SILVION LIMITED
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TYPE SW200 Ag/AgCl 0.5M KCl

PERMANENT SEAWATER & BRACKISH WATER REFERENCE ELECTRODE

The silver/silver chloride (Ag/AgCl) elements in all Silvion electrodes are manufactured using a "unique" and advanced technique that results in a porous silver matrix. The matrix is then coated with precise quantities of silver/chloride to ensure:

1). HIGH RELIABILITY;
2). HIGH STABILITY;
3). GREATER ACCURACY;
4). INCREASED LIFE PERFORMANCE.

NOTE:
The SW200 electrode has an internal electrolyte of 0.5M KCl making it the ideal choice for use in seabed sand, seabed mud and estuary mud and waters.

The SW200 is fitted with a perforated cap to protect the ceramic frit sensing head from mechanical damage.

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OUTER CASING

MATERIAL	Acetal body with porous ceramic sintered disc and nylon spiral cable gland
DIMENSIONS	Length: 234mm (300mm w/ gland); Diameter: 35mm

SILVER CHLORIDE ELEMENT

MATERIALS	Silver compounds are 99.90% pure
DIMENSIONS	Length: 50mm (+/- 2mm); Section: 5mm x 5mm
SURFACE AREA	Geometric: 10cm^2; Real: 500cm^2

ELECTROLYTE	Inert electrolyte with 0.5 Molar KCl

PERFORMANCE DATA

STABILITY (POTENTIAL DRIFT AT CONSTANT TEMP AND ENVIRONMENT)	+/- 1mV (24 Hrs) @ 5µA load
ACCURACY (Vs SCE IN 3% NaCl @20°C)	-5mV +/-5mV
TEMP COEFFICIENT	-0.65V/°C
TEMP RANGE	-5 to 70°C
INTERNAL RESISTANCE	Less than 500 Ohms
THEORETICAL DESIGN LIFE	30 years @ 0.1 µA load

QA/QC

All our electrodes are fully tested, calibrated and supplied complete with a calibration certificate. They are individually identified with a unique number to ensure full traceability. All dimensions +/-1mm unless otherwise stated.

NB: 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. Historical DNV guidelines have required Ag/AgCl electrodes to have a potential within the range of -5mV +/- 5mV against SCE at ambient temperatures in seawater (or 3 to 3.5% (0.5M) sodium or potassium chloride solutions). The DNV guidelines had been based on the value measured when the SCE electrode is connected to the positive terminal of the voltmeter and the Ag/AgCl electrode connected to the negative terminal. Silvion quote reference electrode potential values on this data sheet using the electrode connection arrangement originally adopted by DNV. However, it should be noted that the values of reference electrode potential often given in published literature for the Ag/AgCl electrode, when quoted with reference to or versus a SCE electrode are in fact +5mV +/- 5mV versus SCE. This is different to the value that has historically been used and quoted by DNV. The reason for the difference is the polarity of reference electrode connection affects the polarity of the potential measurement that is obtained but not its magnitude. When potential values are quoted with reference to or versus SCE, the electrode that is being used as the known voltage source e.g. SCE is connected to the negative terminal of the voltmeter and the Ag/AgCl electrode under test is connected to the positive terminal of the voltmeter. The potential obtained using the latter method of electrode connection will give a potential with reference to the SCE electrode and that value would be within the range +5mV +/- 5mV.