



Fiber Optic Piezometers



The MEMS-based Fiber Optic Piezometer is suitable for the harshest environments.

specifications

ITEM	DESCRIPTION
Pressure ranges	0.7 MPa (100 psi) 3.5 MPa (500 psi) 7.0 MPa (1000 psi)
Resolution	< 0.02 % F.S. (Range dependant)
Accuracy	± 0.1% F.S.*
Thermal coefficient of Zero	< 0.02% F.S / °C
Proof pressure	200% F.S.
Operating temperature	-20 to +85 °C
EMI/RF/Lightning	Complete immunity
Housing	Stainless steel (8 mm x 57 mm)
Optical connector	SC standard
Cable sheathing	4 mm O.D. rugged tight-buffered fiber optic cable with aramid strength member and polyurethane jacket
Cable length	Up to 2 kilometers. Contact RST if more than 1 km required.
Signal conditioner compatibility	WLPI signal conditioner (FOPR-1 Portable Readout and FODL-16 Datalogger)

*Excluding thermal effect

The FO2100 MEMS-based Fiber Optic Piezometer, is perfectly tailored to meet the challenge of pressure monitoring applications in submerge and/or harsh environments.

The FO2100 piezometer delivers long term accuracy, durability and high fidelity pressure measurement with a pressure operating range up to 7000 kPa.

The FO2100 piezometer is ideal for geotechnical applications. Completely sealed, with a stainless steel body and diaphragm, the FO2100 is designed to work in adverse conditions of temperature, pressure, and toxic or corrosive atmospheres.

The FO2100 piezometer is equipped with a standard sintered stainless steel porous filter to prevent soil particles from contacting the diaphragm.

With the inherent advantages of fiber optic, it is not subject to interference from electromagnetic interference, vibrations and lightning that might be present in the sensing environment.

The FO2100 piezometer is compatible with all WLPI (White-Light Polarization Interferometry) signal conditioners. The compact and very robust probe can be customized according to specific client needs. The fiber optic cable lead can be extended up to 3 kilometers long.

operating principle

The FO2100 Fiber Optic Piezometers are of interferometric type. The heart of the WLPI technology is located in the readout unit. Unlike other multiple-beam interferometers, the readout interferometer used in WLPI technology provides an interferogram signal with a much better visibility resulting in much higher precision and resolution in the measurement. Intensity independent, the accuracy is not affected by light intensity variation related to connection losses or cable manipulation. Its unique design contains no moving parts and no mirrors in the interferometer arms, providing superior mechanical stability over time and consequently, minimum needs for recalibration. WLPI is the most robust and reliable point sensing technique related to fiber optic sensors.



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applications

- Geotechnical applications
- In-situ process monitoring
- Harsh subsurface monitoring equipment
- High temperature environment with corrosive chemicals
- Groudwater elevation surveillance in wells and streams
- Pressure monitoring in pumping stations
- Hazardous environment
- Static or dynamic pressure measurements conducted under confined space, hazardous and strong EMI/RFI/MRI environments

features

- Compact and ultra-robust
- Available as piezometer and pressure transducer with NPT threaded end.
- Small diameter (8mm)
- 0.7 to 7.0 MPa range
- Excellent accuracy (0.1%)
- Completely sealed for immersed applications.
- EMI/RFI/Lightning immunity; intrinsically safe
- Rugged stainless steel body
- Long term reliability

