

## GeoSIG Solution Centre Bridge Structural Health Monitoring

### What can be monitored?

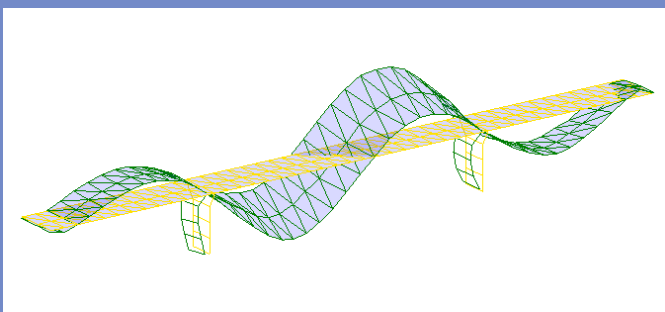
- ✓ Cable Stay or Suspension Bridges
- ✓ Viaducts
- ✓ Arch Bridges
- ✓ Bascule or Draw Bridges
- ✓ Beam or Girder Bridges
- ✓ Cantilever Bridges

### What are the Features and Benefits?

- ✓ Rapid assessment of bridge health
- ✓ Ensure safety of the bridge
- ✓ Detect early signs of failure
- ✓ Assess structure's safety following a major event
- ✓ Reduce maintenance and repair costs
- ✓ Extend the life of an aging bridge
- ✓ Improve knowledge about complex bridges

### Professional Advice and Support from concept to deployment

Our professional and experienced consultants are ready to provide you with the best impartial advice and support from the outset. Our knowledge of bridges coupled with an in-depth understanding of our instruments will provide you with an unparalleled advantage to achieve the best results for your monitoring requirements on time and on budget.



Dynamic measurements beyond and above static ones are a critical requirement in bridge monitoring as dynamic loads from the traffic and other natural causes such as gale winds, tornadoes and earthquakes can cause permanent damage with serious consequences. Timely and precise measurements of pre-defined parameters will provide the data to understand the behaviour of the structure to monitor the rate of change. A combination of other static monitoring options such as deformation, displacement and settlement can be used to further provide an indication of the performance of the bridge.

As well as the local regulations outlining the requirements for the monitoring instruments, other factors such as the type of the bridge, its age, foundation type and seismicity of the area are amongst important considerations when specifying bridge instrumentation.

Contact us for a comprehensive consultation and discussion on your Bridge Monitoring requirements.

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## OUR SERVICES

Advice

Consulting

Technical Proposal

Financial Offer

Planning

Installation

Training



*peace of mind  
a priceless  
commodity*

### **What can be measured?**

There are a multitude of options for monitoring the changes in a bridge. Each project will have its own unique requirements. The structural engineers will dictate such requirements, which our experts can then provide as an appropriate package.

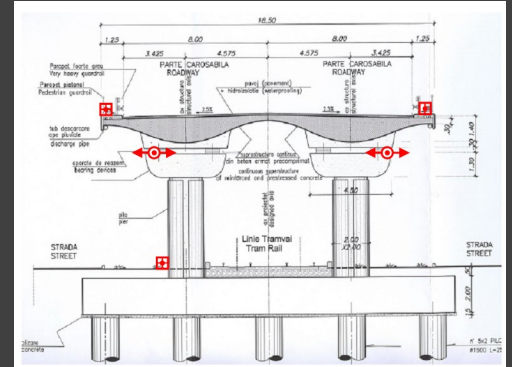
### **The most widely used packages for Bridge Monitoring:**

1. **Vibration:** Structural health, behaviour and modal analysis
2. **Strain:** Fatigue and rainflow analysis
3. **Displacement:** Joints, cracks and differential settlements of foundations
4. **Load:** Cablestay and reaction forces
5. **Environment:** Wind speed and direction, humidity, solar radiation and temperature
6. **Tilt:** Tilting of piers or towers

We provide useful advice and a unique integrated approach that can help you achieve your

## **Monitoring Requirements**

### **Kit Example**



### **Typical Viaduct Pier**

For seismic monitoring of a viaduct pier you will require a simple installation with the following equipment:

1. 1 x CR Series Multichannel Seismic Recorder
2. 2 x AC-73 Accelerometer
3. 1 x AC-71 Accelerometer
4. 4 x GS-LVDT Linear Variable Displacement Transducers
5. 1 x GXX-GPS GPS Receiver
6. Cable and Software

### **Contact us for the cost of a Turnkey Solution**

### **Analysis Capabilities**

A typical setup as above will provide valuable information about the health of the bridge. Thresholds for acceptable changes in the structure could be set to provide automatic notifications. After a natural disaster, at an instant valuable information about the change in structure of the bridge can be provided. Safety decisions about the viability of the structure at any given time can be made based on credible data and analysis.

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