

Silvion Reference Electrodes

Type WE10 Embeddable Reference Electrode for Use in Concrete

The Silver/Silver Chloride elements in all SILVION electrodes are manufactured using an advanced technique that results in a porous silver matrix being formed around a silver wire skeleton. The matrix is then coated with precise quantities of silver/chloride to ensure:

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

For embeddable electrodes we ensure that the predetermined chloride ion concentration around the element is maintained by using an inert electrolyte compatible with the silver/silver chloride element. Ionic continuity to the environment is via a micro-porous sintered disc.

Outer Casing	
Material	ACETAL
Length	60mm
Diameter	18mm
Sintered Disc Diameter	15mm
Silver Chloride Element	
Length	15mm (+/-2mm)
Diameter	6mm
Geometric Surface Area	3cm ²
Real Surface Area	100cm ²
Materials	Silver Compounds are 99.90% Pure
Electrolyte	
	Inert Electrolyte With 0.5 Molar KCl
Performance Data	
Stability (Potential Drift at Constant Temp and Environment)	+/-5mV (24Hrs) @ 5 micro Amp load
Accuracy (Vs SCE In 3% NaCl @ 20 Degrees C	-5mV +/-5mV
Temperature Coefficient	-0.65 mV/Deg C
Life in Concrete	20 years (Theoretical) @ 0.1µA load
Temp Range	-5 to 70 Deg C



Type WE50 Embeddable Reference Electrode for Use in Concrete

The Silver/Silver Chloride elements in all SILVION electrodes are manufactured using an advanced technique that results in a porous silver matrix being formed around a silver wire skeleton. The matrix is then coated with precise quantities of silver/chloride to ensure:

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

For embeddable electrodes we ensure that the predetermined chloride ion concentration around the element is maintained by using an inert electrolyte compatible with the silver/silver chloride element. Ionic continuity to the environment is via a micro-porous sintered disc.

Outer Casing	
Material	ACETAL
Length	80mm
Diameter	20mm
Sintered Disc Diameter	15mm
Silver Chloride Element	
Length	20mm (+/-2mm)
Diameter	6mm
Geometric Surface Area	4cm ²
Real Surface Area	200cm ²
Materials	Silver Compounds are 99.90% Pure
Electrolyte	
	Inert Electrolyte With 0.5 Molar KCl
Performance Data	
Stability (Potential Drift at Constant Temp and Environment)	+/-5mV (24Hrs) @ 5 micro Amp load
Accuracy (Vs SCE In 3% NaCl @ 20 Degrees C)	-5mV +/-5mV
Temperature Coefficient	-0.65 mV/Deg C
Life in Concrete	20 years (Theoretical) @ 0.1µA load
Temp Range	-5 to 70 Deg C



Type WE100

The Silver/Silver Chloride elements in all SILVION electrodes are manufactured using an advanced technique that results in a porous silver matrix being formed around a silver wire skeleton. The matrix is then coated with precise quantities of silver/chloride to ensure:

- 1). HIGH STABILITY
- 2). GREATER ACCURACY
- 3). INCREASED LIFE PERFORMANCE.

For embeddable electrodes we ensure that the predetermined chloride ion concentration around the element is maintained by using an inert electrolyte compatible with the silver/silver chloride element. Ionic continuity to the environment is via a micro-porous sintered ceramic disc.

Outer Casing	
Material	ACETAL
Length	110mm
Diameter	22mm
Ceramic Disc Diameter	20mm
Silver Chloride Element	
Length	50mm
Diameter	5 x 5mm
Geometric Surface Area	10cm ²
Real Surface Area	500cm ²
Materials	Silver Compounds are 99.90% Pure
Electrolyte	
Inert Solid Electrolyte With 0.5 Molar KCl	
Performance Data	
Short Circuit Current (<1 Min)	20mA
Stability (Potential Drift at Constant Temp and Environment)	+/- 1mV (24Hrs) @5micro Amp load
Accuracy (Vs SCE in 3% NaCl @ 20DegC)	-5mV +/- 5mV
Temperature Coefficient	-0.65mV/ Deg C
Life in Concrete	30 Years (Theoretical)
Temp Range	-5 to 70DegC



Type WE200 Reference Electrode for Permanent Installation in Soil

The Silver/Silver Chloride elements in all SILVION electrodes are manufactured using an advanced technique that results in a porous silver matrix being formed around a silver wire skeleton. The matrix is then coated with precise quantities of silver/chloride to ensure:

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

The WE200 reference electrode consists of a highly stable silver/silver chloride element enclosed in an ACETAL housing and surrounded by a solid electrolyte (with 0.5M chloride ion concentration), an enlarged micro porous ceramic plug allows contact with the electrolyte and ionic conduction. These electrodes can be directly installed into soil; however, a good plug/soil interface must be ensured and maintained.

Outer Casing	
Material	ACETAL
Length	220mm
Diameter	35mm
Ceramic Disc Diameter	19/25mm
Silver Chloride Element	
Length	50mm (+/-2mm)
Diameter	5 x 5mm
Geometric Surface Area	10cm ²
Real Surface Area	500cm ²
Materials	Silver Compounds are 99.90% Pure
Electrolyte	
	Inert Solid Electrolyte With 0.5 Molar KCl
Performance Data	
Stability (Potential Drift at Constant Temp and Environment)	+/- 1mV (24Hrs) @ 5micro Amp load
Accuracy (Vs SCE in 3% NaCl @ 20DegC)	-5mV +/- 5mV
Temperature Coefficient	-0.65Mv/Deg C
Life in Soil	30 Years (Theoretical) @ 0.1µA load
Temp Range	-5 to 70 Deg C



Type WE300 Low Ion Reference Electrode for use in Potable Water

The Silver/Silver Chloride elements in all SILVION electrodes are manufactured using an advanced technique that results in a porous silver matrix being formed around a silver wire skeleton. The matrix is then coated with precise quantities of silver/chloride to ensure:

- 1). HIGH STABILITY
- 2). GREATER ACCURACY
- 3). INCREASED LIFE PERFORMANCE.

