

GH-750-A Series AC Spring Loaded LVDT Linear Position Sensor

Features

- Spring loaded probe
- Air-extend option available
- Stroke lengths from ± 0.05 to ± 2 inches
- Non-Linearity better than $\pm 0.25\%$ of FS
- Stainless steel housing sealed to IP68

Applications

- Laboratory R&D Materials Testing
- Industrial Gauging Test Stands
- Factory Automation



Overview

The HGSI GH-750-A series AC Spring Loaded Linear Variable Differential Transformer (LVDT) Position Sensors are used to monitor and track the linear motion or position of a target. These spring-loaded ruggedized sensors are ideal for use in industrial and laboratory applications including automotive R&D, motorsports, industrial, motion control, medical, military and aerospace.

The sensor shaft is spring loaded and guided by a pair of precision sleeve bearings. These hermetically sealed sensors are constructed entirely of stainless steel and are resistant to dust, water, temperature, shock, and vibration. For the air-extend option, the shaft is extended by introduction of a low pressure (10-30 psi), clean, dry air supply, with a regulated flow, through a 1/4 barbed fitting on the end of the unit. With the release of pressure, an internal spring returns the probe to its fully retracted position.

The GH-750-A series will operate with most any conventional differential input AC LVDT signal conditioner, but operation with ratiometric signal conditioning is not recommended. HGSI offers a full line of compatible AC LVDT signal conditioners. Please contact us for a recommendation.

Specifications

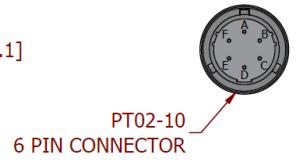
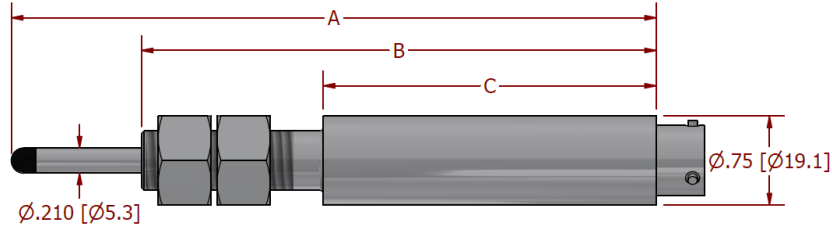
Input Voltage:	3 Vrms (nominal)
Input Frequency:	400 Hz to 10 kHz
Linearity Error:	$\leq \pm 0.15\%$ of FSO typical, $\pm 0.25\%$ maximum
Null Voltage:	0.5% of FS
Repeatability:	0.01% of FS
Hysteresis:	0.01% of FS
Bandwidth:	3 Hz (mechanical)
Operating Temperature:	-54 to +135°C (-65 to +275°F) - Standard Temperature Version -54 to +204°C (-65 to +400°F) - High Temperature Version
Thermal Coefficient:	$< -0.02\%/^{\circ}\text{C}$ of FS ($< -0.01\%/^{\circ}\text{F}$ of FS)
Humidity:	90% RH
Housing:	Stainless steel
Contact Tip:	AGD #9 hardened tool steel, chrome plated, #4-48 thread, interchangeable
Mating Connector:	Amphenol PT06A-10-6S(SR) or equivalent
Life Expectancy:	> 100 million cycles
Shock Rating:	1000g, 11 ms
Vibration Rating:	20 g to 2 kHz
IP Rating:	IEC IP68
Country of Manufacture:	Made in the USA



GH-750 Series AC Spring Loaded LVDT Linear Position Sensor

GH-750-A

AXIAL CONNECTOR
SPRING EXTENDED



Specifications

	GH-750-A-050	GH-750-A-125	GH-750-A-250	GH-750-A-500	GH-750-A-1000	GH-750-A-2000
Measuring Range (in) [mm]	$\pm 0.050 [\pm 1.2]$	$\pm 0.125 [\pm 3.2]$	$\pm 0.250 [\pm 6.3]$	$\pm 0.500 [\pm 12.5]$	$\pm 1.0 [\pm 25]$	$\pm 2.0 [\pm 50]$
Sensitivity (mV/V/0.001 in [mm])	6.1 [240.0]	3.9 [153]	2.5 [98]	0.65 [26]	0.61 [24]	0.37 [14]
Pretravel (in) [mm]	0.12 [3.0]	0.13 [3.3]	0.10 [2.5]	0.10 [2.5]	0.05 [1.3]	0.02 [0.5]
Overtravel (in) [mm]	0.12 [3.0]	0.13 [3.3]	0.10 [2.5]	0.10 [2.5]	0.05 [1.3]	0.02 [0.5]
Dimension A (in) [mm]	4.61 [117]	5.26 [134]	6.02 [153]	10.54 [268]	12.81 [322]	20.91 [531]
Dimension B (in) [mm]	3.51 [89]	4.15 [105]	4.91 [125]	9.05 [230]	10.51 [267]	16.35 [415]
Dimension C (in) [mm]	1.97 [50]	2.60 [66]	3.35 [85]	5.88 [149]	7.34 [186]	10.87 [276]
Spring Rate (lb/in)	0.23	0.23	0.14	0.14	0.14	0.23

