

Model **800**

LPR Corrosion Rate Monitoring in Concrete

Multiple parameter measurements with CORRATER® Probe

Features:

- **Instantaneous corrosion rate measurement through Linear Polarization Resistance (LPR)**
- **Optional measurement of concrete resistivity and temperature**
- **Detects corrosion as chloride front approaches rebar**
- **Easy installation and interpretation of test results**
- **Monitoring via small portable test instrument or remote data collection system**



Probe mounted above the rebar
Electrode length 1.25" (32mm)

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 these systems CORRATER probes may be used to assess the instantaneous corrosion rate of steel in concrete, the concrete resistivity, and optionally the temperature.

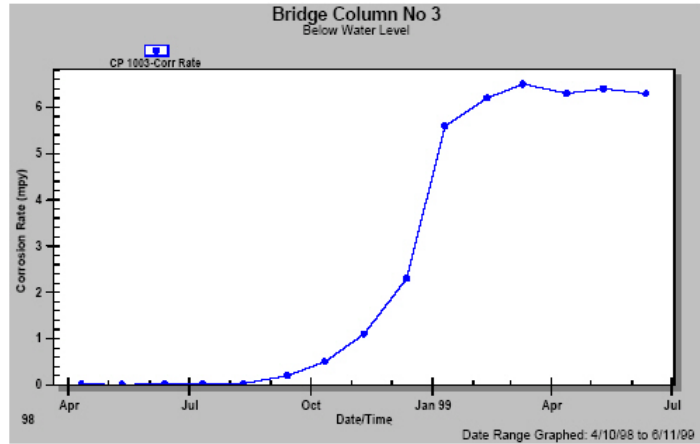
The CORRATER Model 800 probe measures the instantaneous corrosion rate of reinforcing steel in concrete by the method of Linear Polarization Resistance (LPR). The electrodes of the LPR probe are manufactured using carbon steel. Each reading gives the instantaneous corrosion rate of the electrodes in the concrete environment, and 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. The state-of-the-art patented SRC technology is a spin-off of the now much used laboratory technique of Electrochemical or AC Impedance and eliminates the need for a third electrode. In field applications, the CORRATER probe with the two electrode SRC technology has proven to be more accurate and reliable than the three electrode (3LP) method.

To determine the electrical resistivity of the concrete, a second CORRATER probe with stainless steel electrodes may be used. In addition, the probes may also be supplied with an integral temperature sensor. Typically, the CORRATER probes 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 Corratr Test Instrument
(fits easily into a pocket shirt)



CORRDATA Plus Graph of Corrosion Rate



CorrdData Remote Data Collection System
(multiple power and communication options)

Readings are taken at intervals and the corrosion rate is recorded. This same unit may be used to record concrete resistivity using stainless steel electrodes, and temperature. For more automated systems the CORRDATA range of datalogging instruments is available. These instruments enable data to be collected on a frequent and regular basis for subsequent collection and downloading to CORRDATA Plus software. This ensures continuous monitoring of corrosion rate.

Probe Ordering Information:

Model	Concrete Corrosion Rate/Resistivity/Temperature Probe		
800	Probe Assembly Without Temperature		
800T	Probe Assembly With Temperature		
	Code	Measurement Element Alloy	
	K03005	Carbon Steel for Corrosion Rate of Unprotected Rebar	
	S31600	Stainless Steel for Concrete Resistivity Measurements	
		Code	Instrument End Connector Type
		0	Cable Mount Connector for Attachment to Formwork
		1	Wet Location, Lockable Wall-Mount Junction Box Connector
		Code	Cable-Length
		LL	Cable Length in Feet
800T	— K03005	1	20 ← Typical Order Number



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