



XS-D series

- Excellent stroke-to-length ratio
- Lower weights than standard LVDTs with comparable displacement ranges
- Stroke ranges from ± 1 to ± 10 inches
- Shock and vibration tolerant
- Stainless steel housing
- Magnetically shielded
- Imperial or metric threaded core



The XS-D Series of LVDTs are specifically designed for measuring relatively large displacements where installation space is limited. The XS-D Series have a substantially greater displacement range than standard LVDTs but without the accompanying increase in body length and weight. Using special coil winding techniques, the XS-D permits linear range measurements of up to 80% of the housing length.

Compact, shock and vibration tolerant, and featuring infinite resolution and repeatability, the XS-D Series are the perfect choice for servo mechanisms, linear potentiometer replacement, or wherever precise displacement measurements are required in space restrictive applications. All models are supplied with a calibration certificate, and are available with either an imperial or metric threaded core. The XS-D Series are compatible with all Altheris LVDT signal conditioners, controllers and readouts.

Features

- Superior stroke-to-length ratio
- Stroke ranges from ± 1 to ± 10 inches
- Smooth transfer function
- AISI 400 Series stainless steel housing
- Calibration certificate supplied with all units

Applications

- Servo mechanisms
- Hydraulic actuators
- Linear potentiometer replacement
- Space restrictive installations
- Weight sensitive applications

■ Performance specifications

Electrical specifications

| Parameter | 1002 XS-D | 2002 XS-D | 3002 XS-D | 5002 XS-D | 10002 XS-D |
|---------------------------------------|----------------------|--------------|--------------|-------------|--------------|
| Stroke range | ±1.0 [±25.4] | ±2.0 [±50.8] | ±3.0 [±76.2] | ±5.0 [±127] | ±10.0 [±254] |
| Sensitivity mV/V/0.001in [mV/V/mm] | 0.28 [11.0] | 0.16 [6.3] | 0.12 [4.7] | 0.13 [5.1] | 0.05 [2.0] |
| Output at stroke ends (*) | 0.28mV/V | 0.32mV/V | 0.36mV/V | 0.65mV/V | 0.50mV/V |
| Phase shift | +30° | +25° | -22° | +28° | 0° |
| Input impedance (PRIMARY) | 175Ω | 243Ω | 306Ω | 240Ω | 462Ω |
| Output impedance (SECONDARY) | 230Ω | 103Ω | 234Ω | 500Ω | 462Ω |
| Linearity | ±2.0% of FS, maximum | | | | |
| Input voltage | 3Vrms sine wave | | | | |
| Test input frequency | 2.5KHz | | | | |
| Input frequency range | 400Hz to 3KHz | | | | |
| Null voltage | 0.5% of FSO, maximum | | | | |

Environmental specifications & materials

| | |
|-----------------------|---|
| Operating temperature | -65°F to +300°F [-55°C to 150°C] |
| Shock survival | 1,000 g (11ms half-sine) |
| Vibration tolerance | 20 g up to 2KHz |
| Housing material | AISI 410 Series stainless steel |
| Lead type/length | Six lead-wires, stranded 28 AWG, PTFE insulated, 1 foot [0.3m] long |

Notes:

Dimensions are in inch [mm]

