Monitoring
Instrumentation for
Infrastructure and
Related Applications

Bridges | Tunnels | Buildings | Structural Health Monitoring | Embankments | Roadways | Excavation

We make monitoring instruments. You make sound decisions.
Technologies

“Turn-key” data logger systems offering real-time data logging & analysis of vibrating wire, thermistor, MEMS (analog and digital), Tensington, linear potentiometer, strain gauge, LVDT, TDR and other sensor types. Ideal for remote data logging of dams, tunnels, bridges, mines, and natural slopes.

Fully automated wireless data collection using “DT Series” Data Loggers at the sensor level, deployed in a star topology from an active RSTAR Hub with flexDAQ data logger or THREAD Gateway. Users can access collected data remotely, either on-site or off-site.

A semi-automated wireless data collection system that is an on-site wireless connection to “DT Series” Data Loggers for quick data collection. Ideal for hard to access areas where the data logger is within line of sight.

A series of rugged data loggers that provide reliable, unattended monitoring of various sensor types: Vibrating Wire, MEMS, 4-20mA Transmitters & Thermistors, Potentiometers and Load Cells. DT Series Data Loggers can be used to collect data wirelessly or as non-wireless stand-alone data loggers.

DT-BUS instruments use a series of digitally bussed sensors, all addressable, along one cable. It simplifies installation and minimizes costs by eliminating the need of a separate cable for each sensor and also reduces the amount of cable to be managed during installation.

A precision line of tilt and inclination monitoring instruments using digital MEMS (Micro-Electro-Mechanical Systems) sensors. Measures any lateral movement down in the earth, via inclinometer casing. Since 2003, RST’s Digital MEMS Inclinometer has traversed a smaller radius bend than all other inclinometer probes available in the industry.

RST Inclinalysis™ Software quickly reduces large volumes of data from the RST Digital MEMS Inclinometer System for analysis and presentation.

GeoViewer is a data viewer that provides flexible console viewing of large data sets from ADAS (automatic data acquisition systems). It features alarm functions and remote, real-time data access.

Products

More than half of all instruments manufactured at RST Instruments are specifically engineered to meet site-specific requirements and are designed in conjunction with client input. RST also specializes in custom, complex data acquisition systems and holds a number of patents such as “Snap-Seal” ABS inclinometer casing and the Digital MEMS Inclinometer System. Satisfied engineers worldwide have installed RST’s casing and used the Digital MEMS Inclinometer System for accurate slope stability monitoring.

Quality

The RST Instruments management system is certified to ISO 9001:2015. It is based on evidence of corporate commitment to quality in management responsibility, design control, inspection & testing, internal quality audit procedures, training & servicing.

Experience

With years of geotechnical instrumentation experience, RST is capable of providing custom engineered solutions to site-specific problems. When requested, in-depth technical support is provided and all related staff members are always available to work with clients until a solution is found to meet the project requirements.

History

Since 1977, RST’s geotechnical monitoring instruments have been integral components for major dams, mines, tunnels, pipelines, and structures around the world that require monitoring, measuring and data collection.

As a world leader in the design, manufacturing and sale of innovative geotechnical, environmental and structural monitoring instruments, our customers rely on our reliability & accuracy for:
- Improve Decision Making
- Manage Risks
- Improve Safety
- Optimize Design
- Increase Productivity
- Reduce Costs

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Inclinometers and Tilt Sensors
- Measure lateral movement down in the earth’s lateral deformation of concrete dams, tall structures, and embankments; and tilt of structures in either one or two planar axes.
- Provide long term short term observation with maximum resolution and sensitivity.
- Manual monitoring or remote data acquisition options available.

KEY PRODUCTS:
- Inclinometer Systems
- In-Place Inclinometers
- Tilt Loggers & Meters
- Inclinometer Casing
- Tunnel Monitors
- Track Monitors

Piezometers and Pressure Transducers
- Measure pore water pressure during fill or excavation. Instable in slope stability investigations and for assessing the stability of earth-fill dams and embankments.
- Compatible with ‘DT Series’ Data Loggers for remote data acquisition.
- Alarm triggering can also be utilized.
- The VW2105 Vibrating Wire Readout and the CH109 Pneumatic Readout are the main readouts used for reading piezometers.

