

PRH 812 Series

General Purpose LVDT Position Sensors



Description

Macro Sensors' PRH 812 Series of AC-LVDTs are 0.812 inch (20.6 mm) diameter general-purpose LVDT linear position sensors that feature larger core-to-bore clearance than the standard PR 750 Series of AC-LVDTs. They were designed primarily for use in legacy OEM applications, and are cost-effective exact replacement LVDTs that offer the same form, fit, and function as competitors' products of the same size and range.

Available in full scale measuring ranges of ± 0.050 inch (± 1.25 mm) to ± 10 inches (± 250 mm), PRH 812 LVDTs offer 0.062 inch (1.6 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 PRH 812 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 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

Features

- 0.812 inch diameter legacy replacements
- Ranges of ± 0.050 inch to ± 10 inches
- 0.062 inch radial core-to-bore clearance
- Non-linearity less than $\pm 0.25\%$ of FRO
- 300°F (150°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

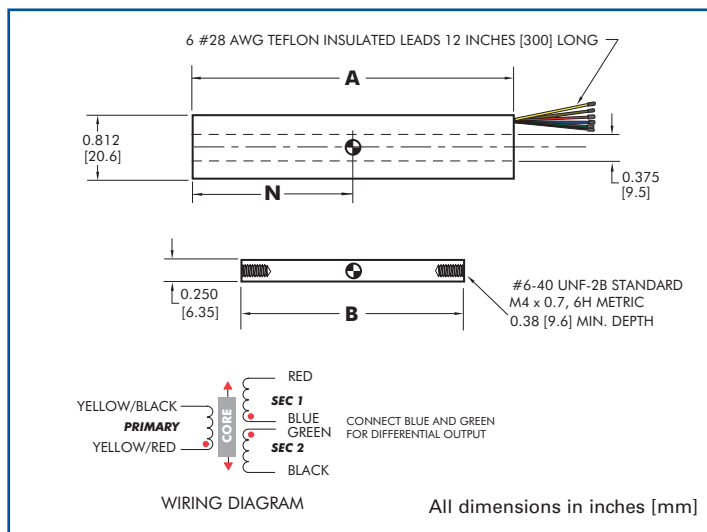
shields to reduce the effects of any external AC magnetic fields. Their sealing meets IEC standard IP-61.

Macro Sensors offers several options that permit a user or OEM to customize PRH 812 LVDTs or to match them to an existing application, 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 or private-labeled PRH 812 LVDTs, including units with different lead wire colors, exit points, configurations, or connectors, vented units for operation in pressurized fluids, and units for higher temperature operation. Contact the Applications Engineering group at Macro Sensors for help with any OEM or special LVDT requirements.

All PRH 812 Series LVDTs will operate properly with any conventional differential input LVDT signal conditioners, but some PRH 812 LVDTs could exhibit reduced performance if utilized with ratiometric input signal conditioners. Macro Sensors offers a full line of signal conditioners that can deliver optimum performance from any PRH 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 +300 °F (-55 °C to +150 °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 ▶	PRH 812 -050	PRH 812 -100	PRH 812 -200	PRH 812 -300	PRH 812 -500	PRH 812 -1000	PRH 812 -2000	PRH 812 -3000	PRH 812 -4000	PRH 812 -5000	PRH 812 -7500	PRH 812 -10000
Nominal Range (inches)	±0.05	±0.10	±0.20	±0.30	±0.50	±1.00	±2.00	±3.00	±4.00	±5.00	±7.50	±10.00
Nominal Range (mm)	±1.25	±2.5	±5.0	±7.5	±12.5	±25	±50	±75	±100	±125	±190	±250
Sensitivity (mV/V/.001 inch)	5.9	4.2	2.4	1.3	0.65	0.39	0.22	0.23	0.18	0.15	0.11	0.07
Sensitivity (mV/V/mm)	230	165	95	51	26	15.3	8.6	9.1	7.1	5.9	4.3	2.8
Impedance, Primary (Ω)	400	1070	1900	800	460	430	670	115	275	600	775	550
Dimension "A" (inches)	1.13	1.81	2.50	3.22	5.50	6.62	10.00	12.81	15.64	17.88	22.85	30.84
Dimension "A" (mm)	28.7	46.0	63.5	81.8	139.7	168.1	254.0	325.4	397.3	454.1	580.4	783.3
Dimension "B" (inches)	0.80	1.30	1.65	1.95	3.45	4.00	5.30	5.60	7.00	7.00	7.00	8.50
Dimension "B" (mm)	20.3	33.0	41.9	49.5	87.6	101.6	134.6	142.2	177.8	177.8	177.8	215.9
Dimension "N" (inches)	0.56	0.90	1.25	1.61	2.75	3.31	5.00	6.40	7.82	8.94	11.43	15.41
Dimension "N" (mm)	14.3	23.0	31.7	40.9	69.9	84.1	127.0	162.6	198.6	227.1	290.2	391.4
Weight, Body (ounces)	1.3	2.0	2.6	2.9	4.0	4.7	8.4	11.0	13.8	16.7	24.3	28.7
Weight, Body (grams)	37	57	74	82	114	131	238	312	392	474	690	814
Weight, Core (ounces)	0.14	0.22	0.30	0.38	0.67	0.75	1.00	1.06	1.51	1.51	1.51	1.78
Weight, Core (grams)	4.0	6.2	8.5	10.8	19.0	21.3	28.3	30.0	42.8	42.8	42.8	55.4

Ordering Information

- For standard PRH 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