

# AG010 Embeddable Reference electrode

## Technical Datasheet



### Description

The AG010 electrode is a long life\* silver chloride based reference electrode used to measure steel potentials in reinforced concrete. The purpose of the AG010 is to measure the effectiveness of impressed current and galvanic cathodic protection systems and to monitor steel corrosion activity.

The AG010 reference electrode comprises a core silver chloride element housed in an acetal polymer tube which is capped with a micro-porous sintered plug to enhance contact with the host material.



### Technical Data

- Meets requirements of EN 12696:2012

The operation of the AG010 reference electrode is based on the  $Ag^+/Cl^-/AgCl$  equilibrium.

- **Stability** (potential drift at constant temp and environment) = +/- 5mV (24Hrs) @ 5 micro Amp load
- **Accuracy** (Vs SCE in 3% NaCl @ 20°C) = -5mV +/- 5mV
- **Temperature coefficient** = -0.65mV/Deg C
- **Life in concrete** = 20 years (theoretical) @ 0.1  $\mu$ A load
- **Temp range** = -5 to 70°C
- **Electrolyte** = inert electrolyte with 0.5 molar

### Application

A suitable location for the electrode must be identified, which avoids contact with any steel in the structure; BS EN 12696:2012 offers guidance on the positioning of reference electrodes used in the monitoring of cathodic protection systems.

The AG010 reference electrode can be installed into a pre-drilled hole of dimensions 100 x 30 mm. The hole should be soaked with water prior to insertion of the embedding mortar. The AG010 electrode should then be pushed into the embedding mortar to ensure complete coverage of the unit and elimination of air voids. A minimum cover of 20 mm should be achieved.

### Features

- **Simple installation**
- **Accurate potential measurement**
- **Cost effective**

### Product Data

#### OUTER CASING

MATERIAL = ACETAL  
 LENGTH = 60mm  
 DIAMETER = 18mm  
 SINTERED DISC DIAMETER = 15mm

#### SILVER CHLORIDE ELEMENT

LENGTH = 15mm (+/- 2mm)  
 DIAMETER = 6mm

GEOMETRIC SURFACE AREA = 3cm<sup>2</sup>

REAL SURFACE AREA = 100cm<sup>2</sup>

PACKAGING = Supplied in single units

STORAGE = Store dry, with original cap retained in place until use

\*Lifetime is dependant on local site conditions, including concrete properties, humidity and temperature

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### Limitations

Under no circumstances should the reference electrode be connected directly to the structure or the electrode will self discharge and cease to operate. Minimum input impedance for the voltmeter when measuring the structure to electrolyte potential is 10 MOhm. The potential quoted overleaf is dependent on which terminal the reference electrode is plugged into. Reference electrode potential values on this data sheet are measured using the electrode connection arrangement originally adopted by DNV.

### Specification Clause

The reference electrode shall be an embeddable silver chloride reference electrode used to determine steel potential in reinforced concrete and steel framed structures.

### Health and Safety

It is good practice to wear gloves and eye protection at all times when handling the product. Do not open or swallow the contents. In the unlikely event that the contents of the electrode should come into contact with the skin or eyes, immediately rinse with water and seek medical help.

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