ENCARDIO RITE
METASENSING FOR MEGA STRUCTURES

# CASAGRANDE PIEZOMETER (POROUS TUBE PIEZOMETER)

**MODEL EPP-10**

## DATASHEET





## OVERVIEW

The Encardio Rite model EPP-10 Casagrande (porous tube) Piezometer is designed to accurately measure pore water pressure in foundation soils, earthfills and embankments. This device is essential for assessing seepage patterns, detecting potential piping zones, and evaluating the effectiveness of seepage control measures in dams, levees, and foundations. It is widely used in geotechnical monitoring projects to measure pore pressure distributions, offering reliable data for construction monitoring, and also to indicate potentially dangerous conditions that may adversely affect the stability of a structure and its foundation.

The EPP-10 piezometer consists of a porous tip along with series of rigid PVC riser pipes. Once installed in the borehole of desired depth, the pressure of the surrounding pore water causes a flow of water through the porous tip into the riser pipe, until the pressures are equalized by the head of water in the rising pipe. The level of water in the riser pipe is determined by the graduated water level sounder lowered from the ground surface, giving an accurate reading of sorrunding pore pressure. The device's simplicity and reliability make it ideal for long-term monitoring.

## FEATURES

- **Reliable and accurate:** Provides precise pore pressure measurement with a high-resolution graduated tape.
- **Durable construction:** Constructed with heavy-duty PVC standpipes, ensuring longevity and resistance to environmental conditions.
- **Wide application range:** Suitable for measuring pore pressure in foundations, embankments, and shallow underground works.
- **Easy to install and read:** Simple installation process with easy-to-read audio and visual signals.
- **Portable water level sounder:** Lightweight and easy to transport, with high-tensile, corrosion-resistant cables for accurate depth measurement.
- **Locking arrangement:** A locking cover with a universal key is provided to protect the standpipe from external contamination.

## SYSTEM COMPONENTS

**EPP-10/1 Casagrande piezometer tip:** It consists of a porous carborundum or alundum tube, 20 cm long, covered with geo-textile material to prevent clogging. For longer lengths, multiple 20 cm tubes are coupled together. The porosity is chosen based on site conditions, with a standard filter grain size of 40 microns unless otherwise specified.

**EPP-10/2 Stopper:** It consists of a rubber stopper that seals the bottom end of the porous tube.

**EPP-10/3 Top adapter:** It is fitted on the upper end of casagrande piezometer tip (porous tube assembly) to connect it to the riser pipe.

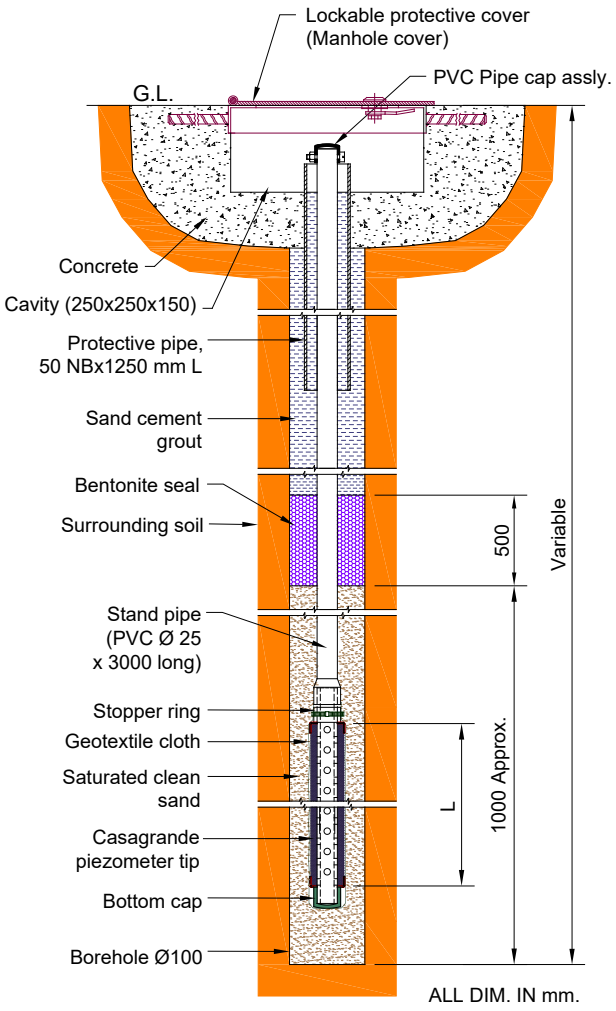
**EPP-10/4 Riser pipe (standpipe):** It consists of durable rigid PVC tubing, 3 m long. The pipes feature integrated couplers, allowing for longer installations by connecting multiple tubes together using an appropriate adhesive or resin.

**EPP-10/6 Water level sounder:** A robust, lightweight device used to measure the groundwater level in the standpipe. The sounder consists of a probe connected to a flat cable with high-tensile steel tape, providing both audio and visual signals when water is detected.

**EPP-10/7 Pipe cap assembly:** It is attached to the upper end of the topmost riser pipe.

**EPP-10/8, EPP-10/9 Protective pipe and cap assembly (50 mm nominal bore):** A GI protective pipe (EPP-10/9), 1.25 m long, is grouted in concrete at the top. Along with the cap (EPP-10/8) featuring a locking arrangement, it provides protection against physical damage or tampering.

**EPP-10/10 MS lockable protective manhole cover:** It is available on request, to safeguard the installation from moving vehicles and other potential site damage.




Typical installation scheme of EPP-10 Casegrande Piezometer

# SPECIFICATIONS

## EPP-10 Casagrande piezometer assembly

| | |
|---|---|
| Casagrande tip | Porous carborundum/alundum tube of annular cross-section, 37 mm o.d., 25 mm i.d., 20, 40, 60 cm long, covered with geo-textile |
| Standpipe/riser pipe | Durable rigid PVC pipe, 25 mm o.d., wall thickness 1.5 mm, 3 m long, with integrated socket for jointing |

## EPP-10/6 Water level sounder

| | |
|---|---|
| Length-metric (m) | 50, 100, 150, 200, 300 |
| Resolution-metric | 1 mm standard |
| Length-imperial (ft) | 50, 100, 150, 300, 500 |
| Resolution-imperial | 0.1" standard |
| Cable/tape | High tensile virtually non-expandable, non-stretch, PE insulated graduated flat steel tape, 10 mm wide x 2 mm thick |
| Probe | Stainless steel 12.7 mm dia. |
| Power supply | 9 V PP-3 size battery |
| Audio signal | Sound buzzer |
| Visual signal | Green LED light signal |

*Please refer to datasheet for EPP-10/6 water level sounder for more details.*

# ORDERING INFORMATION

- Length of casagrande tip
- Depth of boreole (for riser pipe estimation)
- Manhole cover required or not
- Length ad unit for water level sounder

## Ordering code

**EPP-10-L-Y** [L= length of casagrande tip, Y= No. of riser pipes]

**EPP-10/6-L-X** [L= length, X = unit (m or ft)]

*All specifications are subject to change without prior notice



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