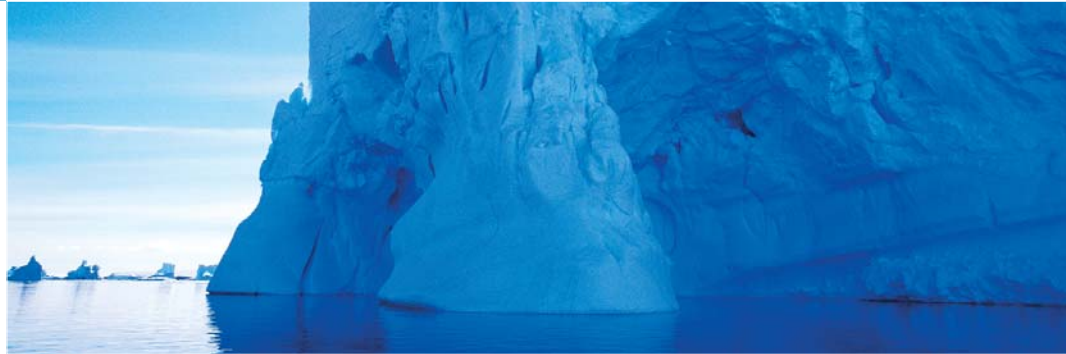




Concerto™ Mk II



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Real time corrosion monitoring

Electrochemical Noise (EN) Monitoring is a technique that has long been recognized for its unique ability to monitor corrosion activity, particularly localised corrosion, in real time. EN responds rapidly to process changes that increase corrosion activity while using a passive measurement technique that will not distort natural corrosion processes. Concerto™ Mk II provides superior resolution EN measurement in a compact, robust design.

The Concerto™ Mk II instrument is the second-generation version of the PRP Concerto™ System. The original Concerto system was installed in numerous plant and field locations across the oil & gas, nuclear and downstream chemicals industries. Building on this experience, the Mk II system has been designed to incorporate higher resolution lower noise measurements over the full range and has been made more compact and robust. The Mk II includes more advanced LPR corrosion rate measurements to complement the EN approach providing both outputs from the same probe. The Mk II LPR technique employed by the Mk II instrument utilises user-configurable high frequency readings and solution resistance correction in order to ensure a precise corrosion rate measurement in a wide range of operating environments.

One of the greatest challenges of field implementation of electrochemical noise is ensuring the information provided by the technique is available to operations personnel in an understandable format through the DCS system, while ensuring the raw data is available for detailed analysis by the corrosion engineer.

The Concerto™ MK II utilises VT Noise Monitor technology to filter raw electrochemical noise data and transform them into two continuous analogue signals that can then be input to a DCS system and used just as any other process parameter is by operations. The EN outputs can be alarmed and operations personnel can then respond immediately to increases in localised corrosion activity by adjusting process parameters, increasing inhibitor dosage or consulting a corrosion engineer.

Meanwhile, the Concerto MK II system will store the raw EN data for all the alarm periods. This data is stored on a USB flash stick that can then be retrieved for detailed analysis and auditing of the DCS system alarms. The system is modular in design and can be customized for plant, field and lab applications.

Instrument Specifications

Measurements

- Continuous Electrochemical Noise current and potential at 1 Hz frequency
- Periodic LPR measurement on the same probe

Electrical

- Input Voltage: 24 VDC or 90 – 250 VAC
- Current Requirement: <50 mA

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Environmental

- Operating Temperature: -40°C to +75°C
- Humidity: 10% – 80% non-condensing

LPR Measurement

- Measurement cycle time 15 to 300 sec
- Programmable polarity -300 to 300 mV

User settable parameters:

Stern-Geary constant, K value, electrode surface area, wait time between measurements, settling time before re-commencing EN measurements and whether LPR step is positive, negative or in both directions.

Solution resistance correction:

Solution resistance measurement accuracy is +/- 10% between 2000Ω and 100 kΩ. Above 100 kΩ an error flag alerts the user that there may be significant error in the corrosion rate measurement.

EN Measurement Resolution

- 0.1 nA resolution with +/- 500 uA Range
- 1.0 μV resolution with +/- 1 V Range

EN Measurement DC Offset

< 1 μV under low resistance conditions

Intrinsic Safety

For installation in Zone 0 a configuration is available using the CIS6K4 remote (shown pictured) which is ATEX certified to EEx ia IIC T6 IP66 Category II 1 G D and Class 1 Div 1 Gas Groups A-D (UL913 CSA C22.2).

Data Collection Alternatives

The Concerto MK II system was designed to interface with a variety of different data collection methods including direct to a DCS system using an analogue signal. Multiple units in a lab or plant environment can be connected to a central rack unit that can then interface to a computer for continuous data collection if necessary. Other options for remote data collection are also available on custom orders.

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