

Acceleration



Angle & Tilt



Displacement



Flow



Force



## Sensors

## Custom Transducers

## Strain Gages & Installation

## Data Acquisition & Signal Conditioning

## Wireless/ Telemetry

## Vibration & Environmental Test

## OEM & Contract Manufacturing

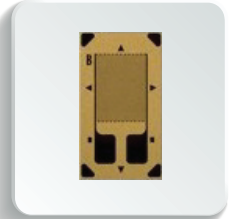
Pressure



Sound



Strain



Temperature



Torque



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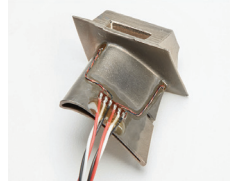
# Strain, Force & Torque



- Strain gages, bondable resistors, installation, accessories & training
- StrainSmart Systems, Signal conditioners, portable strain indicators
- PhotoStress Photoelastic stress analysis systems



- Custom force, torque & strain measurement:
- Custom strain gage installation on components
  - Field & lab services for strain measurement & data acquisition
  - Custom transducer design & calibration



- Load Cells & Force sensors
- Torque sensors: reaction, rotating & wireless
- Multi-axis transducers
- Instruments: Digital displays & hand-held meters
- Calibration systems & services



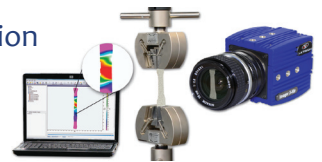
Force sensing bolts, clevis pins, load pins, & tension links.



- Hydraulic Testing Cylinders for Every Frequency and Range
- Compact hydraulic actuator construction
  - High stability and rigidity
  - High speeds and frequencies
  - Efficient for varying test series



State-of-the-art, non-intrusive Digital Image Correlation (DIC) optical tool for shape, strain and deformation analysis of solid, granular and liquid subjects.



- Pressure & level solutions for municipal, industrial, & process markets:
- Sensors for hostile service including slurries
  - Submersible pressure & level sensors



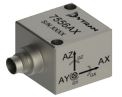
Self-Aware™ Programmable inches-of-water sensors, for Industrial, Medical and HVAC applications. A new generation of differential pressure sensors, based on NimbleSense™ ASIC technology, which provides an alert mechanism of potential performance issues, before system-alarm incidents occur. Higher accuracy and turn-down ratios, lower total-error-band, with the industry's lowest noise floor.

# Pressure

# Sound, Vibration & Environmental Test



- Dynamic/Piezoelectric sensors: acceleration, force & pressure
- Impulse hammers, sensor signal conditioners, & sensor cables
- Calibration Services for dynamic sensors from all manufacturers



## GRAS

Sound & Vibration

Specialists in high performance measurement microphones & related acoustic accessories for automotive, aviation & aerospace.



- Advanced vibration test equipment: Electro-dynamic shakers, slip tables, head expanders and multi-axis shakers.
- Environmental test chambers including: temperature, humidity, thermal shock, & altitude chambers.



Vibration test controls for electrodynamic & servo-hydraulic shakers:

- Test modes: Sine, Random, Shock, SoR, RoR, SRS, & more
- Features: Fatigue Damage Spectrum, Kurtosis, Field Data Replication, Transient Capture, & more



## Gantner instruments

Ethernet/EtherCAT-based data acquisition and control solutions (24-bit, 100kHz A/D per channel) for test cells, test labs, portable/in-vehicle, & stand alone/data-logger applications.



## Hi-Techniques

High performance data acquisition including:

- Synergy multi-mode systems: recorder, scope, spectral, modal, & combustion analyzer
- Echelon in-vehicle DAQ: I/O, CAN, GPS, & video. IP-68



MICRO MEASUREMENTS  
A VPG Brand

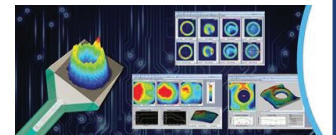


- StrainSmart® high performance data acquisition instrument utilizing strain gages and related sensors for stress analysis testing.
- High-speed, high-channel count signal conditioning & data acquisition solutions for aerospace, military, research testing applications.



## Tekscan®

Thin-film tactile pressure & force measurement for gaskets, seals, grip/ergonomics, seating/bedding, brakes, tires, roller-nip & many other applications.



# Data Acquisition

# Pressure

# OEM/Custom Sensors & Contract Manufacturing



**ADVANTAGE COMPONENTS INC**  
ENGINEERING QUALITY CONNECTIONS

Custom manufacturer of wire harnesses, interconnects, cable & wire assemblies including over-molding.



**FIBOS**  
Advanced Optical Measurements

Fiber Bragg Gratings (FBGs) and optical sensor products including temperature, strain, pressure, vibration, tilt and displacement in addition to other custom sensors.



Custom OEM force, pressure & torque

- Sensor design & manufacturing
- Amplifiers & integrated electronics
- OEM transducer manufacturing



Global Contract Manufacturers and Product Design Engineers:

- Designers and manufacturers of electrical and mechanical assemblies
- Supply chain, Quality, and Project Management



# Displacement



**Sensor Source Lasers**

- High-accuracy position, thickness, & surface measurements



Non-contact capacitive displacement sensors, gap sensors, bore gauges, parallelism and density sensors with matching capacitance amplifiers, data acquisition systems, linearization & display software.



- LVDT displacement transducers for all applications
- Signal conditioning, amplifiers & digital displays



Precision Products / Measuring

Eddy current non-contact position and displacement sensors



# Flow



Flow meters: Turbine, Coriolis, magnetic, positive displacement, oval gear, & more.

- COX precision turbine flow meters for gases & liquids
- FLOW DYNAMICS NVLAP flow calibration services



# Wireless/Telemetry



The smallest, lightest, most power efficient, wireless measurement systems for torque, acceleration and other sensing application.



Advanced Intelligent Instrumentation

- Wireless telemetry
- Strain gage amplifiers & signal conditioners
- Indicators & digital display electronics



# Temperature



**BLAZE**  
TECHNICAL SERVICES, INC.

Thermocouples: general purpose, hand-held, RTD, and industrial probes. In addition to our standard products, we can also custom design and build probes to your specifications.



- Temperature transmitters: 4-20mA, HART, & wireless
- signal conditioners, digital indicators, & closed-loop controllers for temperature applications



# Servo-Control/ Special Test



FORCE & TORQUE TEST SOLUTIONS

- Motorized Material Testing for physical strength properties testing
- Motorized Product Testing Stands for static/monotonic force or torque testing



Sequential Logic Controller providing flexible, programmatic control of motors, solenoids, relays, heaters



Optical Measurement Systems

Non-contact vibration measurement instrumentation & engineering services. Single point & scanning laser vibrometer systems.

