

Gel-type Copper/Copper Sulfate Reference Electrode

The gel-type copper/copper sulfate reference electrode (Cu/CuSO_4) is a critical monitoring tool in the field of cathodic protection. It replaces traditional liquid electrolytes with a solid-state gel matrix composed of saturated copper sulfate solution. Structurally, it consists of a high-purity copper rod immersed in this gel, housed within a casing sealed with a porous ceramic plug. Its core advantages—maintenance-free operation and zero leakage—resolve the common issues of spillage, cumbersome portability, and transport restrictions associated with liquid-filled counterparts. Offering a stable potential of approximately +0.316 V versus the Standard Hydrogen Electrode (SHE) and strong anti-polarization capabilities, it is specifically designed for on-site potential measurements of buried steel pipelines, tank bottoms, and reinforced concrete structures. Compared to portable liquid electrodes, it is more durable; compared to permanently buried references, it is far more flexible.



■ KEY FEATURES

- 1.Stable Potential (via uniform microporosity)
- 2.Extended Lifespan (Robust construction)
- 3.Anti-Fouling
- 4.Low IR Drop
- 5.Impact Resistant

■ PRODUCT SPECIFICATIONS

Enclosure: Approx. $\Phi 30\text{mm} \times 150\text{mm}$ length

Enclosure Material: Ceramic Head, Copper element 99.9%, Saturated copper sulfate gel

Lead Wire: 3m $1 \times 2.5\text{mm}^2$ Testing Cable

Stability: $\pm 5\text{mV}$ with 0.3 microamps load

■ APPLICATIONS

- 1.Oil & Gas Transmission Pipelines
- 2.Municipal Underground Utilities
- 3.Storage Tanks & Large Containers
- 4.Electrical Grounding Grids
- 5.Reinforced Concrete Structures (Land/Freshwater)
- 6.Industrial Temporary Testing