

## Reference Electrodes

### **Cu/CuSO<sub>4</sub> Portable Reference Electrodes**

The Cu/CuSO<sub>4</sub> Portable Reference Electrodes are the accepted standard for the measurement of surface potentials for land installations and can be used for any high resistance voltmeter normally used in the field of Cathodic Protection. The Cu-CuSO<sub>4</sub> Portable Reference Electrodes are supplied with a standard 2 meter cable length but any length can be supplied to order. A spare bag of Copper/Copper Sulphate can be offered free.



### **Cu/CuSO<sub>4</sub> Permanent Reference Electrodes**

General Cu/CuSO<sub>4</sub> reference electrode has a life of 5-8 years which can't match the pipeline's life of 30-50 years. Against this case, we developed Cu/CuSO<sub>4</sub> Permanent Reference Electrodes with longer life and higher quality. It consists of two gallipots, special materials are filled between the two gallipots which not only insured Cu ion's exchange, but also slowed CuSO<sub>4</sub> run out.



Cu-CuSO<sub>4</sub> Permanent Reference Electrodes is designed for trouble free installation. The cell is pre-packaged in a cloth bag containing a low-resistance backfill material, and is completely assembled and ready for immediate installation.

### **Typical Applications**

Cu-CuSO<sub>4</sub> Permanent Reference Electrodes is designed to measure electrical potentials on buried metallic structures, such as underground pipelines and storage tanks. It is ideal for structures located under pavement or other impediments which prevent the use of a portable cell. The cell can be operated in temperatures of up to 135°F, but should not be used in areas containing high chloride concentrations. The cell should be installed below the frost line in relatively moist soil.

### **Ag/AgCl Reference Electrode**

Ag/AgCl Reference Electrode is made of high silver (99.99%) and other kind of high purity materials. With the advantages of high-temperature stability, good chemical stability and high-strength plastic shell, it could be used in offshore and grounding and other complicated environments for a long time. So Ag/AgCl Reference Electrode is widely used in cathodic protection and other related fields.



Ag/AgCl Reference Electrode we designed consists of two kinds: Permanent Ag/AgCl Reference Electrode and Portable Ag/AgCl Reference Electrode. We also could design the products according to customers' requests.

#### **Parameters**

Temperature(°C)	Filler	Voltage (mV)*	Polarization Potential
-10~65	Gelatin KCl	-45±5 mV	≤±5mV

#### **The test condition:**

- 1、Medium: 3M KCl
- 2、Reference electrode: Hg/Hg<sub>2</sub>Cl<sub>2</sub>
- 3、Temperature: 25°C