

Borehole Rod Extensometer MPBX

BOREHOLE ROD EXTENSOMETER MPBX

FEATURES

- Easy to install
- Standard design to use mechanically/ electronically
- Highly accurate when used with vibrating wire displacement sensors
- Individual sensors for multi-point applications
- Light weight

APPLICATIONS

The ES&S Electrical / Mechanical (E/M), single or multiple point borehole rod extensometers are used to accurately measure longitudinal displacement in rock masses or concrete boreholes. It is particularly useful for distinguishing deep seated movements from surface spalling, which is of value in assessing the need for or determining the efficiency of a rock bolting system.

Other applications include measuring deformation around tunnels, mines and other underground excavations. The extensometers are commonly installed in natural or cut slopes to monitor slope stability and can even detect settlement when installed appropriately.



Civil projects, such as dams and embankments, utilise extensometers to monitor deformation, displacement of structures and displacement across construction joints in concrete. Displacements in retaining walls, bridge piers and abutments can be monitored using extensometers.

TECHNICAL SPECIFICATIONS

Instrument	Dial Gauge	Depth Gauge	LVDT	Potentiometric	Vibrating Wire
Measuring Range	0-50 mm	0-150 mm	25, 50, 75 mm	25, 50, 75 mm	25, 50, 75, 100, 150 mm or more
Resolution	0.02 mm	LCD .001	1% of Full Scale or better	0.01% of Full Scale or Better	0.01% of Full Scale or better
Operating Temperature	5°C—60°C	5°C—60°C	-20°C—60°C	0°C—60°C	-20°C—80°C
Wiring Code	V/W sensor	Red & Black			
	Thermistor	White & Green			
Thermistor 3k ohm	Included				
Electrical Surge Protection	Optional				

Materials

Series	RP-45-BSE	RP-45-BME	RP-45-BFX
Extensometer Rod	Stainless Steel	Mild Steel	Fibreglass*
Reference Head	PVC / Aluminium	Steel Casting	Aluminium / PVC
Casing	PVC / Aluminium	Galvanised Steel	Aluminium / PVC
Cover	PVC / Aluminium	Mild Steel	Aluminium / PVC

* Fibreglass rod lighter in weight compared to stainless steel / mild steel

* Fibreglass has no expansion due to temperature effect

* Fibreglass rods are easy to install

Borehole Diameter	38 mm	48 mm	76 mm	101 mm
Maximum No. of Points	1	2-3-4	3-4-5	5-6

OPERATING PRINCIPLE

The rugged low cost rod extensometer is designed to be easily installed in difficult locations. The E/M borehole extensometer comprises of a group of 1 to 6 stainless steel/fibre rods individually sheathed in a protective rigid PVC pipe and attached to an anchor. A reference head, anchored at the surface terminate the protective PVC pipe. Movement of the anchor relative to the head changes the distance between the head and the force end of the rod. Two types of head are available. The model (Mechanical) uses a dial or depth gauge to measure change in distance. The depth gauge has an engraved scale or digital readout. The model with remote sensor uses simultaneous Vibrating Wire or LVDT Potentiometric displacement transducers to measure the change in stance. Single-Point and Multi-Point head configuration are available for both models.

Vibrating Wire displacement transducers have a built-in thermistor facility to read temperature. All displacement transducers are available to monitor anchor movements remotely and are sealed against moisture and water intrusion. A watertight overall housing seals the former; the transducer casing and housing doubly seals the latter. Both head terminate with protective caps that are removable. The heads are grouted in place at the borehole collar. Both electrical and mechanical readings can be taken. Mechanical readings are taken with either a dial or depth gauge. Electrical readings are obtained from the output of the Vibrating Wire / LVDT / Potentiometric type transducers.