mm	2.5	6.3	12.7	25.4	50.8	101.6
Scale Factor	V/inch	100	40	20	10	5.0	2.5
	V/mm	4.0	1.6	0.8	0.4	0.2	0.1
Pretravel	inches	0.12	0.13	0.10	0.10	0.05	0.02
	mm	3.0	3.3	2.5	2.5	1.3	0.5
Overtravel	inches	0.12	0.13	0.10	0.10	0.05	0.02
	mm	3.0	3.3	2.5	2.5	1.3	0.5
Overall Length "**A**"	inches	5.46	6.10	6.86	11.36	13.82	21.75
	mm	139	155	174	289	351	553
Retracted Length "A_R"	inches	5.12	5.59	6.16	10.16	11.72	17.71
	mm	130	142	156	258	298	450
Overall Length Minus Probe "**B**"	inches	4.36	4.99	5.75	9.87	11.40	17.19
	mm	111	127	146	251	291	437
Body Length "**C**"	inches	2.82	3.44	4.20	6.70	8.20	11.71
	mm	72	87	107	170	208	297
Weight	ounces	3.1	3.6	4.3	6.4	6.7	10.5
	mm	85	102	170	180	185	296

Ordering Information

GHS	E	R	750	10000	A

Series

Outputs
E = 0-10VDC
I = 4-20mA

Connector
R = Radial
Leave Blank for Axial

0.750" (19 mm) Body Diameter

Range (see table above)
100 = 0.100″ (2.5 mm)
250 = 0.250″ (6.3 mm)
4000 = 4.00″ (101.6 mm)
500 = 0.500″ (12.7 mm)
1000 = 1.00″ (25.4 mm)
2000 = 2.00″ (50.8 mm)

Linearity Error Option
A = Air Extend/Spring Retract
Leave Blank for Non-Air Extend/Spring Retract

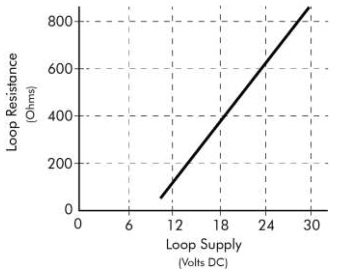
Connector Wiring



PT02A-10-6P
Connector

Pin A	DC Out	Not Connected
Pin B	Do Not Connect	Do Not Connect
Pin C	Case Ground (Recommended)	Case Ground
Pin D	Common	Not Connected
Pin E	12-26VDC, 24VDC (nominal)	Loop +
Pin F	Not Connected	Loop -

GHSI (4-20 mA)
Loop Resistance (Max.) vs. Loop Supply Voltage



Accessories

Cable Assemblies

Pre-built LVDT cable assemblies are available in lengths of 10, 30, or 50 feet for all Macro Sensors LVDTs with in-line or radial connectors. Cable assemblies are constructed of PVC-jacketed, multi-conductor, shielded cable, with a heavy-duty, 6-pin female, aluminum-alloy connector with soldered connections.

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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