



GENERAL PURPOSE

DC-Operated LVDT Position Sensors MACRO DC 750 | SE 750

Overview

Macro Sensors' DC 750 and SE 750 Series of 3/4 inch (19 mm) DC-operated LVDTs are designed for a wide range of position measurement applications. They use built-in electronics to provide the desirable features of an AC-LVDT, such as frictionless operation and dynamic response, with the added convenience and simplicity of DC input and pre-calibrated DC output. They are designed to operate in conjunction with PLCs, digital indicators, A/D converters, computer-based data processors, and QC data collection systems.

The DC 750 Series offers nine standard ranges from ± 0.050 inch (± 1.25 mm) to ± 10 inches (± 250 mm) while the SE 750 offers nine standard ranges from 0.100 inch (2.5 mm) to 20.00 inches (500 mm). The maximum linearity error for a DC 750 Series sensor is $\pm 0.25\%$ of full range output using a statistically best-fit straight line derived by the least squares method. The SE 750 also features a $\pm 0.25\%$ maximum linearity error, although a maximum linearity error of less than or equal to $\pm 0.10\%$ of full scale output is available as an option.

DC 750 and SE 750 Series sensors provide highly reliable, contactless operation with the high resolution, excellent repeatability, and low hysteresis associated with LVDT technology. Their exceptional reliability is a result of manufacturing processes and assembly techniques developed and optimized by Macro Sensors over many years of manufacturing LVDT sensors. Their stainless steel housings act as magnetic shields to reduce the effects of external AC magnetic fields, and their sealing meets IEC standard IP-62.

Other options available for the DC 750 and SE 750 LVDTs include Teflon® bore liners and metric threaded cores. In addition, Macro Sensors can provide a range of mounting accessories, core extension rods and DC power supplies.

GENERAL PURPOSE

DC 750 | SE 750 | DC-Operated LVDT Position Sensors

Benefits

- ◆ Industry-standard 3/4 inch [19 mm] diameter
- ◆ Ranges of ± 0.05 " to ± 10 " (DC 750) or 0.100" to 20.00" (SE 750)
- ◆ ± 15 V DC input, 0 to ± 10 V DC output (DC 750)
- ◆ 24 V DC input, true 0-10 V DC output (SE 750)
- ◆ Non-linearity less than or equal to $\pm 0.25\%$ of FSO (less than or equal to $\pm 0.10\%$ optional on SE 750)

Applications

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

General Specifications

| | |
|--|--|
| Input Power (DC 750) | ± 15 V DC, $\pm 5\%$, ± 25 mA (nominal) |
| Input Power (SE 750) | 24 V DC (nominal) 15-24 V DC, 30 mA (nominal) |
| Full Scale Output (DC 750) | 0 to ± 10 V DC |
| Full Scale Output (SE 750) | 0 to 10 V DC |
| Output Noise & Ripple (DC 750) | <10 mV rms |
| Output Noise & Ripple (SE 750) | <5 mV rms |
| Frequency Response (-3dB) | 250 Hz (nominal) |
| Linearity Error | < $\pm 0.25\%$ of FSO (< $\pm 0.10\%$ optional, SE 750) |
| Repeatability Error | < 0.01% of FSO |
| Hysteresis Error | < 0.01% of FSO |
| Operating Temperature | 0 °F to +160 °F (-20 °C to +70°C) |
| Thermal Coefficient of Scale Factor | -0.015%/°F (nominal) -0.027%/°C (nominal) |
| Vibration Tolerance | 20 g to 2 kHz |
| Shock Survival | 100 g, 11 ms |

GENERAL PURPOSE

DC 750 | SE 750 | DC-Operated LVDT Position Sensors

Specifications

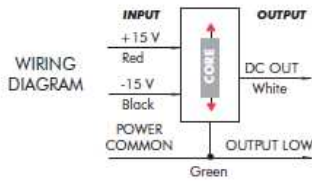
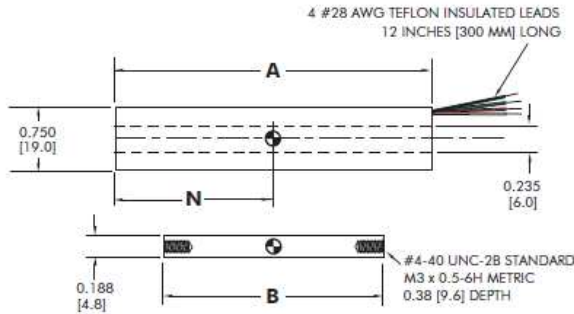
| Model ▶ | DC 750 -050 | DC 750 -125 | DC 750 -250 | DC 750 -500 | DC 750 -1000 | DC 750 -2000 | DC 750 -3000 | DC 750 -5000 | DC 750 -10000 |
|------------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| Nominal Range (inches) | ±0.050 | ±0.125 | ±0.25 | ±0.50 | ±1.00 | ±2.00 | ±3.00 | ±5.00 | ±10.00 |
| Nominal Range (mm) | ±1.25 | ±3.0 | ±6.3 | ±12.5 | ±25 | ±50 | ±75 | ±125 | ±250 |
| Scale Factor (V/inch) | 200 | 80 | 40 | 20 | 10 | 5.0 | 3.3 | 2.0 | 1.0 |
| Scale Factor (V/mm) | 8.0 | 3.3 | 1.6 | 0.8 | 0.4 | 0.2 | 0.13 | 0.08 | 0.04 |
| Dimension "A" (inches) | 2.86 | 3.48 | 4.24 | 6.74 | 8.24 | 11.21 | 14.49 | 19.49 | 32.38 |
| Dimension "A" (mm) | 72.5 | 88.3 | 107.7 | 171.2 | 209.3 | 284.7 | 368.0 | 495.0 | 822.5 |
| Dimension "B" (inches) | 0.80 | 1.25 | 1.65 | 3.45 | 3.45 | 5.30 | 6.20 | 6.20 | 9.50 |
| Dimension "B" (mm) | 20.3 | 31.7 | 41.9 | 87.6 | 87.6 | 134.6 | 157.5 | 157.5 | 241.3 |
| Dimension "N" (inches) | 0.63 | 1.13 | 1.33 | 2.57 | 3.33 | 5.07 | 6.45 | 8.95 | 15.42 |
| Dimension "N" (mm) | 16.0 | 28.8 | 33.8 | 65.4 | 84.6 | 128.8 | 163.8 | 227.3 | 391.6 |
| Weight - Body (ounces) | 1.8 | 2.3 | 2.8 | 3.7 | 5.5 | 7.5 | 9.5 | 11.0 | 15.7 |
| Weight - Body (g) | 50 | 64 | 80 | 104 | 158 | 212 | 268 | 318 | 445 |
| Weight - Core (ounces) | 0.08 | 0.12 | 0.18 | 0.40 | 0.40 | 0.65 | 0.80 | 0.80 | 1.20 |
| Weight - Core (g) | 2.4 | 3.7 | 4.8 | 11.6 | 11.6 | 18.0 | 22.0 | 22.0 | 34.0 |