KEY PRODUCTS:
- Vibrating Wire Piezometer
- Pneumatic Piezometer
- Strain Gauge Piezometer
- Strain Gauge and Vibrating Wire Pressure Transducers

Readouts and Data Loggers
- Collect data from sensors in dams, tunnels, bridges, mines, natural landscapes and other geotechnical applications.
- Manual monitoring or remote, wireless data acquisition with alarm triggering.
- Many sensor types and gauges can be read with these products including vibrating wire, thermistor, TENSMEG, linear potentiometer, strain gauge and MEMS.

KEY PRODUCTS:
- ‘DT Series’ Data Loggers
- RESMARS-Array Radios Series
- DT LUM Wireless
- ResDAQ Data Loggers
- VW2105 Vibrating Wire Readout
- Ultra-Rugged Field P’D’C
- Custom Data Logger Enclosures

Environmental and Pipe Products
- Measure elevation of groundwater in boreholes, standpipes and wells.
- Complete, custom weather stations.
- PVC wellscreen and pipe products for monitoring groundwater hydrology, drainage, and water wells. HPCE pipe is used for various industrial applications for landfill, waste sites and mining applications.

KEY PRODUCTS:
- PVC Wellcasing, Casing and Pipe
- Water Level Meters

Grout Monitors
- Grout Monitors offer a permanent record of key grouting parameters for quality assurance, quantity documentation, and pressure & flow readings.
- Real-time data-viewing available via Wi-Fi communication with grout monitor data logger.

KEY PRODUCTS:
- Compaction Grout Monitor
- Permeation Grout Monitor

Analysis Software
- Leading-edge software for seamless integration with RST’s instruments.
- All software offered by RST is fully backed by a support team of software engineers who are ready to assist you with any questions, and to provide on-going software updates for improved product performance.

KEY PRODUCTS:
- GeoViewer Real-time Monitoring Inclinalysis™ - Inclinometer Analysis Software
- Host Software for RST’s Readouts & Data Loggers

Carlson Instruments
- Used where concrete or similar type structures require geotechnical investigation. Readings can only be accessed by the Carlson MA7 Readout and ResDAQ Data Loggers.

KEY PRODUCTS:
- Carlson Joint + Foundation Meters
- Carlson EH | Readout
- Carlson MA7 | Readout
- Carlson Reinforced Concrete Meters
- Carlson Resistance Thermometer
- Carlson Strain Meters
- Carlson Stress Cells

Thermistors and Temperature Systems
- Temperature measurement with simple thermistor integration into certain instruments.
- Custom thermometer/temperature systems, such as the Digital Thermarray System.

KEY PRODUCTS:
- Digital Thermarray System Thermistor Strings/Systems
- TH52A/B Thermistor Readout
- Subgrade Temperature Probe

Borehole Packers
- Suitable for a wide variety of applications in open or cased holes and for monitor well sampling, zone testing & monitoring, permeability testing, hydraulic fracturing of formations, pressure grouting, and sealing off artesian flows.
- Alternate sizes and materials are available for custom applications.

KEY PRODUCTS:
- Borehole Packers
- Borehole Packer Accessories

Settlement Systems
- Accurately monitor settlement or heave in soils and man-made structures such as buildings, tunnels, embankments, and earth and rockfill dams.

KEY PRODUCTS:
- Precision Liquid Settlement Array
- Vibrating Wire Liquid Settlement Systems
- Horizontal In-place Inclinometers
- Magnetic Settlement Systems
- Vibrating Wire Deep Settlement Systems

Load, Stress and Pressure Sensors
- Measure load, stress and pressure as it relates to rock, soil, concrete and plugging applications.
- Equipped with sensors that are vibrating wire, pneumatic or strain gauge.
- Manual monitoring or remote data acquisition configurations are available for many instruments in this category.

KEY PRODUCTS:
- Load Cells
- Pressure Cells
- TENSAMS Tension Measuring Gauge
- Rebar Strain Meter/Sister Bar
- Vibrating Wire Strain Gauge

Extensometers and Compressometers
- Measure ground deformation in mining and civil engineering projects, linear displacement of structures, tunnel displacement, and deformation in rock faces or underground workings.
- Manual monitoring or remote, wireless data acquisition with alarm triggering.

KEY PRODUCTS:
- Convergence Monitors
- Borehole Extensometers
- In-Line Extensometers
- Crack Meters
- Pivot Laser Extensometer
- Tunnel/Profile Monitors

PVC Wellscreen, Casing and Pipe
- Key products: available for custom applications.
- Alternate sizes and materials are also available for custom applications.
- Suitable for various industrial applications for landfills, waste sites and mining applications.

