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T E C H N I C A L D A T A S H E E T

Electrode Type: Corrosion Potential and corrosion rate probe

CP200 – Drilled in LPR Probe

Description

The CP200 is manufactured as a robust assembly based on the established technology and record of the CP10P silver/silver chloride half-cell. The construction is such that the half cell and associated graphite counter electrode are mounted together in an inert resin to form an integral unit allowing installation as a one step process.

The slender assembly of the CP200 makes it ideal for use where minimal disturbance to the structure is important, listed buildings for example.

Electrochemical potential measurements are routinely used as an indicator of corrosion activity experienced by reinforcing bar within concrete. The information provided by this, although useful in itself, does not allow an instantaneous assessment of the rate of corrosion the bar is experiencing.

The corrosion rate is affected by changes in chloride and oxygen levels.

The actual change in rate could be as great as an order of magnitude (in terms of rate of metal loss per year) before there was a noticeable change in corrosion potential.

The CP200 allows the assessment of instantaneous corrosion rates by employing the linear polarisation resistance measurement (LPRM) technique. Traditionally this has been carried out manually, but may now be automated using computer controlled electrical ancillary equipment.

Compatibility with all known datalogging equipment and remote sensing is guaranteed. If extraordinarily long cable lengths are required then the user is advised to specify the type of screening for cables and consider the use of buffer amplification of signals. Advice on this is available from the C-Probe offices.

Interpretation criteria

The interpretation of corrosion current densities in concrete has as yet no internationally recognised standard.

However, for guidance corrosion rates of less than $1\mu\text{m}/\text{yr}$ would generally indicate little expected damage to a structure in its lifetime (generally assumed to be 25 yrs).

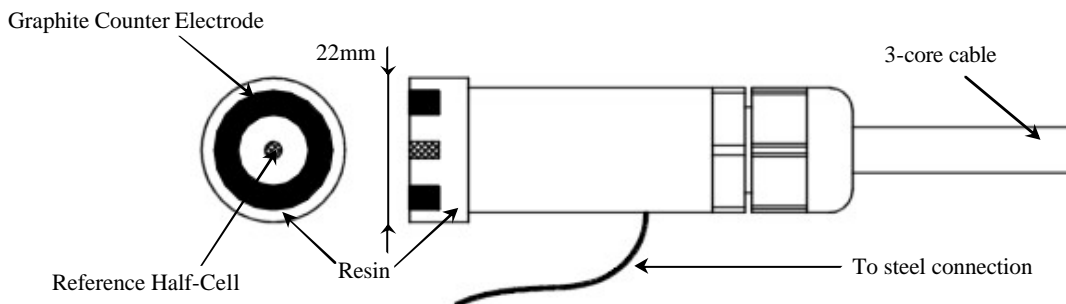
In the range 1 to $10\mu\text{m}/\text{yr}$ the interpretation should be regarded in conjunction with local conditions. However, rates greater than $10\mu\text{m}/\text{yr}$ should give rise to protection systems being considered as a matter of urgency particularly if this is a continuing trend assessed over several data sets.

Specific circumstances are not considered within these guidance notes and the user may consult C-Probe for closer analysis of specific situations



CP200 c/w cable and steel connection

Note: In all applications a welded or drilled/tapped steel connection must be provided.



CP200 Corrosion Rate Probe