| Model ▶ | SE 750 -100 | SE 750 -250 | SE 750 -500 | SE 750 -1000 | SE 750 -2000 | SE 750 -4000 | SE 750 -6000 | SE 750 -10000 | SE 750 -20000 |
|------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|
| Nominal Range (inches) | 0.100 | 0.250 | 0.500 | 1.00 | 2.00 | 4.00 | 6.00 | 10.00 | 20.00 |
| Nominal Range (mm) | 2.5 | 6.3 | 12.7 | 25.4 | 50.8 | 101.6 | 152.4 | 254 | 508 |
| Scale Factor (V/inch) | 100 | 40 | 20 | 10 | 5.0 | 2.5 | 1.65 | 1.0 | 0.5 |
| Scale Factor (V/mm) | 4.0 | 1.6 | 0.8 | 0.4 | 0.2 | 0.1 | 0.06 | 0.04 | 0.02 |
| Dimension "A" (inches) | 2.86 | 3.48 | 4.24 | 6.74 | 8.24 | 11.21 | 14.49 | 19.49 | 32.38 |
| Dimension "A" (mm) | 72.5 | 88.3 | 107.7 | 171.2 | 209.3 | 284.7 | 368.0 | 495.0 | 822.5 |
| Dimension "B" (inches) | 0.80 | 1.25 | 1.65 | 3.45 | 3.45 | 5.30 | 6.20 | 6.20 | 9.50 |
| Dimension "B" (mm) | 20.3 | 31.7 | 41.9 | 87.6 | 87.6 | 134.6 | 157.5 | 157.5 | 241.3 |
| Dimension "Z" (inches) | 0.58 | 1.00 | 1.10 | 2.07 | 2.33 | 3.07 | 3.45 | 3.95 | 5.42 |
| Dimension "Z" (mm) | 14.7 | 25.4 | 27.9 | 52.6 | 59.2 | 78.0 | 87.6 | 100.3 | 137.7 |
| Weight - Body (ounces) | 1.8 | 2.3 | 2.8 | 3.7 | 5.5 | 7.5 | 9.5 | 11.0 | 15.7 |
| Weight - Body (g) | 50 | 64 | 80 | 104 | 158 | 212 | 268 | 318 | 445 |
| Weight - Core (ounces) | 0.08 | 0.12 | 0.18 | 0.40 | 0.40 | 0.65 | 0.80 | 0.80 | 1.20 |
| Weight - Core (g) | 2.4 | 3.7 | 4.8 | 11.6 | 11.6 | 18.0 | 22.0 | 22.0 | 34.0 |

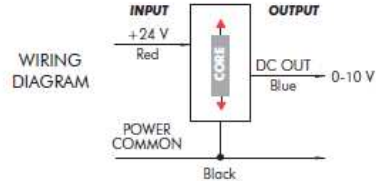
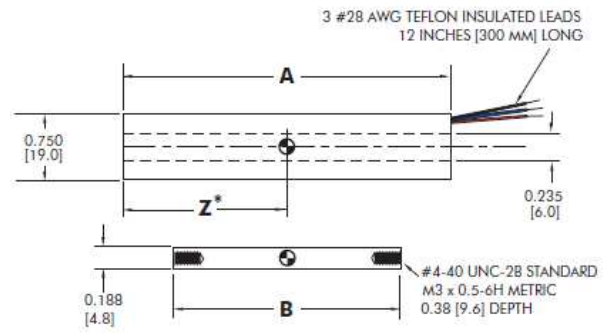
GENERAL PURPOSE

DC 750 | SE 750 | DC-Operated LVDT Position Sensors

Dimensions



CE Units meet and are certified to EU directives.



* Zero output position

All dimensions in inches [mm]

DC 750 Series Ordering Information

- ✦ For standard DC 750, 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.
- ✦ For both options, add -016 after model number with range.

SE 750 Series Ordering Information

- ✦ For standard SE 750, 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.
- ✦ For less than or equal to $\pm 0.10\%$ 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).

NORTH AMERICA

AST Macro Sensors,
a TE Connectivity company
Tel: 800-522-6752
Email: customercare.pens@te.com

TE.com/sensorsolutions

AST Macro Sensors, a TE Connectivity company.

AST Macro Sensors, TE Connectivity, TE Connectivity (logo) and EVERY CONNECTION COUNTS are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2015 TE Connectivity Ltd. family of companies All Rights Reserved.

DC 750 | SE 750 11/01/15