KEY PRODUCTS:
- PVC Wellscreen and Pipe
- Water Well Meters
2 WIRELESS DATA COLLECTION OPTIONS:

Whether collecting geotechnical instrument data on-site or remotely, RST Instruments offers two wireless data collection systems: RSTAR and DT LINK.

Compatible sensor types for both systems are identical and use the “DT Series” Data Loggers from RST Instruments which provide reliable, unattended monitoring of various sensor types: vibrating wire sensors, potentiometers, MEMS tilt sensors, strain-gauge (full bridge) sensors, digitally bussed sensors (“DT-BUS”), 4-20 mA sensors, and thermostats. These data loggers at the NODE (data logger & sensor) level require a single lithium “D” cell and provide years of battery life. Both systems provide extensive open-country range through use of a simple dipole or directional antenna.

OPTION 1: RSTAR

The RSTAR Array Radio Series uses wireless technology to provide automated data acquisition. A complete RSTAR L900 System uses RSTAR NODES at the sensor level, deployed in a star topology from a continuously active RSTAR HUB, which consists of an L900 RTU interfaced to an RST FLEXDAQ Data Logger.

The RSTAR system is intended for fully automated scheduled collection and provides remote data access. It uses a fixed central hub with its own data logger, antenna, and power. The range from the sensor node to the hub is up to 14 km and is based on the 900 MHz, 868 MHz, and 2.4 GHz spread spectrum band (country dependent).

OPTION 2: DT LINK

The DT LINK system is a wireless connection to RST data loggers for quick semi-automated data collection performed on-site. The DT LINK system uses a portable hub with laptop connection and host software. The ranges from the sensor node to the hub can be up to 500 m and 800 m and is based on the 900 MHz, 868 MHz, and 2.4 GHz spread spectrum band (country dependent).

Contact RST for details on additional “DT Series” data loggers.
**Bridges (Beam and Arch)**

**Beam Bridge**
- DT2058 - Digital Tilt Loggers
  - Battery powered, radio enabled, unattended monitoring of tilt in either uniaxial or biaxial planes.

**Arch Bridge**
- DT201B / DT202B
  - Uniaxial / Biaxial Digital Tilt Loggers
  - Battery powered, radio enabled, unattended monitoring of tilt in either uniaxial or biaxial planes.

**Embedment Strain Gauge**
- Designed to be embedded in concrete structures for monitoring strain of concrete.

**Thermistor / ‘ThermArray’**
- Provides precision thermal gradient information in geotechnical, geothermal, and marine applications.

**Crack Meter**
- Measures movement (separation or convergence) across surface cracks, joints, or concrete structures.

**Rebar Strain Meter / Sister Bar**
- The bar is used adjacent rebar members and is embedded in concrete to measure concrete strains due to imposed loads.

**Rebar Strain Meter / Thermonitor Data Logger**
- Battery powered, radio enabled, unattended monitoring of In-Place Inclinometer Strings and other digital bus (DT-BUS) sensors.

**Inclinometer Casing and In-Place Inclinometer**
- Installed in a borehole to monitor horizontal displacement of the slope casing. Compatible with all commercially available inclinometer probes, including RST’s Digital MEMS Inclinometer Probe/System (manual readings) and In-Place Inclinometers (automated readings).

**Arc Weldable Strain Gauge**
- Designed to be welded to various steel structures for monitoring strain.

**DT2058B - 5/10 Channel Vibrating Wire/Thermistor Data Logger**
- Battery powered, radio enabled, unattended monitoring of up to 10 sensors which may be any mix of vibrating wire sensors and thermistors, typically 5 vibrating wire sensors with their associated thermistors.

**FLEXDAQ Data Logger Systems**
- Allows for precise & reliable data acquisition from various sensor types and gauges including vibrating wire, thermistor, MEMS (analog and digital), Tensi-meg, linear potentiometer, strain gauge, LVDT, TDR, etc. Ideal for remote data logging of various types of geotechnical instrumentation used in dams, tunnels, bridges, mines, and natural slopes.
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**PIEZOMETER**

- Monitor pore water pressures in the ground in slopes, dams, foundations, or embankments.

**Settlement Plate**

- The plate is placed on the foundation material and riser pipes are added as the embankment is placed. Survey of the top of the riser pipe permits foundation settlement to be followed. A through-hole permits access for a piezometer or standpipe in the foundation to be protected by the riser pipe.

