

# Solid-Sate Reference Electrodes

The **STELTH® 7** Solid-Sate Reference Electrodes are designed to provide all of your Cathodic Protection readings, both AC and DC, with one device by utilizing integral coupons of different sizes and combinations.



# SOLUTIONS FOR DC READINGS

The **STELTH<sup>®</sup> 7** provides ON-potential and IR-free OFF-potential readings of a structure without errors caused by any outside influences, such as nearby rectifiers, anode beds, electric transmission lines, electric trains, subways, etc.

Eliminates the need for expensive GPS and interrupters for rectifiers. Instead, disconnect your DC coupon to take your OFF-potential readings.

Produces on- and off-potential readings of pipelines with sacrificial anode systems.

Retrieves current density readings of the **STELTH<sup>®</sup> 7** coupon representing the structure in your cathodic protection system.

An all-in-one solution, combining a long-life Reference Electrode with coupons precisely sized to match the aged conditions of your structure. With the Reference Electrode and coupons integrated, this solution is far superior to using separate external coupons.

# SOLUTIONS FOR AC READINGS

Monitor AC interference to determine if you need an AC mitigation system to stop corrosion due to AC currents. After installation, monitor its efficiency to check that the AC mitigation system is working correctly and complies with the law to avoid dangerous levels of AC.

Achieve valid potential readings at sites with AC current interference, like high-density utility corridors and urban areas with uncontrollable foreign influences.

# READINGS

The **STELTH® 7** with coupons (see coupon size options below) can give you readings for:

- Structure DC ON Potential DC & AC
- Structure DC Instant OFF Potential
- Structure DC Depolarized Potential
- Coupon ON Potential DC & AC
- Coupon DC Instant OFF Potential
- Coupon DC Depolarized Potential
- Coupon Current density AC & DC
- Coupon Native DC Potential

#### **APPLICATIONS**

- Instant Off IR Free Readings
- AC and DC current densities
- AC mitigation monitoring
- Readings affected by AC interference
- Readings in cities with congested pipe-line distribution systems





# A TURN KEY SOLUTION TO FIT YOUR SPECIFIC COUPON NEEDS

The **STELTH 7** is integrated with coupons, specifically designed to optimize readings for the best accuracy. You can have as many coupons as you need and in any combination. Coupons are available in many sizes and geometries. The geometries of the coupons have been optimized to achieve the best readings.

Coupon sizes: 1cm<sup>2</sup>, 5cm<sup>2</sup>, 10cm<sup>2</sup>, 50cm<sup>2</sup>, 100cm<sup>2</sup>, 1in<sup>2</sup> and custom sizes.

Combine with **BORIN's** explosion-proof **AC/DC Analyzer** (Coupon Voltage and Current Interrupter), which mounts in above and belowground test stations, to enable you to take all your readings; the terminals are color-coded to match the wires from the **STELTH 7** for ease of installation. It easily fits in most 3" above-ground test heads.

Compatible with **G-DART for Test Stations** Remote Datalogging Unit (or other RMU on the market).

# STELTH SOLID-STATE REFERENCE ELECTRODES TECHNOLOGY

- Our proprietary **Moisture Retention Membrane MRM**<sup>®</sup> traps moisture and keeps electrolytes from during out or getting contaminated.
- The technology **traps hydrogen sulfide or excess** chloride (for Cu-CuSO4 or Zn-ZnSO4) to maintain **stability** of the electrode.
- The solid-state electrodes never need recharging or recalibrating
- Each cell is individually tested for internal resistance, wire continuity, and stability. The STELTH<sup>®</sup> reference electrodes are then certified with a unique serial number, allowing for traceability of any cell throughout its lifetime.
- The reference electrodes can be **frozen**; they come back to life once thawed.
- A major breakthrough the hydrocarbon-proof (HCP<sup>™</sup>) STELTH<sup>®</sup> reference electrode that can be used in all environments.

# CHOOSE YOUR ELECTROLYTE

**STELTH**<sup>®</sup> reference electrodes can thrive in **ALL saturated environments** for their corresponding chemistry:

★Cu-CuSO₄	★Ag-AgCl	★Zn-ZnSO₄	★Pd-PdCl
Copper-Copper Sulfate	Silver-Silver Chloride	Zinc-Zinc Sulfate	Palladium-Palladium Chloride
Chloride-Free Environments	Environments with Chlorides	Chloride-Free Environments	HCP-Hydro Carbon Proof

# **REFERENCE ELECTRODE FEATURES:**

Uses	Coupon and corrosion rate readings	
Size	5.50" (13.97 cm) x 1 1/2" ceramic x 18.11" (45.99 cm) length	
Material	Ceramic with Moisture Retention Membrane (MRM™) and carbon steel Coupons and High-impact ABS	
Coupon size and configuration	Coupons are available in multiple sizes, geometries and number of coupon/size mix. The most common sizes are: 1cm <sup>2</sup> , 5cm <sup>2</sup> , 10cm <sup>2</sup> , 50cm <sup>2</sup> , 100cm <sup>2</sup> , 1in <sup>2</sup>	
Service Life/Shelf Life/Stability	Minimum 20-year service life; Infinite shelf life, infinite stability	
Long Term Stability Range	±5 millivolts	
Certified Potential Range	±5 millivolts vs. standard	
Maximum Continuous Current	3.0 microamps	
pH Range	4–9 pH	
Working Temperature Range	32° F to +176° F (0° C to 80° C)	
Material Temperature Range	-60° F to +185° F (-51° C to 85° C)	

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