

Model **900**

CONCRETE MULTI-DEPTH SENSOR

Measures Ingress of Chlorides and Other Contaminants in Concrete Prior to Reaching Rebar

Features:

- *Detects contamination by galvanic current between carbon steel and stainless steel electrodes*
- *Detects corrosion as chloride front approaches rebar*
- *Easy installation and interpretation of test results*
- *Adjustable electrode elevation*
- *Optional instantaneous corrosion rate measurement using Linear Polarization Resistance (LPR)*
- *Monitoring via small portable test instrument*



The steel reinforcement in concrete structures is susceptible to corrosion when chloride ions enter into the concrete from de-icing salts applied to the concrete surface, or from seawater in marine environments. If chlorides are present in sufficient quantity, they disrupt the passive film on the reinforcing steel, resulting in corrosion. Oxygen content, moisture availability and temperature also affect this corrosion rate. Corrosion of the reinforcing steel can weaken the structural strength, create cracking, delaminating and spalling of the concrete. In concrete structures multi depth sensors may be used to assess the depth of chloride or carbonation ingress, and optionally the instantaneous corrosion rate.

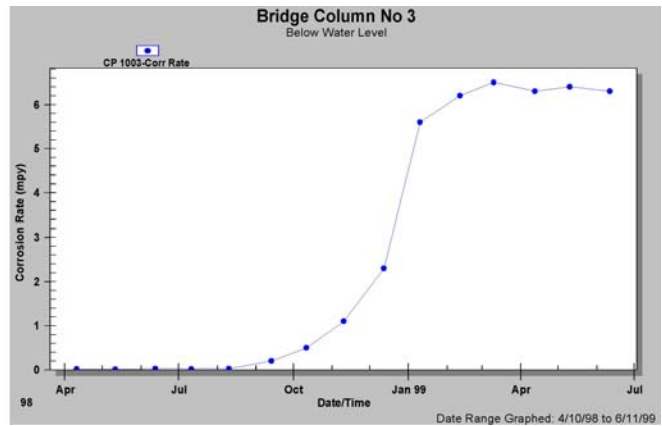
The multi depth sensor has four (4) galvanic couples of mild steel and stainless steel. These couples are located at four depths from the concrete surface, with the couple furthest from the surface placed above the rebar. A zero resistance ammeter (ZRA) is used to measure the current flow between the two electrodes. An increase in current flow indicates the ingress of chloride contamination and increased corrosivity at that electrode level. As an option,

the Multi Depth Sensor can measure the instantaneous corrosion rate of steel in concrete by the method of Linear Polarization Resistance (LPR). The electrodes of the sensor use adjacent carbon steel elements for the LPR measurement. Each reading gives the instantaneous corrosion rate of the pair of electrodes in the concrete environment. The probes are monitored frequently or continuously to track changes in corrosion rate. The quality of the normal LPR measurement is significantly improved by the RCS monitoring instruments, which incorporate a patented method of solution resistance compensation (SRC). This method makes a separate measurement and correction for the effect of the resistivity of the concrete, which is an error in normal simple LPR measurements.

Typically, the Multi-Depth sensors are positioned at the most susceptible locations for corrosion, adjacent to the rebar but on the side that will see chloride or moisture ingress first. This will allow preventive measures to be taken before the onset of corrosion.



Portable Test Instrument
(fits easily into a shirt pocket)



CORRDATA Plus Graph of Corrosion Rate

Readings are taken at intervals and the current flow and/or corrosion rate is recorded. These instruments enable data to be collected on a frequent and regular basis for subsequent collection and downloading to CORRDATA Plus software or a spreadsheet program. This ensures continuous monitoring of chloride penetration and corrosion rate.

Probe Ordering Information:

Model	Concrete Chloride Contamination / Corrosion Rate	
900	Multi Depth Sensor Probe	
	Code	Instrument End Connector Type
	0	Cable mount connector for attachment to form work
	1	Wet location, lockable wall mount junction box connector
	Code	Cable Length
	LL	Cable Length in feet

Portable Instrument Ordering Information:

Model Aquamate	Portable CORRATER Test Instrument
P/N 100096	CORRDATA Plus Software



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