

## Load & Pressure Monitoring

**Typical applications include:**

- Bridge Bearing Replacement Monitoring
- Slope Stability Monitoring
- Excavation Monitoring
- Dam Monitoring
- Embankment Monitoring
- Water Level Monitoring
- Vertical Drain Monitoring

**Commonly used instrumentation detailed below:**

- Load Cell
- Piezometer
- Pressure Transducer

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## Load Cell

<b>Variables measured</b>	<b>Load (tonne, kN, kg)</b>
<b>Range</b>	<b>1kN to 10,000kN</b>
<b>Accuracy</b>	<b>±0.002kN (±0.2% full scale)</b>
<b>Resolution</b>	<b>0.001kN (0.1% full scale)</b>
<b>Repeatability</b>	<b>±0.002kN (±0.2% full scale)</b>
<b>System operation</b>	<b>Automated</b>
<b>Data access</b>	<b>Remotely or on site</b>
<b>Reading frequency</b>	<b>&gt;1 sec</b>

### Additional Information:

- Highly accurate with a wide range of different shapes & sizes for any application.
- Compression, tension & shear load can be measured.
- Load cell types include strain gauge, spring element and diaphragm. Load cells work by converting mechanical movement into an electrical signal.



## Piezometer

<b>Variables measured</b>	<b>Fluid pressure (psi or kPa)</b>
<b>Range</b>	<b>25psi to 1000psi</b>
<b>Accuracy</b>	<b>±0.025psi (± 0.1% full scale)</b>
<b>Resolution</b>	<b>0.0125psi (0.05% full scale)</b>
<b>Repeatability</b>	<b>±0.01psi (± 0.04% full scale)</b>
<b>System operation</b>	<b>Automated or manual</b>
<b>Data access</b>	<b>Remotely or on site</b>
<b>Reading frequency</b>	<b>&gt;5 mins</b>

### **Additional Information:**

- Simple, cheap & reliable.
- There are various types of piezometers including standpipe, vibrating wire and pneumatic. These pressure sensors measure either the height a liquid rises to in a column against gravity or the groundwater pressure at a certain point.



## Pressure Transducer

<b>Variables measured</b>	<b>Fluid pressure (psi or kPa)</b>
<b>Range</b>	<b>50psi to 15,000psi</b>
<b>Accuracy</b>	<b>±0.25psi (±0.5% full scale)</b>
<b>Resolution</b>	<b>0.05psi (0.1% full scale)</b>
<b>Repeatability</b>	<b>±0.05psi (±0.1% full scale)</b>
<b>System operation</b>	<b>Automated</b>
<b>Data access</b>	<b>Remotely or on site</b>
<b>Reading frequency</b>	<b>Sub-second</b>

### Additional Information:

- Highly accurate & hermetically sealed.
- Absolute pressure, gauge pressure and pressure head can be monitored.
- The pressure transducers measure strain or deflection of the sensor diaphragm and convert the movement into an electrical signal.