All values are nominal unless otherwise noted

Electrical specifications are for the test frequency indicated in the table

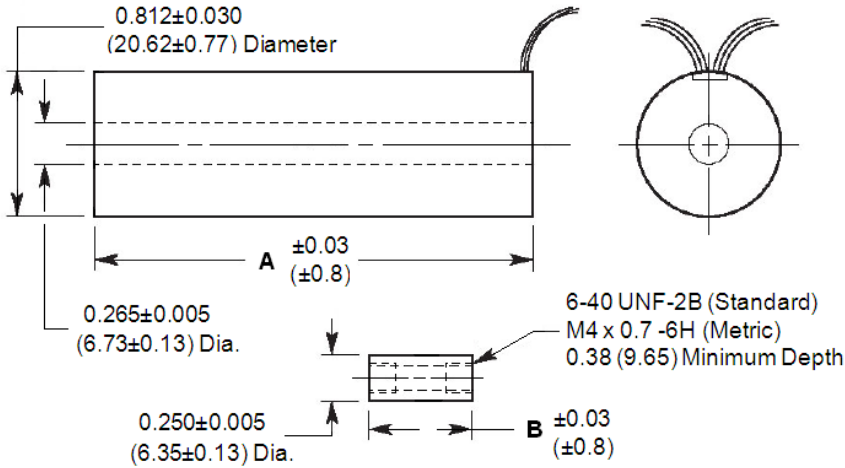
(): Unit for output at stroke ends is millivolt per volt of excitation*

FS: Full Scale is 2X for ±X stroke

FSO: Full Scale Output is the output at X position for ±X stroke

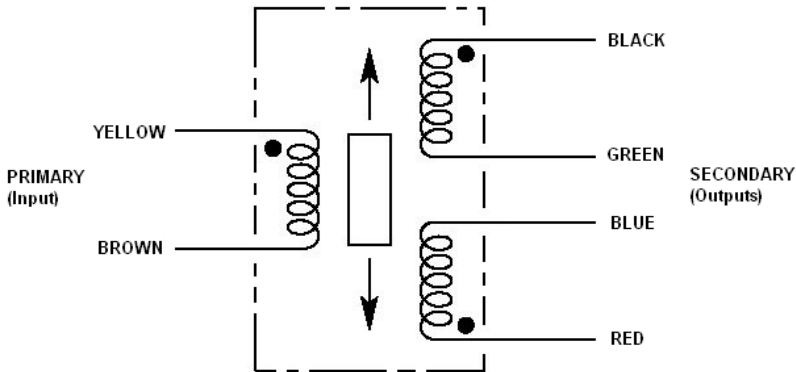
■ Mechanical specifications

| Parameter | 1002 XS-D | 2002 XS-D | 3002 XS-D | 5002 XS-D | 10002 XS-D |
|----------------------|-------------|--------------|--------------|---------------|---------------|
| Main body length "A" | 2.57 [65.2] | 5.76 [146.3] | 7.50 [190.5] | 12.52 [318.0] | 25.06 [636.5] |
| Core length "B" | 0.45 [11.4] | 1.50 [38.1] | 1.25 [31.8] | 2.40 [61.0] | 4.00 [101.6] |
| Body weight, oz [g] | 2.3 [65] | 4.1 [115] | 4.9 [140] | 7.6 [215] | 16.6 [470] |
| Core weight, oz [g] | 0.09 [2.5] | 0.28 [8.0] | 0.24 [6.8] | 0.44 [12.5] | 0.88 [25.0] |



Dimensions are in inches (mm)

■ Wiring schematic



Connect Green to Blue for differential output

■ Ordering information

| Description | Model | Part Number |
|--|------------|--------------|
| ±1.0 inch | 1002 XS-D | 02560567-000 |
| ±2.0 inch | 2002 XS-D | 02560568-000 |
| ±3.0 inch | 3002 XS-D | 02560569-000 |
| ±5.0 inch | 5002 XS-D | 02560571-000 |
| ±10.0 inch | 10002 XS-D | 02560572-000 |
| Options | | |
| Metric threaded core option (M4x0.7-6H threads) | All | XXXXXXXX-006 |
| Accessories | | |
| Core connecting rod, 6 inches long, 6-40 threads | | 05282947-006 |
| Core connecting rod, 12 inches long, 6-40 threads | | 05282947-012 |
| Core connecting rod, 24 inches long, 6-40 threads | | 05282947-024 |
| Core connecting rod, 36 inches long, 6-40 threads | | 05282947-036 |
| Core connecting rod, 6 inches long, M4x0.7 metric threads | | 05282978-006 |
| Core connecting rod, 12 inches long, M4x0.7 metric threads | | 05282978-012 |
| Mounting block | | 04560952-000 |

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