FOP MicroPZ - Piezometer

Fiber Optic Piezometer

UTRA-COMPACT SIZE
IMMUNE TO EMI/RF/LIGHTNING
INTRINSICALLY SAFE

The FOP-MicroPZ is a robust and ultra-compact fiber optic piezometer used to measure pore -water (or other fluids) pressure

Description

The **FOP MicroPZ** 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 vacuumed 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.

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 stainless protection sleeve and a porous stainless steel filter which protects the sensing element from solid particles, allowing the **FOP-MicroPZ** to sense only the fluid pressure to be measured. The total diameter of the sensor, including the housing, is 4.8 mm and its total length is 54 mm.

The miniature 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

- High resolution
- Intrinsically safe
- Immune to EMI / RF / Lightning
- Long-term reliability
- Rugged stainless steel construction
- Designed for harsh environment
- Very small diameter (4.8 mm)

Applications

- Dams
- Tunnels
- Repository sites
- Embankments

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Specifications

Range	50, 100, 200, 350, 500, 750, 1000 kPa
Accuracy[1]	± 1.0% F.S.
Resolution	0.025% F.S.
Overrange	1.5 F.S.
Thermal drift[2]	< 0.1 %FS / °C
Outer diameter	4.8 mm
Length	54 mm
Body material	Stainless steel 316
Cable	PVC 3 mm outside diameter CAF-UO3-1F
Filter	Stainless steel 316 (porosity 40 µm)

[1] Specification achieved in laboratory conditions with FPI-HR-2 interrogator

[2] Determined between -20°C and +60°C, we recommend to use sensor of 50 and 100 kPa in a stable temperature environments.

Ordering Information

Please specify:

- Range
- Cable lenght
- Readout

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