

LINEAR POSITION SENSOR

TH/R-750-D/E/I SERIES HERMETICALLY SEALED DC LVDT POSITION SENSOR

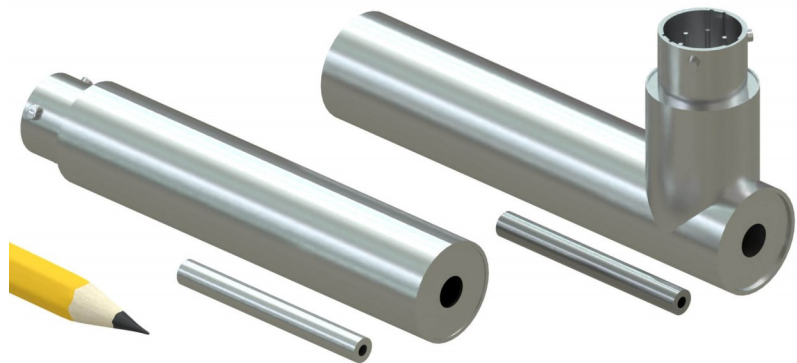
Free Core LVDT Linear Position Sensor

FEATURES

- Free Core design
- Stroke lengths from ± 0.05 to ± 10 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 HGS I TH/R-750-D-E-I series DC Linear Variable Differential Transformer (LVDT) Position Sensors are used to monitor and track the linear motion or position of a target. These ruggedized sensors are ideal for use in industrial and laboratory applications including automotive R&D, motorsports, industrial, motion control, medical, military and aerospace.

These hermetically sealed sensors are constructed entirely of stainless steel and are resistant to dust, water, and temperature. The coil windings are sealed using an epoxy potting compound providing excellent protection against shock and vibration.

The amplifier electronics are contained within the housing, no need for an external signal conditioner. The ± 10 VDC output is precalibrated at the factory.

SPECIFICATIONS

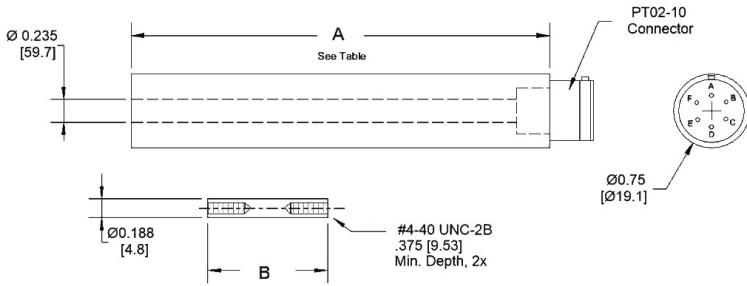
	TH/R-750-D	TH/R-750-E	TH/R-750-I
Full Scale Output	± 10 VDC	0 to 10 VDC	4 to 20 mA. 2-wire loop
Input Power	± 15 VDC, ± 25 mA	24 VDC (from 15 to 26 VDC), 25 mA	24 VDC (from 11 to 28 VDC)
Linearity Error	$\leq \pm 0.15\%$ of FSO typical, $\pm 0.25\%$ maximum		
Resolution	16 bit		
Repeatability	0.01% of FS		
Hysteresis	0.01% of FS		
Bandwidth	125 Hz update rate (analog signal output)		
Operating Temperature	-20 to $+85^{\circ}\text{C}$ (0 to $+185^{\circ}\text{F}$)		
Thermal Coefficient	$< -0.025\%/^{\circ}\text{C}$ of FS ($< -0.014\%/^{\circ}\text{F}$ of FS)		
Humidity	90% RH		
Mating Connector	Amphenol PT06A-10-6S(SR) or equivalent		
Housing	Stainless steel		
Lead Wires	28 AWG Teflon™ insulated, 12" length (305 mm)		
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		



