

# PR 812 Series

## General Purpose LVDT Position Sensors



### Description

Macro Sensors' PR 812 Series of AC LVDTs are 0.812 inch (20.6 mm) diameter versions of the PR 750 Series of general purpose LVDT linear position sensors. They were designed primarily for use in legacy OEM applications and are not recommended for new designs. In many applications they are a cost effective form and function replacement LVDT for an OEM or user employing a competitor's products of similar size and range.

Available in the same full scale measuring ranges as the PR 750 Series,  $\pm 0.050$  inch ( $\pm 1.25$  mm) to  $\pm 10$  inches ( $\pm 250$  mm), PR 812 LVDTs also offer 0.031 inch (0.75 mm) radial core-to-bore clearance with the standard 0.25 inch (6.35 mm) diameter core supplied. They feature high resolution, excellent repeatability, and low hysteresis, as well as the highest sensitivity consistent with good linearity. The maximum linearity error of any of these sensors is  $\pm 0.25\%$  of full range output (FRO), using a statistically best-fit straight line derived by the least squares method.

The proven reliability of PR Series LVDTs is a direct result of manufacturing processes and assembly techniques developed and optimized by Macro Sensors personnel over many years of making LVDTs. Their environmental robustness

### Features

- 0.812 inch diameter replacement units
- Ranges of  $\pm 0.050$  inch to  $\pm 10$  inches
- Non-linearity less than  $\pm 0.25\%$  of FRO
- 220°F (105°C) operating temperature
- Coil assembly sealed to IEC IP-61
- Magnetically shielded SS housing

### Typical Applications

- Machine Tools
- Materials Testing
- Industrial Robots
- Checkweigher Scales
- Packaging Machinery
- Valve Position Sensing
- Hydraulic Cylinder Position
- Automated Assembly Equipment

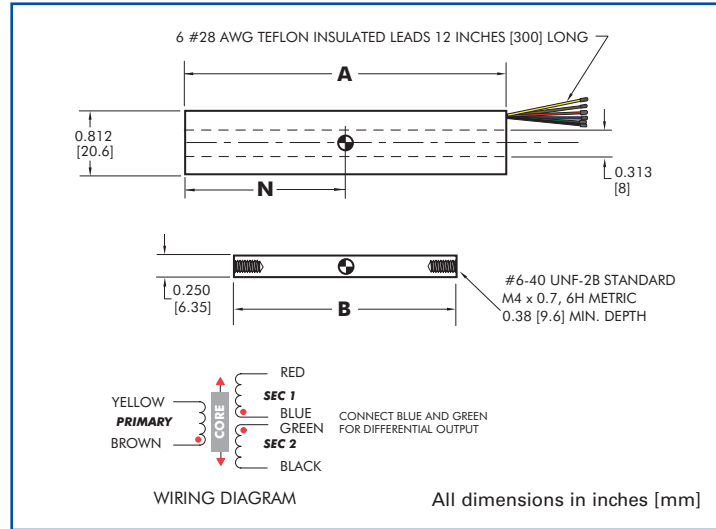
stems from the materials of their construction, such as glass-filled polymer coil forms for thermal stability and stainless steel housings that act as magnetic shields to reduce the effects of any external AC magnetic fields. Their external sealing meets IEC standard IP-61.

Macro Sensors offers several standard options that permit a user or OEM to customize PR 812 LVDTs, including Teflon® bore liners, metric threaded cores, smaller diameter cores for greater core-to-bore clearance and/or lower core mass, and construction for resistance to mild nuclear radiation. For OEMs Macro Sensors can design and produce custom PR 812 LVDTs, including units with different lead wire colors, exit points, configurations, or connectors, and units for higher temperature operation. Contact the Applications Engineers at Macro Sensors for help with any OEM special requirements.

All PR 812 Series LVDTs will operate properly with any conventional differential input LVDT signal conditioners, but operation with ratiometric input signal conditioning circuits is not recommended. Macro Sensors offers signal conditioners for OEMs that can deliver optimum performance from any PR 812 Series LVDT. Details can be found in series 9000 technical bulletins.

### General Specifications

- Input Voltage:** 3.0 Vrms (nominal)
- Input Frequency:** 2.5 - 3.3 kHz
- Linearity Error:**  $\leq \pm 0.25\%$  of FRO
- Repeatability Error:**  $< 0.01\%$  of FSO
- Hysteresis Error:**  $< 0.01\%$  of FSO
- Operating Temperature:** -65°F to +220°F (-55°C to +105°C)
- Thermal Coefficient of Sensitivity:** -0.01%/°F (nominal) (-0.02%/°C nominal)
- Vibration Tolerance:** 20 g to 2 kHz
- Shock Survival:** 1000 g, 11 ms



### Specifications

Model ▶	PR 812 -050	PR 812 -100	PR 812 -200	PR 812 -500	PR 812 -1000	PR 812 -2000	PR 812 -3000	PR 812 -4000	PR 812 -5000	PR 812 -7500	PR 812 -10000
Nominal Range (inches)	±0.05	±0.10	±0.20	±0.50	±1.00	±2.00	±3.00	±4.00	±5.00	±7.50	±10.00
Nominal Range (mm)	±1.25	±2.5	±5	±12.5	±25	±50	±75	±100	±125	±190	±250
Sensitivity (mV/V/.001 inch)	6.5	4.0	2.4	0.65	0.65	0.39	0.26	0.18	0.13	0.12	0.08
Sensitivity (mV/V/mm)	255	155	95	25	25	15	10	7.1	5.1	4.3	3.1
Impedance, Primary (Ω)	400	1000	1900	1400	1650	1875	1950	425	1050	1380	1050
Dimension "A" (inches)	1.13	1.75	2.50	5.02	6.51	10.02	12.75	15.20	17.75	22.85	30.64
Dimension "A" (mm)	28.7	44.5	63.5	127.5	165.4	254.5	323.9	386.1	450.9	580.4	778.3
Dimension "B" (inches)	0.80	1.25	1.65	3.45	3.45	5.30	6.20	6.20	6.20	7.00	9.50
Dimension "B" (mm)	20.3	31.7	41.9	87.6	87.6	134.6	157.5	157.5	157.5	177.8	241.3
Dimension "N" (inches)	0.56	0.88	1.25	2.51	3.25	5.01	6.38	7.60	8.88	11.43	15.32
Dimension "N" (mm)	14.3	22.2	31.7	63.7	82.5	127.2	161.9	193.0	225.4	290.2	389.1
Weight, Body (ounces)	1.3	2.0	2.6	4.0	5.5	8.4	11.0	13.8	16.7	24.3	28.7
Weight, Body (grams)	37	57	74	114	156	238	312	392	474	690	814
Weight, Core (ounces)	0.14	0.22	0.30	0.72	0.72	1.20	1.34	1.34	1.34	1.51	2.20
Weight, Core (grams)	4.0	6.2	8.5	20.4	20.4	34.0	41.7	41.7	41.7	42.8	62.4

### Ordering Information

- For standard PR 812, order by model number with range
- For metric threaded core option, add -006 after model number with range
- For Teflon® bore liner option, add -010 after model number with range (not available with -080 option)
- For small diameter core option, add -020 after model number with range
- For mild radiation resistant option, add -080 to model number with range (not available with -010 option)
- For multiple options, add sum of dash numbers after model number with range
- For accessories and compatible support electronics, please visit our website at [www.macrosensors.com](http://www.macrosensors.com).



Innovators in Position Sensing

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