

# Electric Piezometers

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## Applications

Electrical piezometers are used to measure pore pressure in saturated soils (absolute piezometers) or to measure groundwater levels in wells, open pipes, or reservoirs (relative piezometers). Available in various models and with different porous filters for every kind of use.

OTR produces the following types of Piezometers:

- Electrical (relative and absolute)
- Vibrating Wire (absolute) for long term monitoring of pressures in saturated soils.

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## Technical features

Piezometers are constituted of a cylindrical metal body that houses a pressure transducer and a front porous filter, which in turn can be made of sinterized stainless steel or ceramic. Internal electronics are completely embedded in epoxy resin in order to ensure a long-term sealing. Electrical piezometers can perform absolute or relative measurements. The first are affected by atmospheric pressure, the latter are not. Relative measurements are allowed by a vented cable connecting the sensor membrane to open air. Capillar pipe is placed in the same cable used for power supply and signal transport. Piezometers can be customized with any cable length and any full scale calibration.

Vibrating wire piezometers output signal is insensitive to the length of the cable and unaffected by moisture. Vibrating wire piezometers are used for absolute measurements. Both electric and vibrating wire piezometers can be easily connected to portable readout units or dataloggers.

## Uses

- Measurement of pore pressure in saturated soils
- Monitoring over-pressure induced by overload (road and rail embankment)
- Monitoring groundwater levels in open pipe piezometers and wells

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## Technical specifications



Code	OG200R OPIER4XXXX	OG200 A S OPIEA4XXXX	OG200VW OPIEVWXXXX	OG200T OOPRESXXXX
Measure	Water level	Pore pressure	Pore pressure	Water pressure
Type of sensor	Relative Piezoresistive	Absolute or SG Piezoresistive	Absolute Vibrating wire	Absolute or SG Resistive
Range	1-2-5-10-20-50-100 m H2O	100-200-500-700-1000-2000-3000 kPa	350-500-700-1000-1500 kPa	100-200-500-1000-2000-5000 kPa
Sensitivity	0.01% F.S.	0.01% F.S.	0.01% F.S.	0.01% F.S.
Accuracy	0.3% F.S.	0.3% F.S.	0.3% F.S.	0.3% F.S.
Overload	150%	150%	120%	150%
Output signal	4-20 mA	4-20 mA	Hz	4-20 mA
Temperature oper. range	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C
Long term stability	0.02% F.S. (1 year)	0.02% F.S. (1 Year)	0.02% F.S. (1 Year)	0.02% F.S. (1 Year)
Diameter	22 mm	22 mm	19 mm	22 mm
Length	190 mm	190 mm	150 mm	190 mm
Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Weight	0,25 Kg	0,25 Kg	0,2 Kg	0,25 Kg
Filter pore size (*)	40 micron	40 micron	40 micron	40 micron

(\*) Filter cells with different porosity size can be provided on request

### Cables

Code OCABLE00001 2x2x0.35 if Absolute or Vibrating Wire  
Code OCABLE00002 2x2x0.35 + Vented cable if Relative

### Accessories

#### Automatic Water Level



Water level  
**(Code OPIER4XX200)**  
Range: 0-200 kPa  
Accuracy: 0.3% F.S.  
Diameter: 22 mm  
Data acquisition system  
**(Code OD0200C002)**  
Measuring Channel: n. 2  
Memory: 9.000 datai/channel  
Power supply: 6Vdc  
Autonomy: up to 2 Years  
Material: polycarbonate



Portable readout unit  
**(Code O0018000001)**



Watertight connector  
**(Code OCONST00000)**