

# // VIDEO MONITORING SERVICES

Regardless of your application, Video Gauge™ offers the user a versatile instrument that can be tailored to solve your measurement needs.

## RESPEC CAN ASSIST YOU IN SEVERAL WAYS:

- We make client-contracted measurements and provide consulting services and numerical modeling to interpret the measured behavior.
- We are Imetrum's Video Gauge™ retail supplier and training and servicing partner.
- We will team with you to provide rental equipment and support services.

FOR MORE INFORMATION, CONTACT:

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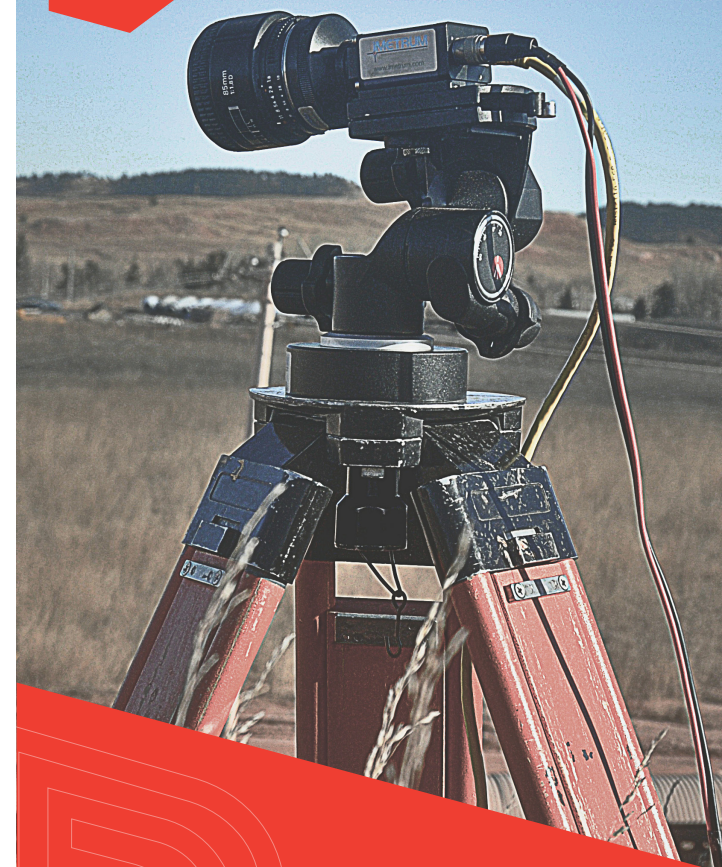
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# // VIDEO MONITORING



## CREATING A STANDARD

FOR HIGH-QUALITY  
MEASUREMENTS

# // VIDEO MONITORING

Dynamic, high-quality measurements of displacements and strains can be made using video monitoring technology, even in situations that do not allow access or instruments.

In 2007, Imetrum launched a measurement system for video monitoring (known as Video Gauge™) that has become the video monitoring standard. Video Gauge™ provides measurement versatility far beyond any other technology on the market and has many benefits that ultimately save the user time and money. RESPEC is Imetrum's partner for equipment sales and measurement consulting services.

From large-scale, structural monitoring to small-scale, laboratory testing, Video Gauge™ is adaptable to provide appropriate displacement-measuring resolutions and frequencies.

## RESOLUTIONS:

- Field-scale – submillimeter
- Lab-scale – submicron

## FRAME RATES:

- Slow – 1 fps
- Normal – 20 fps
- Dynamic – up to 1,000 fps

For information on specific Video Gauge™ applications, please visit [www.imetrum.com](http://www.imetrum.com)

## DYNAMIC DISPLACEMENT AND STRAIN MEASUREMENTS FOR:

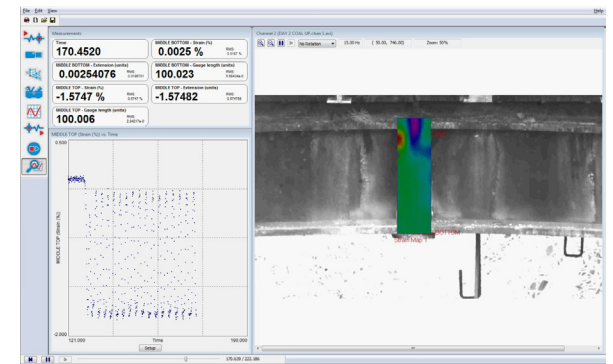
- // Structural Behavior
- // Mechanical Integrity
- // Lab and Component Testing
- // Geotechnical Monitoring
- // Blast and Vibration Effects

## BENEFITS OF VIDEO GAUGE™

- // Replaces instruments such as LVDTs, tiltmeters or MEMs, accelerometers, total stations, and seismographs
- // Simultaneously measures displacements, rotations, strains, and velocities
- // Is a noncontact method for remote measurements
- // Uses simple equipment and is quick to set up
- // Provides a real-time graphical display of results and measurement resolution
- // Is easily scalable to achieve needed resolutions by changing the camera lens and matching displacement speed by varying the camera frame rate

## // HOW VIDEO GAUGE™ WORKS

The heart of Video Gauge™ is the specialized software that allows high-resolution displacement measurements within images of video recordings. The software uses pattern recognition technology, which detects minute changes to "target" positions within the video's field of view. A target is simply a portion of the image that has a visible pattern or texture that the software can detect and track. The user defines the targets; unlimited targets can be defined, and any target can be redefined during postprocessing. Each target's x and y positions (and z position if two or more video cameras are used simultaneously) are resolved in each video frame.



*Displacement and strain response from a train crossing a rail bridge.*

Targets can be virtually connected to form extensometers, which can resolve displacement, rotation, and strain between those targets. Sections of the video can also be mapped as a deforming mesh for displacements and normal or shear strains. The analysis is performed either real time during the recording or in postprocessing mode by using the recorded and stored video. Case studies show Video Gauge™ has measurement resolution and accuracy equivalent or better than conventional instruments or other optical systems on the market.