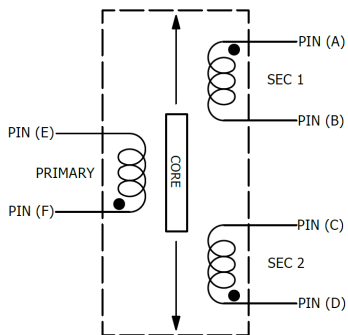
Ordering Matrix

Connector Position	Output	Measuring Range	Options
GH-750 = Axial	A = AC	050 = $\pm 0.050''$	(blank) = No options
		125 = $\pm 0.125''$	H = High Temperature 204°C (400°F)
		250 = $\pm 0.250''$	R = Mild Radiation Resistance (3×10^7 rads)
		500 = $\pm 0.500''$	
		1000 = $\pm 1.0''$	
		2000 = $\pm 2.0''$	

Ordering example: GH-750-A-050

AC LVDT, ± 0.050 inch Measuring Range, Axial Connector

Wiring



CONNECT PINS (B) AND (C) FOR DIFFERENTIAL OPERATION

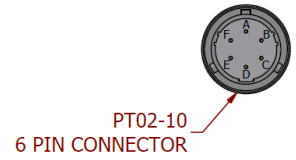
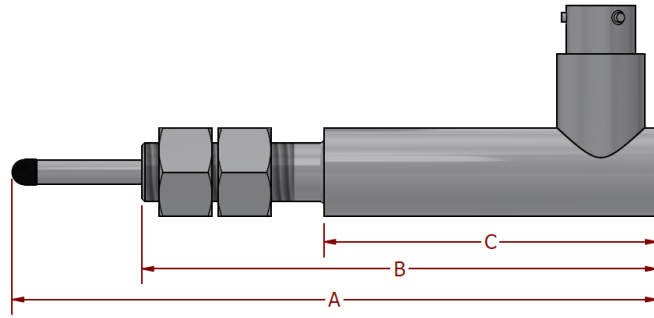
	PT02 Connector
Secondary 1 V+	A
Secondary 1 V-	B
Secondary 2 V-	C
Secondary 2 V+	D
Primary V+	E
Primary V-	F



GH-750 Series AC Spring Loaded LVDT Linear Position Sensor

GHR-750-A

RIGHT ANGLE CONNECTOR
SPRING EXTENDED



Specifications

	GHR-750-A-050	GHR-750-A-125	GHR-750-A-250	GHR-750-A-500	GHR-750-A-1000	GHR-750-A-2000
Measuring Range (in) [mm]	± 0.050 [± 1.2]	± 0.125 [± 3.2]	± 0.250 [± 6.3]	± 0.500 [± 12.5]	± 1.0 [± 25]	± 2.0 [± 50]
Sensitivity (mV/V/0.001 in [mm])	6.1 [240.0]	3.9 [153]	2.5 [98]	0.65 [26]	0.61 [24]	0.37 [14]
Pretravel (in) [mm]	0.12 [3.0]	0.13 [3.3]	0.10 [2.5]	0.10 [2.5]	0.05 [1.3]	0.02 [0.5]
Overtravel (in) [mm]	0.12 [3.0]	0.13 [3.3]	0.10 [2.5]	0.10 [2.5]	0.05 [1.3]	0.02 [0.5]
Dimension A (in) [mm]	4.61 [117]	5.26 [134]	6.02 [153]	10.54 [268]	12.81 [322]	20.91 [531]
Dimension B (in) [mm]	3.51 [89]	4.15 [105]	4.91 [125]	9.05 [230]	10.51 [267]	16.35 [415]
Dimension C (in) [mm]	1.97 [50]	2.60 [66]	3.35 [85]	5.88 [149]	7.34 [186]	10.87 [276]
Spring Rate (lb/in)	0.23	0.23	0.14	0.14	0.14	0.23

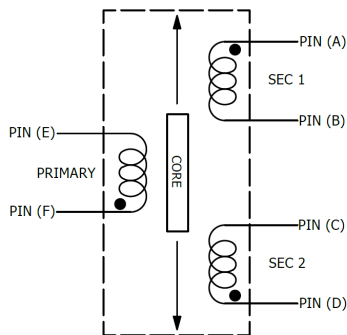
Ordering Matrix

Connector Position	Output	Measuring Range	Options
GHR-750 = Radial	A = AC	050 = ± 0.050"	(blank) = No options
		125 = ± 0.125"	H = High Temperature 204°C (400°F)
		250 = ± 0.250"	R = Mild Radiation Resistance (3x10 ⁷ rads)
		500 = ± 0.500"	
		1000 = ± 1.0"	
		2000 = ± 2.0"	

