

## Surface Electrical Resistivity of Concrete

**Surf™ offers the fastest and most accurate technology for the measurement of surface resistivity.**

### Applications

- Performance-based quality control of concrete
- Estimation of chloride diffusion coefficient of concrete
- Service life design of concrete structures
- Estimation of the remaining life of concrete structures
- Crack detection in concrete elements under load
- Monitoring the setting time in fresh concrete

### Overview

Surf™ is a laboratory test device for rapid, easy, and accurate measurement of the surface electrical resistivity of concrete based on the four-probe (Wenner-Array) technique according to AASHTO TP 95-11, and ASTM. Surf™ has a unique and customized setup, which enables the measurement of electrical resistivity with high accuracy by reducing the duration of test and minimizing the ambient effects.

The patented technology automatically measures resistivity around the concrete specimen using four channels of 4-probe array (located at 90° from each other). The PC software generates the required reports according to the standard specifications. The measurements can be used to estimate the resistance to the penetration of chloride ions in concrete. The qualitative relation between rapid chloride penetrability test, RCPT (ASTM C1202), and the surface electrical resistivity of concrete is presented.

Relationship between surface resistivity and chloride penetrability

Chloride Penetration	56-Day Rapid Chloride Permeability Charge Passed as per ASTM C1202 (Coulombs)	Surface Resistivity @ 23°C/ 73°F (k Ω cm)
<b>High</b>	>4000	<10
<b>Moderate</b>	2000-4000	10-15
<b>Low</b>	1000-2000	15-25
<b>Very Low</b>	100-1000	25-200
<b>Negligible</b>	<100	>200



 **MADE IN CANADA**



## Features

- Patented technology
- Fully compliant with both AASHTO TP95 and the upcoming ASTM standard
- Fast measurement (8 measurements < 15s)
- Four-channel surface resistivity meter
- Variable frequency (13 - 100 Hz)
- Limiting moisture loss
- Automatic report generation with PC software
- Fresh concrete testing/crack detection applications
- Optional hand-held probe option

## Technical Specifications

### General

Type	Value
Measurement Channels	4
Measurement Display on LCD	Yes
LCD Display Area	65x33mm
Dimensions of Device	200x160x70mm
Software	Surf™ Data Monitor

### Operating Conditions

Type	Value
Operating Temperature	15°C - 45°C (59 - 113°F)
Operating Humidity	20% - 80%
Storage Temperature	-20°C - 70°C (-4 - 158°F)
Operating Voltage/Current	100-240 V, 50/60Hz

### Measurement Time

Frequency	Single Measurement Time	Testing Time (8 measurements)
13 - 100 Hz	1.5 seconds	<15 seconds

### Reading Range and Accuracy

Reading Range	Frequency Range	Accuracy
0.1 - 100 KΩ cm	13-100 Hz	± (0.1+1%)
100 - 1000 KΩ cm	13-100 Hz	± (1+1%)