

LP 750 Series

Hermetically Sealed Frictionless Position Sensors

*Potentiometer Replacement...
...Unlimited Cycle Life!*



Description

Macro Sensors' LP 750 Series of 19 mm (3/4 inch) diameter potentiometer replacement position sensors have been designed for a wide range of position measurement applications. The compact design is made possible by its unique coil-winding configuration and digitally enhanced analog output. It is particularly suited for use where installation space is limited. These rugged, hermetically sealed sensors are constructed entirely of stainless steel, and are sealed against hostile environments to IEC standard IP-68.

Electrical termination is through a sealed radial connector and mating connector is supplied with the unit. The radial connection offers three important benefits. First, it permits access to either or both ends for better mechanical support and core guidance. Second, it is easier to cleanout the bore in dusty or dirty locations. Third, is a shorter installed length compared to units of the same range with an axial connection.

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Features

- Standard ranges of 100 mm to 600 mm (4.0 inches to 25.0 inches)
- 24 V DC input, 0 to 10 V DC output (LPER units) or 4 to 20 mA input/output (LPIR units)
- Non-linearity less than or equal to $\pm 0.25\%$ of FSO ($\leq \pm 0.10\%$ optional)
- Excellent stroke-to-length ratio
- Frictionless operation; unlimited cycle life
- Through-bore operation
- Radial connector, mating plug included
- Environmentally sealed to IEC IP-68

Applications

- Machine tool positioners
- Materials testing extensometers
- Hydraulic cylinder position
- Valve position sensing
- Automatic assembly equipment
- Corrosive environments

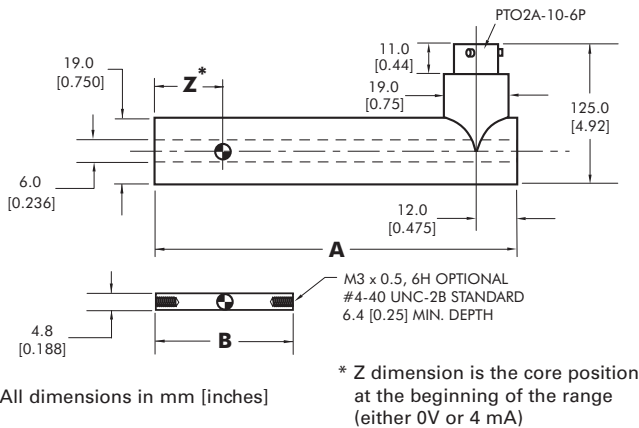
LP 750 Series sensors are available in standard ranges of 100 mm (4.0 inches) to 600 mm (25.0 inches) and are offered in either a loop-powered 4-20 mA input/output (LPIR units) or a nominal 24 V DC input with a pre-calibrated 0 to 10 V DC output (LPER units). The standard maximum linearity error for any of these sensors is $\pm 0.25\%$ of full-scale output (FSO). Optionally linearity error of less than or equal to $\pm 0.10\%$ FSO is available.

LP 750 Series sensors offer frictionless operation, enhanced stroke to length ratio, high resolution, excellent repeatability, and low hysteresis. Their exceptional reliability is the result of manufacturing processes and assembly techniques developed and optimized by Macro Sensors over decades of sensor manufacturing experience.

LP 750 Series General Specifications

Frequency Response (-3dB):	50 Hz (nominal)
Linearity Error:	≤ ±0.25% of FSO (≤ ±0.10% of FSO optional)
Repeatability Error:	<0.025% of FSO
Hysteresis Error:	<0.025% of FSO
Operating Temperature:	-40°C to +85°C (-40°F to +185°F)
Thermal Coefficient of Scale Factor:	-0.027%/°C (nominal) (-0.015%/°F nominal)
Vibration Tolerance:	20 Hz to 2 kHz
Shock Survival:	100 g, 11 ms

