

BOREHOLE EXTENSOMETER SINGLE-POINT (MECHANICAL)

MODEL EDS-64U/D

DATASHEET



OVERVIEW

The Encardio Rite EDS-64U/D Single-point Borehole Extensometer is a high-precision instrument designed to measure deformation in rock masses and adjacent soil through displacement monitoring. It is ideal for use in a 2"Ø NX (50 mm Ø) diameter borehole, whether in upward, downward, or horizontally inclined direction.

The extensometer plays a critical role in monitoring the behavior of underground structures such as cavities, tunnels, foundations, slopes, and embankments. Civil engineers and geologists rely on this instrument for assessing structural stability and ensuring safety, particularly in geotechnical applications. It is often used in combination with other instruments like anchor bolt load cells and tape extensometers to provide comprehensive data on rock or soil deformation over time.

The EDS-64U/D Borehole Extensometer consists of an anchor positioned within a borehole at desired depth. These anchor is connected to the reference plate at the borehole's mouth, enabling precise measurement of the relative displacement between the anchors.

FEATURES

- **Single-point displacement measurement:** Allows accurate monitoring of deformation within the borehole.
- **Versatile installation:** Suitable for upward, downward or horizontally inclined boreholes.
- **Accurate data collection:** Provides reliable, high-resolution data with readings taken by a digital caliper or micrometer depth gauge.
- **Durable components:** Stainless steel or fiberglass connecting rods with protective tubing ensure free movement and precise measurements in harsh conditions.

SYSTEM COMPONENTS

Groutable reinforced bar anchor: Anchor is fixed with cement grout at desired depth in the borehole to measure displacement.

Connecting rods with protective tubing: The connecting rods are available in either fiberglass or AISI 410 stainless steel, to cater to various site requirements. The rods are encased in heavy-duty tubing for protection and unrestricted movement. Fiber glass rods with protective tubing is supplied from factory in single lengths, while SS rods with rigid PVC protective pipes are available in lengths of 3, 2, and 1 m.

Reference plate: Positioned at the top of the borehole, the reference plate serves as a stable measurement point against which displacement is measured.

Head assembly: The extension head consists of a reference head/flanged housing and a protective cover. It houses the reference point at borehole's mouth, which is slightly enlarged to accommodate the assembly.

Vent and grout tubes: Used to vent air and inject grout into the borehole.

Assembly: The anchor is attached to connecting rods, and fixed at the desired depth in the borehole using appropriate grout. The protective tube around the rods ensures they remain free from grout, allowing them to move freely during displacement.

The head assembly, which holds the reference plate, is grouted at the borehole mouth and aligned concentrically with the borehole. The protective tube, grout tube, and vent tube are all secured to the head assembly with rubber washers and hollow bolts, ensuring a leak-proof system.

Measurement method: As the surrounding rock or soil deforms, the connecting rods attached to the anchor shift, causing changes in the distance between the anchor and the reference plate at the borehole mouth. This displacement is measured using a digital caliper or micrometer depth gauge. The displacement data is accurately recorded and analyzed, providing essential data on deformation over time.

Depth convention: Encardio Rite calculates the depth of anchor as the distance from the borehole mouth to the near end of the anchor.

