

Acuity™ Series of Environment and Corrosivity Monitoring Systems



Transform your corrosion prevention and control program with autonomous measurements of environmental and corrosion parameters

Acuity monitoring systems provide long-duration, autonomous measurements of corrosion and environmental parameters in service and test environments. The systems continuously collect air temperature, relative humidity (RH), surface contaminants, free corrosion of alloys, and galvanic corrosion of two different materials. For condition-based maintenance applications, Acuity systems mount directly onto structures and subsystems to monitor local corrosivity throughout the lifetime of the asset. For optimizing accelerated test conditions, and for assessing materials performance during test, Acuity systems are mounted on outdoor test fixtures, inside laboratory test chambers, and directly on assets in service.

- Best-in-class environment and corrosivity monitoring with continuous, reliable, standardized, and highly sensitive measurements
- Ruggedized to withstand harsh service and testing environments
- Consolidated data collection, capturing a full suite of corrosion parameters
- Durable, long-lasting corrosion sensors made using relevant engineering materials
- Monitor corrosion rates of aluminum, steel, stainless, zinc, CFRP, titanium, and more
- Monitor coatings performance in operational or test environments
- Directly compare environment and corrosivity between accelerated tests, outdoor exposures, and service environments
- Integrate into structural health management systems

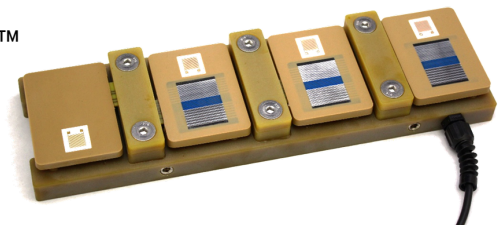
Corrosion and environment sensors incorporated in the Acuity sensor panels meet ANSI/AMPP and ISO standards [ISO 22858]. The sensors are also the basis for AMPP TM21449 for the measurement of coating properties.

Acuity LS™



- On assets in service environments
- Qualified for flight safety
- Battery powered
- Option for integration into health management systems

Acuity CR™



- In accelerated test chambers
- On outdoor exposure fixtures
- Battery or line powered
- Retrieve data via PC

Product Specifications

Surface Temperature	± 0.3 -40 to +85 °C
Air Temperature	± 0.3 @ -40 to +85 °C
Relative Humidity Limits	± 2 @ 0 to 100%
Conductance (Low Freq)	Gold IDE conductance in micro-Siemens using a 20 mV peak-to-peak, 10-hertz excitation signal
Conductance (High Freq)	Gold IDE conductance in micro-Siemens using a 20 mV peak-to-peak, 25 kilohertz excitation signal
Total Conductance (Low Freq)	Gold IDE time-integral of conductance to obtain total charge passed per unit voltage, units of coulombs per volt
Total Conductance (High Freq)	Gold IDE time-integral of conductance to obtain total charge passed per unit voltage, units of coulombs per volt
Free Corrosion Rate	Free corrosion current in microamperes using a 20 mV peak-to-peak, 0.5 hertz excitation signal
Galvanic Corrosion	Galvanic corrosion current in microamperes using a ZRA
Total Free Corrosion	Time-integral of free corrosion current to obtain total charge passed, units of coulombs
Total Galvanic Corrosion	Time-integral of galvanic corrosion current to obtain total charge passed, units of coulombs
Continuous Operating Temperature	Acuity LS and CR Systems: -40 to +85 °C Acuity CR Battery Module: -20 to +60 °C
Battery Life	Estimated battery life is based on the selected sampling rate: At 60-minute measurement intervals, LS is approximately 4.5 years and CR 2.5 years
Dimensions and Weight	Acuity LS: 1.1" x 4.7" x 3.5" and 0.75 lbs Acuity CR: 12.0" x 3.5" x 3.2" and 2.5 lbs

Option to monitor coatings performance:

When the sensor panels are coated, Acuity systems can continuously quantify corrosion mitigation properties and barrier protection of coating systems, bringing much-needed predictability and confidence to coatings test methods.

Systems are used per AMPP TM21449 to provide a thorough determination of coatings performance in both test and service environments.

- Corrosion protection
- Barrier properties