For electrodes suitable for use in potable water of very high resistivity we ensure that the pre-determined reduced chloride ion concentration (0.1 Molar) around the element is maintained by using an inert electrolyte compatible with the silver/silver chloride element. Ionic continuity to the environment is via a micro porous sintered disc. Since the chloride concentration of the internal electrolyte is approximately the same as that at the outside leaching of the chloride ions and consequent variations in the reference potential of the cell are eliminated.

Outer Casing	
Material	ACETAL
Length	205mm
Diameter	30mm
Sintered Disc Diameter	20mm
Silver Chloride Element	
Length	50mm
Diameter	5 x 5mm
Geometric Surface Area	10cm ²
Real Surface Area	500cm ²
Materials	Silver Compounds are 99.90% Pure
Electrolyte	
Inert Solid Electrolyte With 0.5 Molar KCl	
Performance Data	
Short Circuit Current (For less than one minute)	20mA
Stability (Potential Drift at Constant Temp and Environment)	+/- 10mV (Over 24 Hour Period)
Accuracy (Vs Saturated Calomel Electrode in 0.1m Salt Solution)	-50 +/- 15mV
Temperature Coefficient	-0.65mV/Deg C
Design Life	20 Years (Theoretical)



Type SW100 Portable Seawater Reference Electrode

The Silver/Silver Chloride elements in all SILVION electrodes are manufactured using an advanced technique that results in a porous silver matrix being formed around a silver wire skeleton. The matrix is then coated with precise quantities of silver/chloride to ensure:

- 1). HIGH STABILITY
- 2). GREATER ACCURACY
- 3). INCREASED LIFE PERFORMANCE.

The Electrode casing is weighted to give more control when lowering into the seawater and to ensure minimum disturbance from tidal movement.

Note: The Silver element in this Reference Electrode is directly exposed to the Seawater; hence these reference electrodes are not suitable for use in any other medium.

Outer Casing	
Material	ACETAL
Length	250mm
Diameter	32mm
Silver Chloride Element	
Length	50mm (+/- 2mm)
Section	5mm x 5mm
Geometric Surface Area	10cm ²
Real Surface Area	500cm ²
Materials	Silver Compounds are 99.90% Pure
Performance Data	
Short Circuit Current (One Minute)	20mA
Stability (Potential Drift at Constant Temp and Environment)	+/- 1mV (24 Hrs) @ 5 micro Amps
Accuracy (Vs SCE in 3% NaCl @20 Deg C)	-5mV +/- 5mV
Temperature Coefficient	-0.65mV/Deg C
Life for Use in Seawater	15 Years
Temp Range	-5 to 70 Deg C



Type CCS1-Port-Portable Seawater Reference Electrode

The Silver/Silver Chloride elements in all SILVION electrodes are manufactured using an advanced technique that results in a porous silver matrix being formed around a silver wire skeleton. The matrix is then coated with precise quantities of silver/chloride to ensure:

- 1). HIGH STABILITY
- 2). GREATER ACCURACY
- 3). INCREASED LIFE PERFORMANCE

Note: The Silver/silver chloride element in the CCS1 Reference Electrode is directly exposed to the Seawater; hence these reference electrodes are not suitable for use in any other medium.

Outer Casing	
Material	ACETAL
Length	110mm
Diameter	22mm
Silver Chloride Element	
Length	50mm (+/- 2mm)
Section	5mm x 5mm
Geometric Surface Area	10cm ²
Real Surface Area	500cm ²
Materials	Silver Compounds are 99.90% Pure
Performance Data	
Short Circuit Current (<1min)	20mA
Stability (Potential Drift at Constant Temp and Environment)	+/- 1mV (24 Hrs) @ 5 micro Amp load
Accuracy (Vs SCE in 3% NaCl @20 Deg C)	-5mV +/- 5mV
Temperature Coefficient	-0.65mV/Deg C
Life for Use in Seawater	15 Years
Temp Range	-5 to 70 Deg C



Type CCS1-Permanent Seawater Reference Electrode

The Silver/Silver Chloride elements in all SILVION electrodes are manufactured using an advanced technique that results in a porous silver matrix being formed around a silver wire skeleton. The matrix is then coated with precise quantities of silver/chloride to ensure:

- 1). HIGH STABILITY
- 2). GREATER ACCURACY
- 3). INCREASED LIFE PERFORMANCE

Note: The Silver/silver chloride element in the CCS1 - PERM Reference Electrode is directly exposed to the Seawater; hence these reference electrodes are not suitable for use in any other medium. It is recommended that the CCS1 electrode be assembled inside in a protective uPVC or equivalent housing for mechanical protection.

Outer Casing	
Material	ACETAL
Length	110mm
Diameter	22mm
Silver Chloride Element	
Length	50mm (+/- 2mm)
Section	5mm x 5mm
Geometric Surface Area	10cm ²
Real Surface Area	500cm ²
Materials	Silver Compounds are 99.90% Pure
Performance Data	
Short Circuit Current (<1min)	20mA
Stability (Potential Drift at Constant Temp and Environment)	+/- 1mV (24 Hrs) @ 5 micro Amp load
Accuracy (Vs SCE in 3% NaCl @20 Deg C)	-5mV +/- 5mV
Temperature Coefficient	-0.65mV/Deg C
Life for Use in Seawater	
Permanent	30 Years (Theoretical) @ 0.1µA load
Temp Range	-5 to 70 Deg C