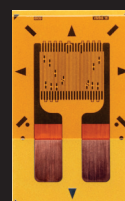
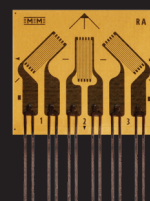
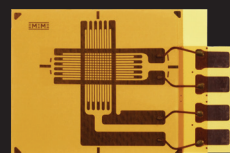
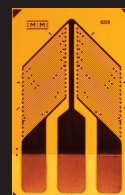


PRECISION STRAIN MEASUREMENT SOLUTIONS FOR AEROSPACE AND AVIATION TESTING

Reliable Strain Data for Structural Validation, Flight Testing, and Certification

Strain measurement provides critical insight into the safety, performance and reliability of aircraft, spacecraft, and air defense systems. Across development and operation, engineers need precise, reliable strain data to understand how structures and components respond to mechanical, thermal, and dynamic loads and to support regulatory compliance and certification.

Obtaining dependable measurements is rarely straightforward. Aerospace applications typically involve low-level signals, complex multidirectional loads, high-cycle fatigue, and environments with temperature extremes, vibration, or vacuum.



Proven Strain Measurement in the Lab, Air, and Space

With decades of experience, Micro-Measurements offers precision strain gages and sensors, instrumentation, installation solutions, and engineering expertise for experimental stress analysis, structural testing, and monitoring. Our solutions are used across the aerospace sector in test and development laboratories and in operational ground systems, aircraft and spacecraft. They provide stable measurement in harsh environments, including high-temperature or cryogenic conditions.

Our solutions support diverse aerospace applications, including:

- **Aerospace Structure Validation** – Assess strain and structural response in aircraft wings, fuselages, and landing gear, as well as satellites, spacecraft, launch systems and other flight-critical structures during development, qualification, certification, and operation.
- **Ground and Flight Test Instrumentation** – Capture structural load data during ground and flight testing for structural verification and airworthiness programs.
- **Engine and Propulsion Testing** – Monitor thermal and mechanical loads in jet and rocket engines, propulsion systems, and high-temperature components.
- **Composite Structure Evaluation** – Evaluate strain and load response in complex composite materials and components.
- **Fatigue and Durability Testing** – Identify critical stress concentrations and assess fatigue behavior and service-life performance under cyclic loading.

Complete Strain Measurement Solutions

Micro-Measurements offers strain gages, instrumentation, and installation accessories for aerospace testing and monitoring. Our advanced sensors technology provides tighter resistance tolerances, improved gage-to-gage repeatability, longer durability, and greater stability than conventional strain gages.

Strain gages, sensors, and configurations

- **High-performance stress analysis strain gages** – Patterns for static, dynamic, and long-duration structural testing.
- **Rosette configurations** – Multidirectional patterns for determining principal strains and stresses.
- **Transducer Class® strain gages** – Specially engineered strain gages with configurable geometries for application-specific measurement requirements.
- **High-temperature sensors** – High-precision strain measurement in engines, propulsion systems, and components at temperatures up to 1150°C (2100°F).
- **Custom strain gages** – Designed to meet specific application requirements, with tailored geometries, grid patterns, resistance values, tolerances, and leadwire configurations.

Instrumentation

- **Data acquisition systems** – Portable, multichannel, and high-speed systems for static and dynamic testing, with high resolution signal digitization.
- **Signal conditioning** – Amplification and filtering for accurate, low-noise measurement.
- **StrainSmart® software** – A turnkey application that enables quick and easy configuration of sensor and data acquisition parameters, with integrated data collection, visualization, analysis, and multichannel system control.

Installation and protection

Surface-preparation materials, adhesives, lead wires, terminals, soldering supplies, tools, and protective coatings support installation quality and test integrity.

Micro-Measurements Gage and Flex Assembly solution combines Transducer Class® strain gages with a custom flexible printed circuit (FPC), simplifying integration and improving reliability. Optional bonding and installation services are also available.

Engineering support and training

Application guidance, technical resources, and hands-on training support optimal solution selection implementation.

Discuss your testing application with a Micro-Measurements expert.

