



**ULTRA-COMPACT SIZE**  
**IMMUNE TO EMI/RF/LIGHTNING**  
**INTRINSICALLY SAFE**  
**METAL FREE**

The FOP PZ is a metal free fiber optic piezometer used to measure pore-water pressure

### Description

The FOP PZ is a fiber optic piezometer used to measure pore-water (or other fluids) pressure. Like other piezometers, it is used in various applications like tunnels, embankments, excavations, dams, water repository sites and many others. One of the main differentiator of the FOP PZ is its unique design with miniature MOMS and its construction fully protected against rust without any metallic part. Moreover, the FOP PZ has similar or better performances than traditional piezometers.

This piezometer's design is based on non-contact deflection measurement of a miniature MOMS (Micro Optical Mechanical System) pressure sensor manufactured using photolithographic techniques. The pressure transducer has a flexible diaphragm assembled on top of a sealed vacuum cavity, and the pressure measurement is based on Fabry-Pérot white-light interferometry. Pressure creates a variation in the length of a Fabry-Pérot cavity consisting of the inner surface of the flexible diaphragm on one side and a reference optical surface attached to the lead optical fiber on the other side. The interrogation is made using field-proven and patented white-light interferometer modules manufactured by FISO Technologies.

Since fiber optic readout units and dataloggers can consistently and accurately measure the cavity length under all conditions of temperature, EMI, humidity and vibration, the system delivers reliable pressure measurements in the most adverse conditions. The mechanical robustness is assured by the PVC protection sleeve and a porous filter which protects the sensing element from solid particles, allowing the FOP PZ to sense only the fluid pressure to be measured. The total diameter of the sensor, including the housing, is 15.9 mm and its total length is 110 mm.

The piezometer is designed for industrial and civil engineering applications. The MOMS pressure sensor is mass-produced in batches on glass and silicon wafers using well established photolithographic technologies derived from the semiconductor industry.

### Key Features

- Intrinsically safe
- Immune to EMI/RF/Lightning
- Long-term reliability
- Low thermal dependence
- High resolution
- Rugged construction for harsh environment as sea water
- No metallic components

### Applications

- Dams
- Tunnels
- Repository sites

### Specifications

Range	100, 200, 350 (standard), 500, 750, 1000 kPa
Accuracy <sup>1</sup>	± 0.5% F.S
Resolution	0.065% F.S.
Overrange	1.5 x F.S.
Outer diameter	15.9 mm
Length with cable	110 mm
Body material	PVC
Cable	3 mm outside diameter
Filter	Porex HDP, 70 microns, 6.35mm thickness

### Ordering Information

Please specify:

- Range
- Cable length
- Readout