**In-Line Extensometer**

- Determine extension or compression behavior of soil, rock, and concrete structures. The sensor housing is waterproof and can be installed flush with the borehole collar so it does not protrude.

**In-Place Inclinometer and Inclinometer Casing**

- Installed in a borehole to monitor horizontal displacement of the slope casing. Compatible with all commercially available inclinometer probes, including RST’s Digital MEMS Inclinometer Probe/System (manual readings) and In-Place Inclinometers (automated readings).

**Hydrostatic Settlement Profiler**

- Monitor settlement or heave in soils and embankments, earth and rockfill dams. Also ideal for pre-loading consolidation monitoring and subsidence monitoring.

**DT2485 Data Logger for DT-BUS Sensors**

- Battery powered, radio enabled, unattended monitoring of In-Place Inclinometer Strings and other digital bus (DT-BUS) sensors.

**DT485S “DT-BUS” DATA LOGGER**

- (with antenna, in secondary enclosure)

**SETTLEMENT PLATE**

- (as shown)

**LIQUID SETTLEMENT SYSTEM**

- (as shown)

**EMBANKMENT**

**MULTI-POINT IN-LINE EXTENSOMETER with SPIDER ANCHORS**

- (as shown)

**INCLINOMETER SYSTEM or IN-PLACE INCLINOMETER** (as shown)

**HYDROSTATIC SETTLEMENT PROFILER SENSOR**

- (in horizontal access tube)

**PIEZOMETER**

- (borehole type, as shown, or push-in style)

**FLEXDAQ Data Logger Systems**

- The plate is placed on the foundation material and riser pipes are added as the embankment is placed. Survey of the top of the riser pipe permits foundation settlement to be followed. A through-hole permits access for a piezometer or standpipe in the foundation to be protected by the riser pipe.

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**DT485S “DT-BUS” DATA LOGGER**

- (with antenna, in secondary enclosure)
A DT1202B Biaxial Digital Tilt Logger equipped with an optional radio antenna, as part of an RSTAR or DT Link system, which allows for wireless data collection in hard to access areas - such as the underside of a section of track for this light rapid transit system.
Excavation Nearby Building

**DT2485 Data Logger for DT-BUS Sensors**
Battery powered, radio enabled, unattended monitoring of In-Place Inclinometer Strings and other digital bus (DT-BUS) sensors.

**In-Place Inclinometer and Inclinometer Casing**
Installed in a borehole to monitor horizontal displacement of the slope casing. Compatible with all commercially available inclinometer probes, including RST’s Digital MEMS Inclinometer Probe/System (manual readings) and In-Place Inclinometers (automated readings).

**Load Cell**
Measures loads in tie-backs, struts, ground anchors and rock bolts. Also for measuring loads during the testing of piles. Typical sensors include a strain gauge and vibrating wire.

**Piezometer**
Monitor pore water pressures in the ground in slopes, dams, foundations, or embankments.

**Precision Liquid Settlement Array**
Reliable, precise monitoring of settlement and heave which may occur at excavation sites, tunneling projects, underground openings, grouting near structures, and related applications.

**Low Profile Spot Weldable Strain Gauge**
Designed to be spot welded to various steel structures, such as tieback anchors, rebar and pipelines. Effectively monitors strain.

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**Load Cell**
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**DTL201B / DTL202B Uniaxial / Biaxial Digital Tilt Loggers**
Battery powered, radio enabled, unattended monitoring of tilt in either uniaxial or biaxial planes.

**In-Place Inclinometer and Inclinometer Casing**
Installed in a borehole to monitor horizontal displacement of the slope casing. Compatible with all commercially available inclinometer probes, including RST’s Digital MEMS Inclinometer Probe/System (manual readings) and In-Place Inclinometers (automated readings).

**FlexDAQ Data Logger Systems**
Allows for precise & reliable data acquisition from various sensor types and gauges including vibrating wire, thermistor, MEMS (analog and digital), Tensmegin, linear potentiometer, strain gauge LVDT, TDR, etc. Ideal for remote data logging of various types of geotechnical instrumentation used in dams, tunnels, bridges, mines, and natural slopes.

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Landfill

Inclinometer Casing and In-Place Inclinometer

A secondary enclosure used to house selected "GO Series" Data Loggers. The cover can be removed to allow easy access to the internally housed data logger.

Water Level Meter

Measure the elevation of groundwater in standpipes, boreholes, and wells.

Secondary Enclosure

A secondary enclosure used to house selected "GO Series" Data Loggers. The cover can be removed to allow easy access to the internally housed data logger.

