

LORD APPLICATION NOTE

Sensors for Displacement Measuring

Sub/Microminiature LVDTs and Gauging LVDTs for Precise Results

Why measure displacement?

- Detects strain & deflection in materials/structures
- Adds process control for production-line monitoring
- Ensures linear & angular motion control
- Provides dimensional gauging for quality control
- Serves as reliable indicator of system degradation



LORD MicroStrain LVDTs:

- offer excellent length-to-sensing stroke ratio
- have frictionless design for use over millions of cycles
- are designed for use in harsh fluids and environments
- offer simple integration with plug-and-play usability
- are easily customized to your specific requirements

Microminiature LVDTs

M-LVDT® Linear Displacement Sensor



Outside Diameter:
1.5 mm (standard version)
1.8 mm (high resolution)

Linear Stroke Length:
3, 6, 9 mm (standard)
1.5 mm (high resolution)

Approx. Body Length:
4mm + 2.5x stroke length

Subminiature LVDTs

S-LVDT® Linear Displacement Sensor



Outside Diameter:
4.76 mm (3/16 inch)

Linear Stroke Length:
4, 8, 24, 38 mm (standard)
6 mm (high resolution)
500 µm or less (nano)

Approx. Body Length:
10mm + 3x stroke length

MG-LVDT® Linear Displacement Gauge Sensor



Outside Diameter:
1.8 mm (smooth body)

Linear Stroke Length:
3, 6, 9 mm (standard)
1.5 mm (high resolution)

Approx. Body Length:
4mm + 6x stroke length

SG-LVDT® Linear Displacement Gauge Sensor



Outside Diameter:
6.0 mm (smooth body)
8.0 mm for 38 mm stroke

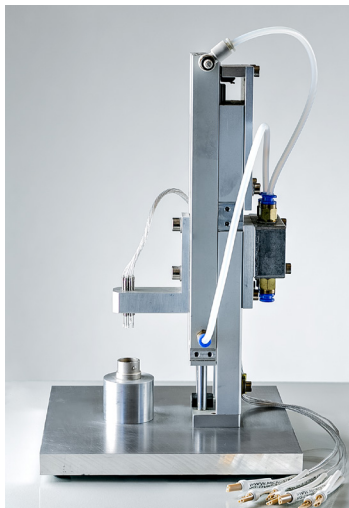
Linear Stroke Length:
4, 8, 24, 38 mm (standard)
6 mm (high resolution)
500 µm or less (nano)

Approx. Body Length:
10mm + 5x stroke length

LORD Sensing-MicroStrain LVDTs

- Microminiature LVDT resolution: 300nm to 4.5 μ m
- Subminiature LVDT resolution: 125nm to 9.5 μ m
- Stainless steel housing for long-lasting performance
- Low Signal to Noise ratio (M/MG-LVDT - 2000:1, S/SG-LVDT - 4200:1)
- Engineered for operation in temperatures from -55° to 170° C
- Keyed 4-pin Lemo connector compatible with LORD MicroStrain DEMOD signal conditioners

REAL-WORLD APPLICATIONS:



Assembly Verification

Employing a LVDT provides verification of proper assembly dimensions, especially when it is used in differential mode (when one sensor finds a reference surface, the other locates the part in question).

Precise Feedback For Motion Control

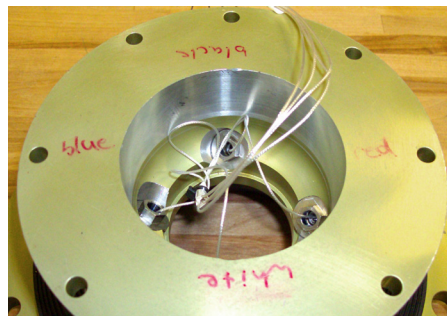
LORD Sensing-MicroStrain LVDTs are ideal for motion control applications, particularly ones requiring secondary confirmation of motion, or for other applications that cannot use standard encoders. *Examples: robotics, semiconductor material handling, aperture control, valve position on vehicles, electronic cam motion loop*

Aerospace Fuel Tank Monitoring

Using an SG-LVDT with a custom-designed hermetic housing and an integrated connector allowed customers to monitor the deflection of a rocket fuel tank, which in turn enabled researchers to monitor the amount of fuel expended.

Condition Monitoring

A multiple-MG-LVDT setup allowed aircraft OEM customers to determine motion in 6DoF, which successfully monitored degradation in elastomeric bearing stiffness.



All solutions are backed by LORD Sensing-MicroStrain's world-recognized Support Staff. For pricing and ordering information, contact us: 802.862.6629 or sensing_sales@lord.com