Ordering example: GHR-750-A-050

AC LVDT, ± 0.050 inch Measuring Range, Radial Connector

Wiring



CONNECT PINS (B) AND (C) FOR DIFFERENTIAL OPERATION

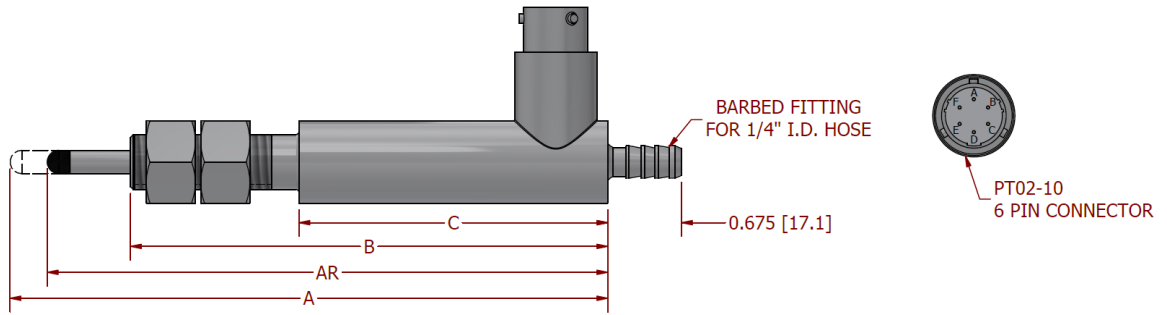
	PT02 Connector
Secondary 1 V+	A
Secondary 1 V-	B
Secondary 2 V-	C
Secondary 2 V+	D
Primary V+	E
Primary V-	F



GH-750 Series AC Spring Loaded LVDT Linear Position Sensor

GHRA-750-A

RIGHT ANGLE CONNECTOR
AIR EXTEND/SPRING RETRACT



Specifications

	GHRA-750-A-050	GHRA-750-A-125	GHRA-750-A-250	GHRA-750-A-500	GHRA-750-A-1000	GHRA-750-A-2000
Measuring Range (in) [mm]	± 0.050 [± 1.2]	± 0.125 [± 3.2]	± 0.250 [± 6.3]	± 0.500 [± 12.5]	± 1.0 [± 25]	± 2.0 [± 50]
Sensitivity (mV/V/0.001 in) [mm]	6.1 [240.0]	3.9 [153]	2.5 [98]	0.65 [26]	0.61 [24]	0.37 [14]
Pretravel (in) [mm]	0.12 [3.0]	0.13 [3.3]	0.10 [2.5]	0.10 [2.5]	0.05 [1.3]	0.02 [0.5]
Overtravel (in) [mm]	0.12 [3.0]	0.13 [3.3]	0.10 [2.5]	0.10 [2.5]	0.05 [1.3]	0.02 [0.5]
Dimension A (in) [mm]	4.61 [117]	5.26 [134]	6.02 [153]	10.54 [268]	12.81 [322]	20.91 [531]
Dimension AR (in) [mm]						
Dimension B (in) [mm]	3.51 [89]	4.15 [105]	4.91 [125]	9.05 [230]	10.51 [267]	16.35 [415]
Dimension C (in) [mm]	1.97 [50]	2.60 [66]	3.35 [85]	5.88 [149]	7.34 [186]	10.87 [276]
Spring Rate (lb/in)	0.23	0.23	0.14	0.14	0.14	0.23

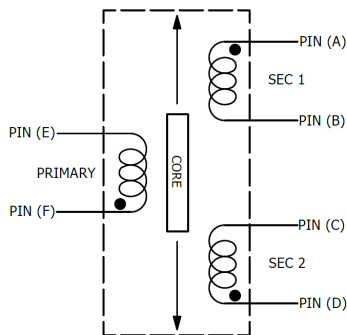
Ordering Matrix

Connector Position	Output	Measuring Range	Options
GHRA-750 = Radial Air Extend	A = AC	050 = ± 0.050"	(blank) = No options
		125 = ± 0.125"	H = High Temperature 204°C (400°F)
		250 = ± 0.250"	R = Mild Radiation Resistance (3x10 ⁷ rads)
		500 = ± 0.500"	
		1000 = ± 1.0"	
		2000 = ± 2.0"	

Ordering example: GHRA-750-A-050

AC LVDT, ± 0.050 inch Measuring Range, Air Extend

Wiring



CONNECT PINS (B) AND (C) FOR DIFFERENTIAL OPERATION

NOTE:

For the air-extend option, the shaft is extended by introduction of a low pressure (10-30 psi), clean, dry air supply, with a regulated flow, through a 1/4 barbed fitting on the end of the unit. With the release of pressure, an internal spring returns the probe to its fully retracted position.

	PT02 Connector
Secondary 1 V+	A
Secondary 1 V-	B
Secondary 2 V-	C
Secondary 2 V+	D
Primary V+	E
Primary V-	F