Flow System

Monitor pressure and flow and control water during downhole testing.

Inclinometer Casing

Installed in a borehole to monitor horizontal displacement of the slope casing. Compatible with all commercially available inclinometer probes, including RST’s Digital MEMS Inclinometer Probe/System (manual readings) and In-Place Inclinometers (automated readings).

Slotted PVC Pipe

Ideal for water sampling and intake systems, well and aquifer monitoring, and dewatering and underdrain systems.

Borehole Packer

Ideal for permeability testing, sealing water flows in open or cased boreholes, monitor well sampling, and pressure grouting.

Liquid Settlement System

Monitor settlement or heave in soils and different types of man-made structures such as embankments, and earth and rockfill dams. Also ideal for preload consolidation monitoring and subsidence monitoring.

Thermistor String

For accurate and reliable long-term temperature measurements under demanding geotechnical conditions. Can be used to monitor seepage.

Permeation Grout Monitor

A real-time display of key grouting parameters during permeation grouting to provide a record of pressure and flow readings for quality control.

FLEXDAQ Data Logger Systems

Allows for precise & reliable data acquisition from various sensor types and gauges including vibrating wire, thermistor, MEMS (analog and digital), Tensmeg, linear potentiometer, strain gauge, LVDT, TDR, etc. Ideal for remote data logging of various types of geotechnical instrumentation used in dams, tunnels, bridges, mines, and natural slopes.

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Landslide Monitoring

**DT2055B - 5/10 Channel Vibrating Wire/Thermistor Data Logger**
- Battery powered, radio enabled, unattended monitoring of up to 10 sensors which may be any mix of vibrating wire sensors and thermistors, typically 5 vibrating wire sensors with their associated thermistors.

**Secondary Enclosure**
- A secondary enclosure used to house select "DT Series" Data Loggers. The cover can be removed to allow easy access to the internally housed data logger.

**FLEXDAQ Data Logger Systems**
- Allows for precise & reliable data acquisition from various sensor types and gauges including vibrating wire, thermistor, MEMS (analog and digital), Tensmeg, linear potentiometer, strain gauge, LVDT, TDR, etc. Ideal for remote data logging of various types of geotechnical instrumentation used in dams, tunnels, bridges, mines, and natural slopes.

**TDR (Time Domain Reflectometry)**
- Detect and interpret rock and soil mass response to underground mining, surface mining, and landslides using coaxial cables grouted in boreholes. Ideal for monitoring subsidence above abandoned underground mines, and high wall slope monitoring in open pit mines or landslide movements.

**Crack Meter**
- Measure movement (separation or convergence) across surface cracks, joints, or concrete structures.

**Piezometer**
- Monitor pore water pressures in the ground in slopes, dams, foundations, or embankments.

In addition to standard Crack Meters, RST also produces Wireline Crack Meters which are shown below in a typical installation. Contact RST for more information.
Strain Gauge Load Cell
Measure load exerted by the jack on the pile. Available in many capacities.

Spring-Loaded Linear Potentiometer
The spring-loaded tip allows for monitoring displacement of the pile head during pile loading.

FLEXDAQ Data Logger Systems
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Arc Weldable Strain Gauge
Designed to be welded to various steel structures for monitoring strain. For pile load tests, these are welded in pairs along the length of the pile.

Rebar Sister Bar
The bar is used adjacent rebar members and is embedded in concrete to measure concrete strains due to imposed loads. Ideal for measuring strain in instrumented cast-in-place piles.

Embedment Strain Gauge
Designed to be embedded in concrete structures for monitoring strain of concrete.

In-Place Inclinometer and Inclinometer Casing
Installed in a borehole to monitor horizontal displacement of the slope casing. Compatible with all commercially available inclinometer probes, including RST’s Digital MEMS Inclinometer Probe/System (manual readings) and In-Place Inclinometers (automated readings). Pictured Left: In-Place Inclinometer (G) and Inclinometer Casing.

Inclinoimeter System or In-Place Inclinoimeter (as shown)

Load test on intermediate capacity pile.
Roadway with Retaining Wall

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Secondary Enclosure
A secondary enclosure used to house select “DT Series” Data Loggers. The cover can be removed to allow easy access to the internally housed data logger.

Low Profile Spot Weldable Strain Gauge
Designed to be spot welded to various steel structures, such as tieback anchors, rebar and pipelines. Effectively monitors strain.

