

Displacement Monitoring

Typical applications include:

- Façade Monitoring
- Tunnel Wall Monitoring
- Dam Monitoring
- Retaining Structure Monitoring
- Embankment Monitoring
- Party Wall Monitoring
- Excavation Monitoring
- Foundation Monitoring

Commonly used instrumentation detailed below:

- LVDT
- Potentiometer
- Laser
- Ultrasonic
- Extensometer

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LVDT

Variables measured	Displacement (mm)
Range	0.5mm to 470mm
Accuracy	±0.025mm
Resolution	0.01mm
System operation	Automated
Data access	Remotely or on site
Reading frequency	Sub second

Additional Information:

- Suited for use on medium to long term projects.
- Accurate & reliable measurement system.
- No electrical contact, therefore almost infinite resolution & extended sensor life.
- LVDT (Linear Variable Displacement Transducer) contains 3 coils, 1 primary and 2 secondary. The position of the moveable magnetic core in relation to these coils transfers current between the primary and secondary coils, which results in an electrical output that can be converted to read displacement in mm.



Potentiometer

Variables measured	Displacement (mm)
Range	25mm to 300mm
Accuracy	$\pm 0.0125\text{mm}$ ($\pm 0.05\%$ full scale)
Resolution	0.01mm (0.04% full scale)
System operation	Automated
Data access	Remotely or on site
Reading frequency	Sub second

Additional Information:

- Suited for use on short to medium term projects.
- Reading frequency > 1 min.
- Cheap, simple & accurate.
- As the crack width changes, the connection rod within the potentiometer body moves which causes a change in electrical output. This change in electrical output is converted to mm displacement.



Laser

Variables measured

Range

Accuracy

Resolution

Repeatability

System operation

Data access

Reading frequency

Displacement (mm)

0.1m to 100m

±2mm (±0.002% full scale)

0.1mm (0.0001% full scale)

±0.5mm (±0.0005% full scale)

Automated

Remotely or on site

Sub second

Additional Information:

- Suited for use on short to long term projects.
- Reading frequency 50Hz.
- Accurate, non-contact measurement system, ideal for use in difficult to access areas.
- Displacement readings are taken off the immediate area of focus only.



Ultrasonic

Variables measured	Displacement (mm)
Range	0.2m to 4m
Accuracy	±0.4mm (±0.01% full scale)
Resolution	0.05mm (0.00125% full scale)
Repeatability	±0.2mm (0.005% full scale)
System operation	Automated
Data access	Remotely
Reading frequency	Sub second

Additional Information:

- Suited for use on short to long term projects.
- Reading frequency 13Hz.
- Cheap, accurate, non-contact measurement system, ideal for use in difficult to access areas.
- Displacement readings are taken off a wider area of focus.
- Can be used under water, and to measure movement through different media.

More detail available if required:

- Extensometers (rod / magnetic / tape)

Please get in touch if you would like more information.
