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RESIPOD- Resistivity Meter

proceq



Surface resistivity measurement provides extremely useful information about the state of a concrete structure. Not only has it been proven to be directly linked to the likelihood of corrosion and the corrosion rate, recent studies have shown that there is a direct correlation between resistivity and chloride diffusion rate.

Applications

The versatility of the method can be seen in these example applications:

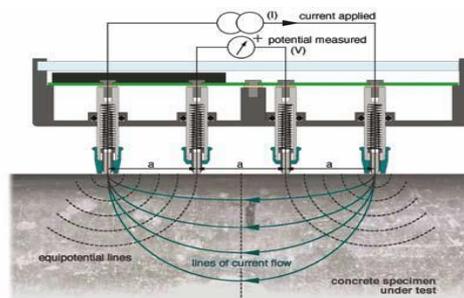
- Estimation of the likelihood of corrosion
- Indication of corrosion rate
- Correlation to chloride permeability
- On site assessment of curing efficiency
- Determination of zonal requirements for cathodic protection systems
- Identification of wet and dry areas in concrete
- Indication of variations in the water/cement ratios within a concrete structure
- Identification of areas within a structure most susceptible to chloride penetration
- Correlation to water permeability of rock

ResiPod is a fully integrated 4-point Wenner probe, designed to measure the electrical resistivity of concrete in a completely non-destructive test. It is the most accurate instrument available, extremely fast and stable and packaged in a robust, waterproof housing designed to operate in a demanding site environment.

Principle of Operation

Operating on the principle of the Wenner probe, the ResiPod is designed to measure the electrical resistivity of concrete or rock. A current is applied to the two outer probes, and the potential difference is measured between the two inner probes.

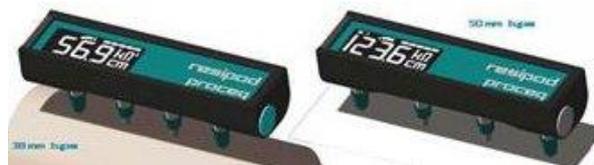
The current is carried by ions in the pore liquid. The calculated resistivity depends on the spacing of the probes.



$$\text{Resistivity } \rho = 2\pi aV/I \text{ [k}\Omega\text{cm]}$$

ResiPod Models and Probe Spacing

Wider probe spacings provide a more consistent reading when measuring on an inhomogeneous material like concrete. However, if the spacing is too wide, there is more danger of the measurement being affected by the reinforcement steel. The industry standard 50 mm probe spacing has long been seen as a good compromise.



The 38mm model is designed specifically to comply with the AASHTO standard for "Surface Resistivity Indication of Concrete's Ability to Resist Chloride Ion Penetration".

The newly introduced ResiPod Geometric accessory gives you the flexibility of varying probe spacing. It is designed to comply with the latest research intended to extend the current limits of the AASHTO standard.

ResiPod Geometric is supplied with a variable spacing probe that can accommodate larger aggregate sizes. It also allows the user to enter geometric correction factors via the ResiPodLink software to give the correct resistivity reading directly on the instrument.





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Features

Despite being extremely simple to use, ResiPod provides a variety of features that are unique in a concrete surface resistivity instrument.

- Fully integrated surface resistivity instrument
- Wide measuring range (0 to ca. 1000 kΩcm)
- Fast and accurate delivery of measuring results
- Highest available surface resistivity resolution
- Meets the AASHTO standard (38mm spacing)
- Hold/save/delete function, with onboard memory
- USB connection and dedicated PC software
- Designed to float (waterproof according to IPX7)
- Allows variable probe spacing to be set
- Allows replacement of standard tips with accessories

Technical Specifications

Range	0 – 1000 kΩcm (depending on probe spacing)
Resolution (nominal current 200μA)	±0.2 kΩcm or ±1% (whichever is greater)
Resolution (nominal current 50μA)	±0.3 kΩcm or ±2% (whichever is greater)
Resolution (nominal current <50μA)	±2 kΩcm or ±5% (whichever is greater)
Frequency	40 Hz
Memory Non volatile,	500 measured values
Power Supply	>50 hours autonomy
Charger connection	USB type B, (5V, 100mA)
Dimensions	197 x 53 x 69.7 mm
Weight	318 g
Operating temperature	0° to 50°C
Storage temperature	-10° to 70°C

RESIPODLINK SOFTWARE

The collected measurement values can then be analysed comfortably with the ResiPod Link PC tool.

System requirements: Windows XP, Windows Vista, Windows 7, USB-Connector. An internet connection is necessary for soft- and firmware (using PqUpgrade) updates if available.



Display

The display of the ResiPod shows all necessary information while acquiring data on site.

1. Measured resistivity
2. Battery status
3. Range indication
4. Current & contact indication 20%, 40%, 60%, 80%, 100%
5. Indication of scaled reading



Bulk Resistivity Module

The ResiPod can now be upgraded to take bulk resistivity of 102 x 204 mm cylinders using the Bulk Resistivity Module. Bulk Resistivity measurements are taken in such a way that the whole of the cylinder informs the result and are able to be correlated to surface resistivity measurements. The module includes 2 metal and sponge contacts and a convenient stand for the ResiPod.



About PCTE

PCTE have over 30 years' experience in the measurement and testing of concrete. With experience in research, consulting and construction they are able to assist you in reviewing the issues and developing solutions. PCTE can provide more than just the equipment. They can provide leading technical support for your business.

Other Equipment

The full Proceq range of equipment is available for insitu non destructive concrete measurement, including Schmidt Hammers, Covermeters, Half Potentials, Resistivity, Ultrasonics and Permeability. The Olson Instrument range also includes the CTG, Freedom Data PC and DAS as well as the resonance tester. We also supply IntelliRock maturity, temp and humidity logging systems, corrosion rate monitoring equipment & GPR.