MicroStrain 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

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

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
MicroStrain Application note: Displacement Sensors

- Microminiature LVDT resolution: 300nm to 4.5 µm
- Subminiature LVDT resolution: 125nm to 9.5 µm
- 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 an 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: 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, semi-conductor 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.