LP 750 Series Dimensional Specifications



Model ▶	LPxR 750 -4000	LPxR 750 -8000	LPxR 750 -14000	LPxR 750 -18000	LPxR 750 -25000
Parameter ▼					
Nominal Range (mm)	100	200	350	450	600
Nominal Range (inches)	4.0	8.0	14.0	18.0	25.0
Dimension "A" (mm)	140	265	465	595	790
Dimension "A" (inches)	5.51	10.43	18.31	23.43	31.10
Dimension "B" (mm)	20.3	41.9	87.6	114.3	134.6
Dimension "B" (inches)	0.80	1.65	3.45	4.50	5.30
Dimension "Z" (mm)	13.7	24.6	49.3	63.2	71.9
Dimension "Z" (inches)	0.54	0.97	1.94	2.49	2.83
Weight, Body (grams)	124	153	207	263	374
Weight, Body (ounces)	4.4	5.4	7.3	9.3	13.2
Weight, Core (grams)	11.6	11.6	18.4	22.1	22.1
Weight, Core (ounces)	0.40	0.40	0.65	0.78	0.78

Ordering Information

For standard LPER 750 or LPIR 750, order by model number with range.
 For metric option, add -006 after model number with range.
 For Teflon[®] bore liner option, add -010 after model number with range.
 For <±0.10% of FSO linearity error option, add -200 after model number with range.
 For combinations of options, add option numbers together (eg. -216, -210, -206, -200, -016, -010, -006).
For accessories, please visit our website at www.macrosensors.com.

LPER 750 Specifications

Input Power:	24 V DC (nominal) 14-26 V DC 30 mA (nominal)
Full Scale Output:	0 to 10 V DC
Output Noise & Ripple:	< 5 mV _{rms}

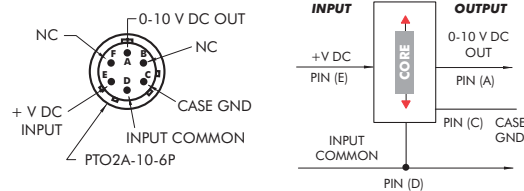


Displacement

Model ▶	LPER 750 -4000	LPER 750 -8000	LPER 750 -14000	LPER 750 -18000	LPER 750 -25000
Parameter ▼					
Scale Factor (V/mm)	0.10	0.05	0.029	0.022	0.017
Scale Factor (V/inch)	2.5	1.25	0.71	0.56	0.40

Wiring Diagram

CAUTION: DO NOT CONNECT TO PIN "B"



LPIR 750 Specifications

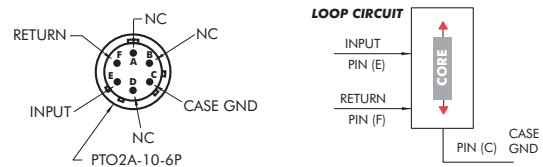
Loop Supply Voltage:	10 V to 28 V DC
Loop Resistance (Min.):	50 Ohms
Output:	4- 20 mA
Output Noise & Ripple:	< .008 mA _{rms}

Displacement

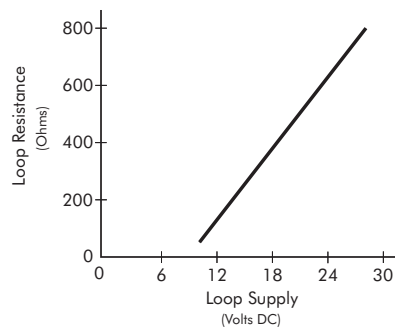
Model ▶	LPIR 750 -4000	LPIR 750 -8000	LPIR 750 -14000	LPIR 750 -18000	LPIR 750 -25000
Parameter ▼					
Scale Factor (mA/mm)	0.16	0.08	0.046	0.036	0.027
Scale Factor (mA/inch)	4.0	2.0	1.14	0.89	0.64

Wiring Diagram

CAUTION: DO NOT CONNECT TO PIN "B"



Loop Resistance vs. Minimum Loop Supply Voltage



Innovators in Position Sensing

All specifications subject to change without notice.
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