

Application Story

Displacement monitoring in extreme elements

The Challenge

Testing or monitoring of infrastructure components could mean that materials are subjected to extreme elements, such as heat, cold, salt water, wind, or other types of stress. To monitor how these perform, linear measurement transducers must be able to endure the same conditions, all while continuing to monitor and measure the slightest shift or crack in a material.

The Solution

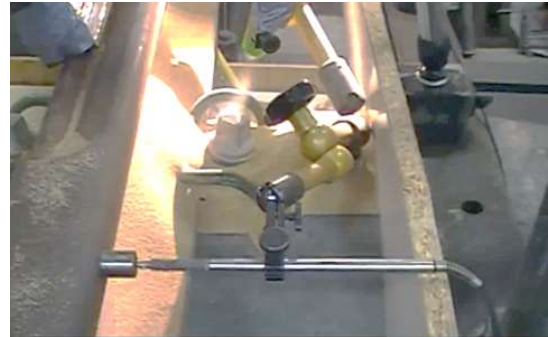
Solartron Metrology offers LVDT probes of any extreme environments, including:

- **Sensors for High and Low Temperatures:** The Solartron S-Series has a special version that can operate in up to 200° C while Gauging Probes have a version that can operate as low as -40° C.
- **Rugged Build:** Solartron probes have been tested to millions of cycles, and are built in a stainless steel casing to withstand years of abuse, including vibration and heat.
- **IP 65 or IP 67 Sealing:** Solartron Displacement LVDTs are available with IP 65 or IP 67 sealing, to protect the internal electronics from the environment. Solartron Gauging Probes also have an IP 68 sealing option.
- **Customization:** Probes and Displacement transducers can be customized to include special materials, such as marine grade steel to protect against salt water and humid environments. Specialized joints, cables and tips can also be included.
- **High Resolution:** Solartron LVDTs offer resolution up to 0.01 micron, showing the slightest change in measurement that Linear Encoders cannot provide.
- **Multiple Outputs:** Solartron offers DC, 4-20mA, TTL, and other analog output options.

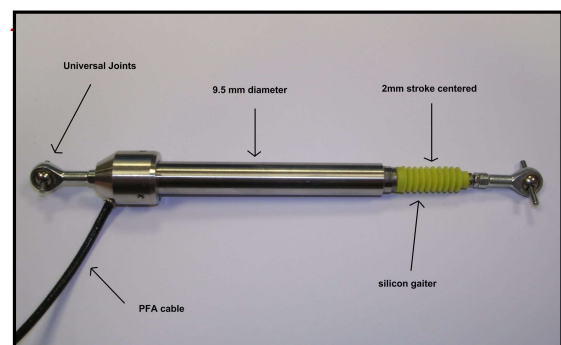


Custom Solartron probes have been made from special marine grade steel to withstand salt water corrosion for structure monitoring

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Gauging probe monitoring rail movement in hot, humid lab environment. Photo courtesy of Laboratorio de Ciencia de Materiales (LADICIM). <https://ladicim.es/en/>




Solartron builds a custom AXR probe that can operate down to -40° C. They are mounted on antennas at the ALMA project (Atacama Large Millimeter/submillimeter Array) in Northern Chile, where temps vary from -20 to +40°C. The probes, which measure the angle change in the antennas, were chosen over two competitors due to their rugged build and high resolution.



Orbit® – The Total Measurement System from Solartron Metrology

The Solartron Orbit® Digital Measurement System, provides a limitless set of measuring system solutions, with numerous different interfaces to computers and PLC's.



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DIGITAL MEASURING NETWORK

Stand alone digital systems

Block Gauges

Displacement

Multi Channel Wireless Gauge

Flexures

Bore Gauging

Gauging Flatness of a Bicycle Gear

Orbit GCS Software

Measurement of Piston with Air Gauging checking ID, and connected to Orbit with the Air Gauge Module. OD Checked with Digital Probes.