



Multi-Point Vibrating Wire Inline Extensometer



Extensometer head and anchor



Extensions joined by coupler



Bottom anchor

The Multi-Point Vibrating Wire Inline Extensometer is used to determine the stability and movement behavior of soil, rock, and concrete structures. The main advantage of the extensometer is that it has no electrical head protruding out of the borehole, contrarily to conventional MPBX's (multi-point borehole extensometers). The Inline Extensometer is installed flush with the borehole collar or ground surface and measures movement at different depths in the borehole.

By construction, all displacement transducers are located in the borehole in sealed head/anchors assemblies that are inserted in the borehole and separated by extension sections which can be of variable length depending on the required measurement depths. The extension sections consist in rigid 3/8 inch (9.5 mm) stainless steel rods protected by a telescopic outer 21/32 inch (16.8 mm) PVC pipe. The larger diameter of the rigid rod is an additional advantage as compared to the usual 1/4 inch (6.35 mm) of conventional MPBX's, as it provides more accuracy in the measured displacements, both in case of extension and compression movements.

As all displacement transducers are in series in the borehole, the total measurement range of the extensometer is the sum of the individual measurement ranges of each transducers. This allows to measure considerably larger movements than conventional MPBX's while using lower cost standard range transducers.

specifications

ITEM	DESCRIPTION
Gauge Length	1m, with 0.5, 1, 2 and 3 m long extension kits
Sensor Range	25, 50, 75, 100, 150mm (other ranges available)
Accuracy	+/- 0.25 % FSR
Resolution	0.02% FSR
Linearity	0.25% FSR
Thermal Zero Shift	<0.05% FSR/°C
Operating Temperature	-20°C to 80 °C
Extensometer Head max/min Diameter	63.5 mm / 42.5 mm
Signal Cable	Two twisted pair cable with polyurethane jacket (one cable per measurement point).



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applications

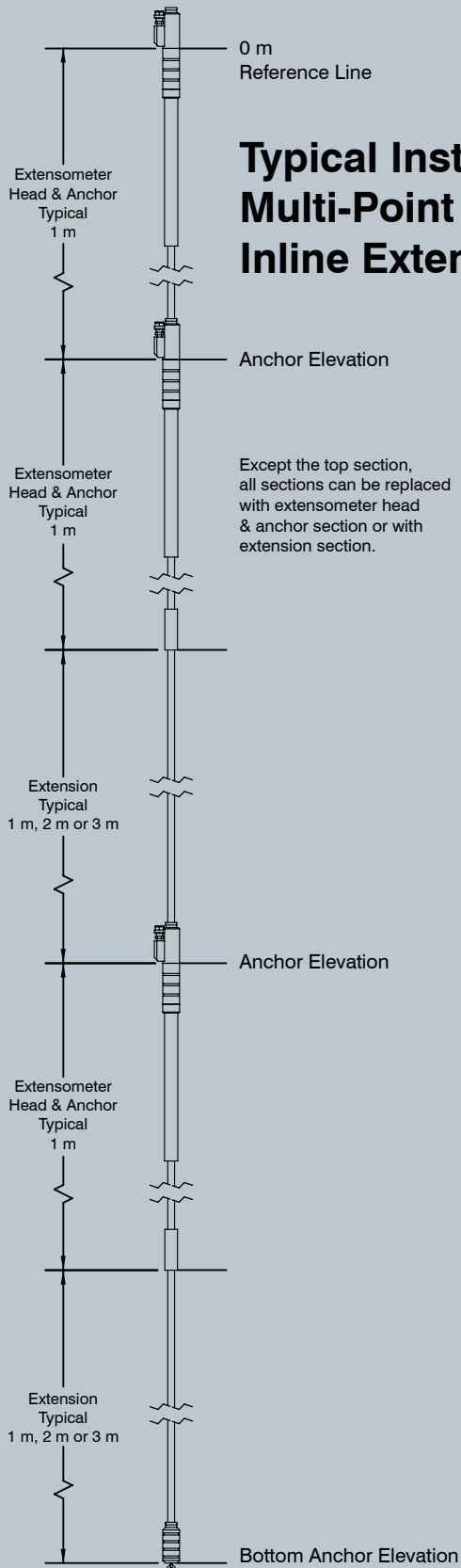
- Ground movements around tunnels.
- Deformations of dam abutments and foundations.
- Ground movement behind retaining walls, sheet piling, slurry walls, etc.
- Ground movements in the walls of open pit mines.
- Deformation of concrete piles (tell-tales).
- Fracturing in the roofs and walls of underground caverns.
- Subsidence above tunnels and mine openings.
- Settlement and heave of foundations in soft soil.

features

- Flush with surface: no electrical head protruding out of borehole.
- In-line construction: head/anchors assemblies and extension sections of variable length are inserted in series in the borehole.
- Rigid 3/8 inch (9.5 mm) inner stainless steel rod provides more accurate displacement measurement.
- Suitable for extension and compression movements.
- Suitable for remote reading and data logging.
- Can be installed in 3" (76.2 mm) boreholes.



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Typical Installation of Multi-Point Vibrating Wire Inline Extensometer

Except the top section, all sections can be replaced with extensometer head & anchor section or with extension section.

ordering info

SENSOR RANGES	PART #
25 mm	EXINLINE-1025
50 mm	EXINLINE-1050
75 mm	EXINLINE-1075
100 mm	EXINLINE-1100
150 mm	EXINLINE-1150

EXTENSION KIT LENGTHS	PART #
0.5 m	EXIL-0500
1.0 m	EXIL-1000
2.0 m	EXIL-2000
3.0 m	EXIL-3000

ITEM	PART #
Signal Cable	EL380004

- OPTIONS**
- Hydraulic Borros Anchors
 - Hydraulic Bladder Anchor (shown below)