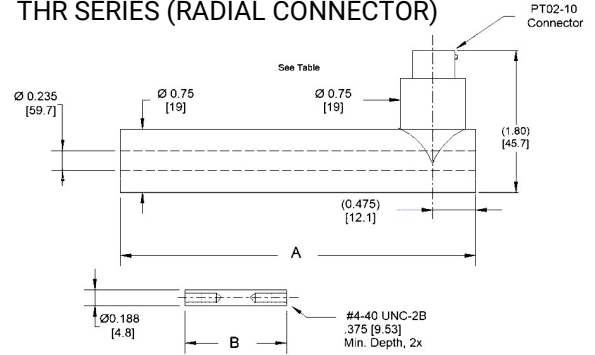
LINEAR POSITION SENSOR

TH-750-D SERIES ±10 VDC OUTPUT DC LVDT POSITION SENSOR

TH SERIES (AXIAL CONNECTOR)



THR SERIES (RADIAL CONNECTOR)



Dimensions in inches [mm]

SPECIFICATIONS

	TH/R-750-D-050	TH/R-750-D-125	TH/R-750-D-250	TH/R-750-D-500	TH/R-750-D-1000	TH/R-750-D-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]
Scale Factor (V/in) [V/mm]	200 [8.0]	80 [3.3]	40 [1.6]	20 [0.8]	10 [0.4]	5 [0.2]
Dimension A (in) [mm]	2.86 [72.5]	3.48 [88.3]	4.24 [107.7]	6.74 [171.2]	8.24 [209.3]	11.21 [284.7]
Dimension B (in) [mm]	0.80 [20.3]	1.25 [31.7]	1.65 [41.9]	3.45 [87.6]	3.45 [87.6]	5.30 [134.6]

	TH/R-750-D-3000	TH/R-750-D-5000	TH/R-750-D-7500	TH/R-750-D-10000
Measuring Range (in) [mm]	± 3.0 [± 75]	± 5.0 [± 125]	± 7.5 [± 190]	± 10.0 [± 250]
Scale Factor (V/in) [V/mm]	3.3 [0.13]	2.0 [0.08]	1.33 [0.05]	1.0 [0.04]
Dimension A (in) [mm]	14.49 [368.0]	19.49 [495.0]	25.00 [635.0]	32.38 [822.5]
Dimension B (in) [mm]	6.20 [157.5]	6.20 [157.5]	7.00 [177.8]	9.50 [241.3]

ORDERING INFORMATION

Model	Measuring Range	Options
□-750-D	- □□□	- □
TH Straight Connector	050 ± 0.050 inches	L Improved Linearity (<+/- 0.10%)
THR Right Angle Connector	125 ± 0.125 inches	M Metric Core Threads (M3x0.5)
	250 ± 0.250 inches	T Teflon™ Boreliner
	500 ± 0.500 inches	
	1000 ± 1.0 inches	
	2000 ± 2.0 inches	
	3000 ± 3.0 inches	
	5000 ± 5.0 inches	
	7500 ± 7.5 inches	

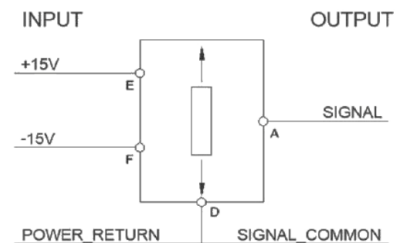
ORDERING EXAMPLE

TH-750-D-500: ± 10 VDC Output, ± 0.500 inch Measuring Range

THR-750-D-500: ± 10 VDC Output, ± 0.500 inch Measuring Range with Right-Angle Connector

WIRING PIN OUT

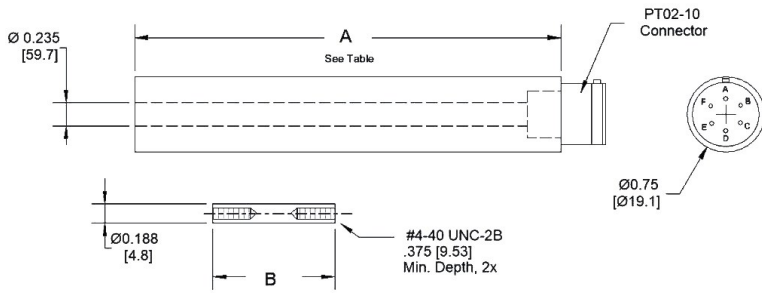
	PT02 Connector
±10 VDC Output	A
Output Common	D
Power Common	D
+15 VDC Power In	E
-15 VDC Power In	F



