

## Camur – Automated Corrosion Monitoring

The Camur II system is created for permanent and automatic monitoring of corrosion in concrete, with data retrieval and control features through phone line, mobile phone or internet.

Traditional automatic monitoring is based on analogue transfer of the measured signal back to one or more central data loggers. The central data logger takes care of analogue/digital conversion and storage of the measurement data.

The most important drawbacks with this approach is a large number of cables for analogue transfer (because a separate cable must run from the data logger to every single sensor), sensitivity to electromagnetic noise (because the measurement signal are transferred in analogue form) and measurement problems due to lack of galvanic isolation between channels. The latter is common through use of common ground on traditional monitoring systems.

The Camur II system works differently. It consists of small electronic units called "nodes" - one "node" is placed near every sensor. The node contains an A/D converter, a microprocessor, galvanic separation between analogue and digital side and analogue circuitry to perform advanced measurements like LPR (Linear Polarization Resistance).

The node may even be embedded in concrete alongside the sensor if so required. To collect the data, only one single bus cable is needed. This bus cable runs by every node and ends at the Camur II Controller. The Controller takes care of storage of data, as well as communication with all the nodes and with your computer in the office.



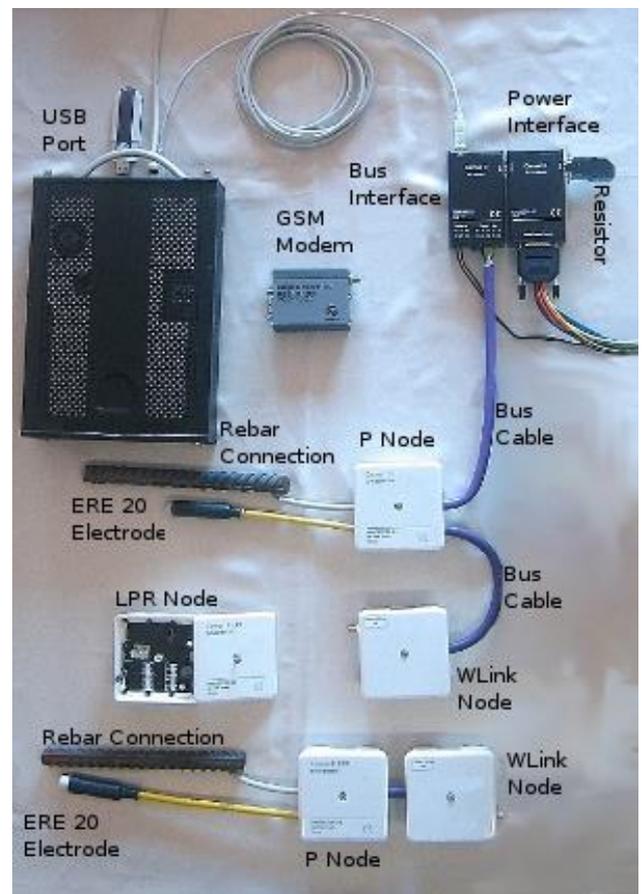
Camur II Controller



Camur II Bus Interface

### Features

- Digital signal transfer, protects integrity of measured signal, immune to electromagnetic noise
- Signal transferred digitally on a bus, drastically reduce amount of cables
- Galvanic separation between analogue and digital side of nodes, eliminates risk of errors due to accidental, unintentional connections between sensors
- "Plug and play" functionality, every sensor gets ID and intelligence through it's node
- Advanced measurements - every sensor has it's own microprocessor
- The Camur II system is suitable for both small and large systems, you can always scale the system to fit your requirements exactly.



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### Operations with Force ERE 20 Electrodes

ERE 20 electrodes are long life manganese dioxide reference electrodes that can be used to monitor reinforcing steel corrosion state and also to control cathodic protection systems. When interfaced with a Camur II system the system can either continuously measure potentials to provide corrosion information or can perform scheduled potential decay measurements which will indicate the proper operation of potential measurement.



### Operation with Force Corrowatch/Corrorisk Sensors

Ladder probes are used to monitor the progress of chloride or carbonation corrosion fronts through the concrete cover of structures. CorroWatch sensors are cast in to new structure and CorroRisk sensors are retrofit able to existing structures. Ladder probes are used to monitor the progress of chloride or carbonation corrosion fronts through the concrete cover of structures. CorroWatch sensors are cast in to new structure and CorroRisk sensors are retrofit able to existing structures. "Corrowatch Nodes" are modules to connect to Force's ladder probes, each node periodically monitors temperature and corrosion rate using linear polarisation resistance.



## About PCTE

PCTE have over 30 years' experience in the measurement and testing of construction materials. PCTE can provide more than just the equipment, they can provide expert training. PCTE have a service centre in Sydney in which they can provide calibration, repairs and warranty repairs.

### Sample System

A complete Camur II system will consist of at least:

- One Camur II Controller with power supply
- One Camur II Bus Interface interface with power supply for the bus
- USB A-B cable for connecting the Camur II Controller with the above interface
- one (probably several or many) Camur II nodes (P, LPR, HUM, CW)
- Camur II bus cable

In many cases you may also need:

- WLink nodes to replace bus cable with wireless links in some areas
- One modem, GSM module or internet connection
- One control cabinet for the Camur II Controller, modem, power supply etc.

## Other Equipment

PCTE supply three main ranges: NDT, Lab and Geotech Instrumentation.

NDT includes: Rebound Hammers, Covermeters, Ultrasonics, GPR, Corrosion Testing, Coating Testing and Foundation Testing

Lab includes equipment for: Concrete, Cement, Aggregate, Soil, Asphalt and Metal

Geotech Instrumentation includes: Strain Gauges, Piezometers, Inclometers, Extensometers, Tiltmeters, Load Cells and Dataloggers