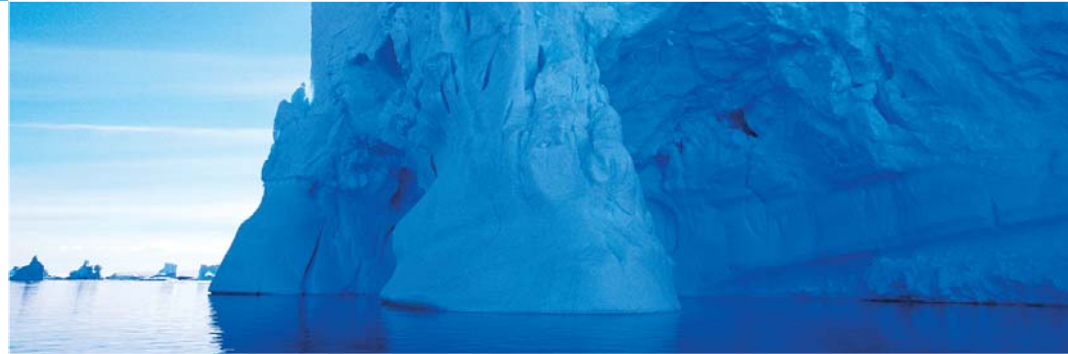




C4 Probe®



PROCES C-Series Probe

Concrete Monitoring Probes

The PROCES C-series of probes are a multi-element sensor used to monitor the corrosion rate and condition of reinforced concrete elements. They are designed to be installed as a retrofit to existing concrete structures into pre-cored holes.

Several options are available; including items designed for use with plain reinforced concrete structures (C2) or reinforced concrete tunnel segments (C4). Probes can be fitted with either an external mounting plate and probe head (for connection to external cabling) or with an integral cable for encasement in concrete.

The probes can be used with most standard corrosion monitoring equipment but are optimized for use with the Concerto RCC© range of portable and fixed monitoring units.

Elements

The standard probe comprises the following elements (Note: C2 probes have a single set of sensors, C4 probes have double set of sensors installed). In all cases a single flying lead is provided:

- RE** Silver/silver chloride/potassium chloride (Ag/AgCl/KCl) reference electrode
- AE** 316SS auxiliary electrode
- T** TO-92 digital temperature sensor & digital probe ID
- RH** Honeywell HIH-3602 relative humidity Sensors
- GND** Flying lead connection (4 mm² csa single core cable) to main reinforcing steel with integral sealed M4 eyelet connection.

The probes are designed so that the position of the sensors is directly adjacent to the reinforcement layer of interest, i.e. for tunnel installation the C4 probe is sized so that a sensor set is adjacent to both the intrados and extrados reinforcement when installed.

When connected to the Concerto RCC monitoring instrumentation the probe provides the following standard set of measurements:

- Corrosion Potential (E_{corr}) of the working electrode and the main reinforcement with respect to the reference electrode



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- Corrosion Rate (I_{corr}) of the working electrode and the main reinforcement using the Linear Polarisation Resistance (LPR) method
- Concrete resistivity
- Concrete temperature

The probe also enables the following optional measurements when used in conjunction with Concerto RCC monitoring equipment:

- 'Macro-cell' measurements of coupling current between working electrode and main reinforcement (for use with cathodic protection systems)
- Potential between auxiliary electrode and working electrodes and/or main reinforcement

The maximum measurable corrosion rate is 52 mm/yr (2000 mpy), with a measurement resolution of better than 25 nm/yr (0.001 mpy).

Environmental

- Operating Temperature -10°C to +60°C
- Designed for direct burial in concrete

Dimensions

Length (minimum)	190 mm
Spacing between sets of sensors (minimum)	80 mm
Diameter (probe body)	50 mm
Mounting plate	100 x 70 mm
Weight (nominal)	1,250 g

For C4 probes the separation distance between intrados and extrados sensors (tolerance of ±2 mm) to be specified with order.

Probe terminates in a 19-pin MIL type connector as standard. Integral side entry 10-core screen probe cable, suitable for direct burial in concrete, available on request.

Manchester office

CAPCIS House 1 Echo Street
Manchester M1 7DP
United Kingdom
Tel +44 (0)161 933 4000
Fax +44 (0)161 933 4001

Oxford office

Unit 6 Hanborough Business Park
Long Hanborough Oxford
OX29 8LH United Kingdom
Tel +44 (0)1993 882 445
Fax +44 (0)1993 882 559

Aberdeen office

78 Carden Place Aberdeen
AB10 1UL
United Kingdom
Tel +44 (0)1224 612 400
Fax +44 (0)1224 612 401