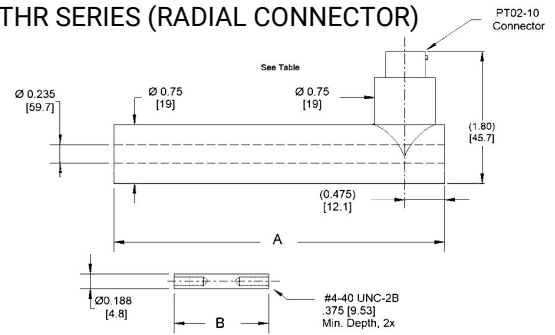
LINEAR POSITION SENSOR

TH-750-E SERIES 0-10 VDC OUTPUT DC LVDT POSITION SENSOR

TH SERIES (AXIAL CONNECTOR)



THR SERIES (RADIAL CONNECTOR)



Dimensions in inches [mm]

SPECIFICATIONS

	TH/R-750-E-100	TH/R-750-E-250	TH/R-750-E-500	TH/R-750-E-1000	TH/R-750-E-2000	TH/R-750-E-4000
Measuring Range (in) [mm]	0.100 [2.5]	0.250 [6.3]	0.500 [12.7]	1.0 [25.4]	2.0 [50.8]	4.0 [102]
Scale Factor (V/in) [V/mm]	100 [4.0]	40 [1.6]	20 [0.8]	10 [0.4]	5 [0.2]	2.5 [0.1]
Dimension A (in) [mm]	2.86 [72.5]	3.48 [88.3]	4.24 [107.7]	6.74 [171.2]	8.24 [209.3]	11.21 [284.7]
Dimension B (in) [mm]	0.80 [20.3]	1.25 [31.7]	1.65 [41.9]	3.45 [87.6]	3.45 [87.6]	5.30 [134.6]

	TH/R-750-E-6000	TH/R-750-E-10000	TH/R-750-E-20000
Measuring Range (in) [mm]	6.0 [152]	10.0 [254]	20.0 [508]
Scale Factor (V/in) [V/mm]	1.6 [0.06]	1.0 [0.04]	0.5 [0.02]
Dimension A (in) [mm]	14.49 [368.0]	19.49 [495.0]	32.38 [822.5]
Dimension B (in) [mm]	6.20 [157.5]	6.20 [157.5]	9.50 [241]

ORDERING INFORMATION

Model	Measuring Range	Options
<input type="checkbox"/> -750-E	- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	- <input type="checkbox"/>
TH Straight Connector	100 0 to 0.100 inches	L Improved Linearity (<+/- 0.10%)
THR Right Angle Connector	250 0 to 0.250 inches	M Metric Core Threads (M3x0.5)
	500 0 to 0.500 inches	T Teflon™ Boreliner
	1000 0 to 1.0 inches	
	2000 0 to 2.0 inches	
	4000 0 to 4.0 inches	
	6000 0 to 6.0 inches	
	10000 0 to 10.0 inches	
	20000 0 to 20.0 inches	

WIRING PIN OUT

	PT02 Connector
0 to 10 VDC Output	A
Output Common	D
Power Common	D
+ VDC Power In	E

ORDERING EXAMPLE

TH-750-D-500: ± 10 VDC Output, ± 0.500 inch Measuring Range

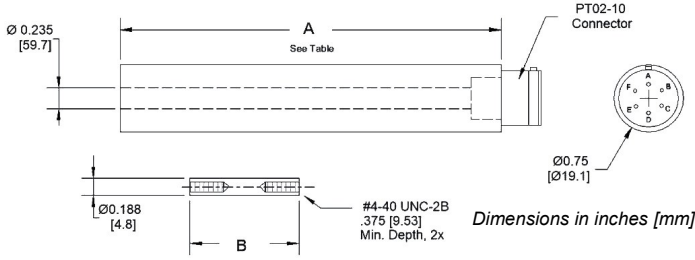
THR-750-D-500: ± 10 VDC Output, ± 0.500 inch Measuring Range with Right-Angle Connector



