Campbell Scientific data acquisition systems' versatile capabilities make them ideal for structural health monitoring. Our dataloggers applications range from simple beam fatigue analysis, to structural mechanics research, to continuous monitoring of large, complex structures. Campbell systems provide remote, unattended, portable monitoring for highway overpasses, roads, buildings, retaining walls, bridges, and amusement park rides. They make reliable structural measurements, even in harsh environments.

Custom Systems
Most of the systems we sell are customized. Tell us what you need and we'll help you configure a system that meets your exact needs.

Dataloggers
We offer a range of dataloggers, from the most basic system with just a few channels to expandable systems that measure hundreds of channels. Scan rates can be programmed from a few hours to 100,000 times per second, depending on the datalogger model. Non-volatile data storage and a battery-backed clock ensure data capture and integrity.

The control functions of our dataloggers allow them to sound alarms and control devices based on time or measured conditions.

Sensors
The versatility of our systems begins with sensor compatibility—they can measure virtually every commercially available sensor—allowing them to be used in a variety of ways for a variety of measurements. Our dataloggers have many channel types and programmable inputs including analog (single-ended and differential), pulse counters, switched excitation, continuous analog output, digital I/O, and anti-aliasing filter. Our dataloggers have input resolutions to 0.16 microvolts, allowing strain measurements with a resolution of a single micro-strain.

Typical Sensors
- Strain meters
- Foil strain gauges (in quarter-, half-, or full-bridge strain configurations)
- Vibrating-wire strain gauges
- Vibrating-strip sensors
- Inclinometers
- Crack and joint sensors
- Tilt sensors
- Piezoresistive accelerometers
- Piezoelectric accelerometers
- Capacitive accelerometers
- Borehole accelerometer
- Force balance accelerometers
Example Application: Structural Monitoring of an Overpass

Campbell Scientific’s monitoring systems are used for a variety of structural applications. Monitoring possibilities on an overpass include:

- Embedded Carlson strain and temperature meters
- Crack sensors
- Traffic monitoring sensors
- Soil properties
- Inclinometers
- Accelerometers and foil strain gauges
- Vibrating wire strain gauges
- LVDTs (joint sensors)
- Potential site for weather or air quality monitoring

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