



Carlson Pore Pressure Cells



Water pressure in the pores of a granular material like soil reduces the internal friction and therefore the stability. This pore pressure can be measured by a device which separates the water pressure from the intergranular pressure. In the Carlson Pore Pressure Cell, the water pressure is admitted to an internal diaphragm through a porous disc which holds back the soil or other granular material. The deflection of the internal diaphragm is measured with the same sensing element as is used in the stress meters. For a pore pressure cell to be fully satisfactory, it must permit measurement with a minimum of water movement. Both of these requirements are met by the Carlson Pore Pressure Cell.

operating principle

Carlson Instruments are elastic wire strain meters containing two coils of highly elastic steel wire, one of which increases in length and electrical resistance when a strain occurs, while the other decreases. The ratio of the two resistances is independent of temperature (except for thermal expansion) and therefore the change in resistance ratio is a measure of strain. The total resistance is independent of strain since one coil increases the same amount as the other decreases due to a change in length of the meter. Therefore, the total resistance is a measure of temperature.



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applications

Measurement of pore water pressure in soils.

features

Zero displacement.

Integral temperature measurement.

50 year track record and proven Carlson design.



specifications + ordering info

Carlson Pore Pressure Cell



specifications

| DESCRIPTION | MODEL P25 | MODEL P50 | MODEL P100 | MODEL P200 |
|------------------------|---------------------|---------------------|---------------------|---------------------|
| Range | 25 psi (172 kPa) | 50 psi (345 kPa) | 100 psi (690 kPa) | 200 psi (1379 kPa) |
| Resolution | 0.1 psi (0.7 kPa) | 0.2 psi (1.4 kPa) | 0.4 psi (2.8 kPa) | 0.8 psi (5.5 kPa) |
| Resolution Temperature | 0.1°F (0.05°C) | 0.1°F (0.05°C) | 0.1°F (0.05°C) | 0.1°F (0.05°C) |
| Weight | 1.02 kg (2.25 lbs.) | 1.02 kg (2.25 lbs.) | 1.02 kg (2.25 lbs.) | 1.02 kg (2.25 lbs.) |

ordering info

| ITEM | PART # |
|------------|-----------|
| Model P25 | CA220A025 |
| Model P50 | CA220A050 |
| Model P100 | CA220A100 |
| Model P200 | CA220A200 |

cable specs

The cable most commonly used is heavy duty, neoprene rubber-covered, with either three or four conductors. Alternate cable types are available to suit site specific conditions and we invite your inquiries.

The Carlson MA7 and later series readout instruments, while compatible with both three and four wire systems, require only three conductors to monitor both temperature and resistance. Earlier versions of Carlson readouts require four conductors to monitor both parameters. We recommend that the total design length of cable be attached at the factory in order to assure system integrity. Should the final design length not be known at the time of order, specify the total length of cable to be supplied in bulk, and that a 1 m. (40 in.) length of either three or four conductor be attached. As conductor diameter is determined by lead length, please specify the approximate total length, to insure that the most appropriate cable is supplied.

While field splicing is possible, the instructions in the Carlson field manual must be followed.

accessories

- Portable readout instruments
- Bentonite pellets
- Data loggers
- Cable terminal stations
- Filter fabric installation socks
- Optional armoured cable
- Alternate filter types



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