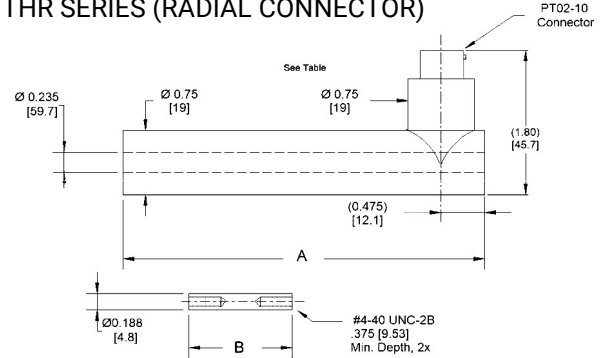
LINEAR POSITION SENSOR

TH-750-I SERIES 4-20 MA OUTPUT DC LVDT POSITION SENSOR

TH SERIES (AXIAL CONNECTOR)



THR SERIES (RADIAL CONNECTOR)

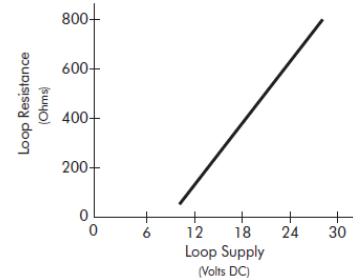


SPECIFICATIONS

	TH-750-I-100	TH-750-I-250	TH-750-I-500	TH-750-I-1000	TH-750-I-2000	TH-750-I-4000
Measuring Range (in) [mm]	0.100 [2.5]	0.250 [6.3]	0.500 [12.7]	1.0 [25.4]	2.0 [50.8]	4.0 [102]
Scale Factor (mA/in) [mA/mm]	160 [6.4]	64 [2.6]	32 [1.28]	16 [0.64]	8 [0.32]	4 [0.16]
Dimension A (in) [mm]	2.86 [72.5]	3.48 [88.3]	4.24 [107.7]	6.74 [171.2]	8.24 [209.3]	11.21 [284.7]
Dimension B (in) [mm]	0.80 [20.3]	1.25 [31.7]	1.65 [41.9]	3.45 [87.6]	3.45 [87.6]	5.30 [134.6]

	TH-750-I-6000	TH-750-I-10000	TH-750-I-20000
Measuring Range (in) [mm]	6.0 [152]	10.0 [254]	20.0 [508]
Scale Factor (V/in) [V/mm]	2.67 [0.1]	1.6 [0.06]	0.8 [0.03]
Dimension A (in) [mm]	14.49 [368.0]	19.49 [495.0]	32.38 [822.5]
Dimension B (in) [mm]	6.20 [157.5]	6.20 [157.5]	9.50 [241]

Loop Resistance vs. Minimum Loop Supply Voltage



Minimum Loop Resistance 100Ω

ORDERING INFORMATION

Model	Measuring Range	Options
<input type="checkbox"/> -750-I	- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	- <input type="checkbox"/>
TH Axial Connector	100 0 to 0.100 inches	L Improved Linearity (<+/- 0.10%)
THR Right Angle Connector	250 0 to 0.250 inches	M Metric Core Threads (M3x0.5)
	500 0 to 0.500 inches	T Teflon™ Boreliner
	1000 0 to 1.0 inches	
	2000 0 to 2.0 inches	
	4000 0 to 4.0 inches	
	6000 0 to 6.0 inches	
	10000 0 to 10.0 inches	
	20000 0 to 20.0 inches	

WIRING PIN OUT

	PT02 Connector
Loop Positive	E
Loop Negative	F

ORDERING EXAMPLE

TH-750-I-500: 4 to 20 mA Output, 0 to 0.500 inch Measuring Range, Axial Connector

THR-750-I-500: 4 to 20 mA Output, 0 to 0.500 inch Measuring Range, Radial Connector