Low Profile Settlement System
Monitor settlement or heave in soils and different types of man-made structures such as embankments, and earth and rockfill dams. Also ideal for preload consolidation monitoring and subsidence monitoring.

Total Earth Pressure Cell
Measure stress acting on plane surfaces. Ideal for earth embankments, dams, foundations, retaining walls, piers, pipelines & culverts, railroad bases (embankment, tunnel linings, and move backfill) monitoring. Available with pneumatic, strain gauge, or vibrating wire transducers.

In-Line Extensometer
Determine extension or compression behavior of soil, rock, and concrete structures. The sensor housing is waterproof and can be installed flush with the borehole collar so it does not protrude.

DT2040 - 20/40 Channel Vibrating Wire/Thermistor Data Logger
Battery powered, radio-enabled, unattended monitoring of up to 40 sensors - can be any mix of vibrating wire sensors and thermistors, typically 20 vibrating wire sensors with their associated thermistors and/or thermistor strings.

NATM Stress Cells
Measure stresses in concrete (shotcrete) linings in tunnels and other underground workings.

Piezometer
Monitor pore water pressures in the ground in slopes, dams, foundations, or embankments.

Inclinometer Casing and In-Place Inclinometer
Installed in a borehole to monitor horizontal displacement of the slope casing. Compatible with all commercially available inclinometer probes, including RST’s Digital MEMS Inclinometer Probe/System (manual readings) and In-Place Inclinometers (automated readings). Pictured left: Inclinometer Casing (K) and In-Place Inclinometer (L).

DT2485 Data Logger Systems
A means for precise & reliable data acquisition from various sensor types and gauges including vibrating wire, thermistors, MEMS (analog and digital), Tensile, linear potentiometer, strain gauge, LVDT, TER, etc. Ideal for remote data logging of various types of geotechnical instrumentation used in dams, tunnels, bridges, mines, and natural slopes.

FLEXDAQ Data Logger Systems
Low cost (not to scale)
TBM Tunnel in Earth

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Precision Liquid Settlement Array

Reliable, precise monitoring of settlement and heave which may occur at excavation sites, tunneling projects, underground openings, grouting near structures, and related applications.

DT2055B - 5/10 Channel Vibrating Wire/Thermistor Data Logger

Battery-powered, radio-enabled, unattended monitoring of up to 10 sensors which may be any mix of vibrating wire sensors and thermistors, typically 5 vibrating wire sensors with their associated thermistors.

Push-in Pressure Cell

Measure the relative distance between reference anchors fixed to the excavation or structure. Ideal for measuring mine roof sag, tunnel convergence, deformation of excavations, surface measurements for slope stability, and monitoring & control of NATM (New Austrian Tunneling Method) construction.

Low Profile Spot Weldable Strain Gauge

Designed to be spot welded to various steel structures, such as tieback anchors, rebar and pipelines. Effectively monitors strain.

Axial Total Earth-Pressure Cell

I dete the relative distance between reference anchors fixed to the excavation or structure. Ideal for measuring mine roof sag, tunnel convergence, deformation of excavations, surface measurements for slope stability, and monitoring & control of NATM (New Austrian Tunneling Method) construction.

Pivot Laser Extensometer

Quickly & easily measure the relative distance between two or more reference points fixed to an excavation surface or a structure. Ideal for underground openings, measurement of roof sag and squeezing ground, and measurement of tunneling-convergence or dilation.

Inclinometer Casing and In-Place Inclinometer

Installed in a borehole to monitor horizontal displacement of the slope casing. Compatible with all commercially available inclinometer probes, including RST’s Digital MEMS inclinometer Probes/System (manual readings) and In-Place Inclinometers (automated readings).

Pictured Left: Inclinometer Casing (N) and In-Place Inclinometer (O)

Secondary Enclosure

A secondary enclosure used to house select "DT Series" Data Loggers. The cover can be removed to allow easy access to the internally housed data logger.

Tunnel Profile Monitoring System for Tunnel Concrete Segments

Monitor the convergence of precast concrete segments in TBM-driven tunnels during construction for control and safety. Also ideal for monitoring long term deformation and performance of existing tunnels.

Borehole Extensometer

Determine the stability and movement behavior of soil and rock above the tunnel crown. Two or more anchors at various depths assist to distinguish zones of displacement.

Road Extensometer

Determine the stability and movement behavior of traffic road subgrades, when subject to processes such as tunneling undermining the road.
We make monitoring instruments.
You make sound decisions.

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