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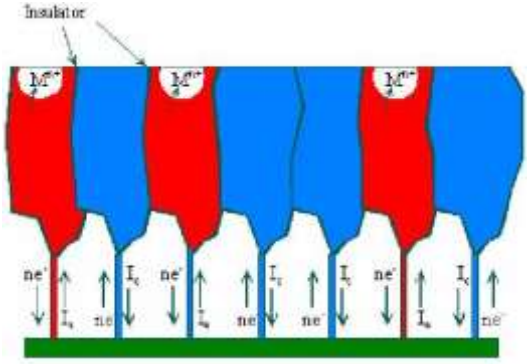
Anticipate the Unexpected

SentinelCorr™ CRC System

The SentinelCorr™ CRC system combines the capabilities of the SentinelCorr™ CR system with capabilities to measure pH, chloride, and temperature all in a single probe. Like the CR system, the CRC can measure both general and localized corrosion. Corrosion is measured by funneling the electrons passed between anodic and cathodic sites on the corroding surface discrete channels, where the current magnitude and direction (flowing to or away from that electrode) can be determined. This is achieved by breaking up a single surface into discrete pieces (wires). The pieces are then isolated from each other at the corrosion interface, but electrically connected through external measurement electronics away from the corroding face. This concept is shown schematically.



By measuring the flowing electrons, and knowing the electrode surface area, corrosion rate is calculated using Faraday's law. A single CR reading involves measuring each channel emanating from the electrodes. Therefore, for a 16-electrode CR system, a single reading consists of a group of 16 individual current measurements. This helps make the CR quick to respond to changing conditions that result in changes in the corrosion rate.

Measurement of pH and chloride is performed using solid state electrodes. By using solid state electrodes, there is no need for filling solutions or maintenance efforts making the probe simple to use and more robust. Probes are available in diameters from 1 to 1-1/4" (2.54 – 3.18 cm), lengths up to 24" (61 cm), and can be flush-mount or insertion type. Like the CR system, the CRC transmitter is powered using a replaceable 3.6V Li-ion battery. A plug-in power option is also available. All data collected can be stored using on-board memory for eventual download using a micro-USB or WiFi. Using the WiFi solution, a dedicated network for the sensors can easily be set up (including the use of a cellular modem to ensure total isolation from existing company networks) or the transmitters can be programed to send data using your existing network.

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Specifications

Measurement Specifications

- Corrosion Rate Measurement Range: 0.4 – 2,350 mpy (0.01 – 60 mm/y)
- Temperature Measurement Resolution: 0.2 °F (0.1 °C)
- pH Measurement Range: 3 – 10
- pH Measurement Resolution: 0.1 pH unit
- Chloride Concentration Range: 0.001 – 1 M (35 – 35,000 ppm)
- Sampling Frequency: As rapid as 1/minute
- Data Memory Capacity: Approximately 8,800 data points
- Either 8 channel or 16 channel multi-array sensor

Operating Specifications

- Probe Operating Temperature: Up to 350 °F (176 °C)
- Probe Operating Pressure: Up to 1,700 psi (11.7 MPa)
- Battery Life: Up to 5 years depending on use

Electronics Details

- Enclosure:
- NEMA IP65 rated enclosures
    - Pelican™ enclosure options also available (Pelican™ is a registered trademark of Pelican Products www.pelican.com)
    - Complete polymer encapsulation of the electronics is an available option
    - Enclosures can easily be panel or stake mounted
- Size: 7" x 5.125" x 3" (178mm x 130mm x 76mm)
- Weight with electronics and battery: 21.2 oz (600 g)
- 3.6V Li battery powered or wall power
- Data transfer via WiFi or micro usb

Probe Details

- Probes are available in flush mount and insertion configurations
- Probe cable lengths up to 15 ft (5 m); longer cable lengths may be possible depending on the application
- Probe diameters from 1" to 1-1/4" (25.4 to 31.75 mm)
- Probe lengths from 8" to 24" (203 to 610 mm)
- Probe bodies can be made from PVC, 316 Stainless Steel, and Hastelloy 276
- When appropriate, probes include standard Swagelok (www.Swagelok.com) fittings compatible with most industry standard access fittings

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