



Technologies to manage risk for infrastructure

Pavement Instrumentation

Our Service and Product Lines

Geocomp designs, installs, and manages comprehensive, web-based performance monitoring programs for all types of civil engineering structures.

At Geocomp, we provide a comprehensive set of data collection and visualization tools to help clients manage risk for complex infrastructure projects.

This existing in-house capability with iSite™-HS data acquisition hardware and iSiteCentral™ GIS database software together with staff experience in sensor development provides a complete solution for the needs of pavement engineers and researchers.

Geocomp provides pavement instrumentation sensing solutions for verification testing and research. Our instrumentation programs and products are designed to measure pavement’s response to loading and environment. Our sensors are used to provide technical data needed to validate new design standards, and our project applications include accelerated test pavement facilities for highways, airports and bridges.

Understanding pavement’s response to strain, pavement pressure, in situ moisture and temperature is critical in the design phase. Our suite of pavement instrumentation products are used to provide critical response data output on stresses, strains and deflections. This enables researchers and designers adequate time to refine existing pavement design methods and implement future design modifications.

Geocomp’s instrumentation is used to predict and document levels of pavement distress including rutting, cracking and joint faulting. Our team of technical experts provides measurement interpretation. We are adept at recommending methods for designing and installing instrumentation to obtain optimum performance/response measurements.

Our remote instrumentation monitoring systems are used in assessing overall structural health monitoring and are designed for high speed monitoring applications where users’ needs access to data from remote instrumentation quickly and inexpensively.

Geocomp personnel have years of experience working with leading accelerated test pavement facilities throughout the world in developing unique measurement techniques, including fiber optic sensor development for strain/temperature measurement pavement layers and surfaces.

Geocomp’s instrumentation equipment includes:

- Dynamic Asphalt Strain Gages
- Dynamic Soil Compression Gages
- Dynamic Concrete Strain Gages
- iSite™-HS Data Acquisition

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Standard Pavement Sensors

Dynamic Asphalt Strain Gages (ASG/VASG) - measure axial strain in flexible pavement under high frequency (dynamic) conditions. These low modulus, ruggedized sensors are built to withstand the high temperature and vibratory rolled compaction required for asphalt placement.

Utilizing four active elements of a Wheatstone Bridge circuit, this gage is easily adaptable to most data acquisition systems. Each sensor is individually calibrated with high temperature resistant lead wire attached and is provided with QC documentation and Calibration plots.



Dynamic Concrete Strain Gages (CSG) - measure axial strain in rigid pavement under long-term static (slab curling) or high-frequency dynamic (pavement response to trafficking) conditions. These ruggedized sensors are built to withstand the harsh conditions of concrete placement and vibration.

Utilizing four active elements of a Wheatstone Bridge circuit, this gage is easily adaptable to most data acquisition systems. Each sensor is individually calibrated with overall lead wire length attached and is provided with QC documentation and Calibration plots.



Soil Compression Gages (SCG) - measure horizontal or vertical displacements in soils or subgrade material. SCG's are ruggedized to withstand the harsh environment in soils and construction fill material during placement and compaction. They are moisture proof and can function to measure compaction or expansion of soils in various subsurface layers. Gages utilize displacement transducers over 1 to 6 inch travel ranges and can be used to measure dynamic response. Standard wiring configurations adapt to most data acquisition systems.



iSite™-HS System - designed for high speed monitoring applications where the user needs access to data from remote instrumentation quickly and inexpensively. The system consists of standalone data loggers which take and store readings at programmed intervals up to 1,000 readings per second per channel. Units are networked with radio or Ethernet connections. By connecting the units through a switch to a G3 cell modem, data can be streamed to a remote location at up to maximum speed of the modem. Alternately units may be connected to an on-site computer with WiFi modules attached to each data logger.



Other sensors used in pavement instrumentation can include temperature trees used for measuring temperature gradients through pavement sections, pressure cells for measuring vehicle loads in base and sub-base layers and multiple level displacement measurement techniques to provide a comprehensive understanding of pavement/base/sub-base response to vehicle loading