

Installation Instructions for 1 Structure and for 2 Structures

The **Dart® GSM V6** can monitor the potential of “up to two structures and three coupons vs. one same reference cell/electrode”, or monitor the potential of “**Structure 1** and three coupons vs. **Reference Cell 1**” and “**Structure 2** vs. **Reference Cell 2**”.

For the purpose of simplification, these instructions assume **Reference Cell 1** to be a **Stelth® 7 IR-Free** reference cell with 3 coupons. When present, **Reference Cell 2** is assumed to be a **Stelth® 2** reference electrode.

Install the **STELTH® 7 IR-free reference cell** according to the **STELTH® 7 Installation Instructions**.

If you have installed 2 reference electrodes at this test station:

Install the **STELTH® 2 reference electrode** according to the **STELTH® 2 Installation Instructions**.

Remove the cap from the **Bullet Box Test Station** and attach the black base to the test station conduit.

Before you connect any wires, first measure:

- 1) **AC Current Density Reading** (connect in series the *orange* wire from the cable, your multi-meter, and the *Structure 1* wire). Read the AC Current (amps).
- 2) **DC Current Density Reading** (connect in series the *red* wire from the cable, your multi-meter, and the *Structure 1* wire). Read the DC Current (amps).

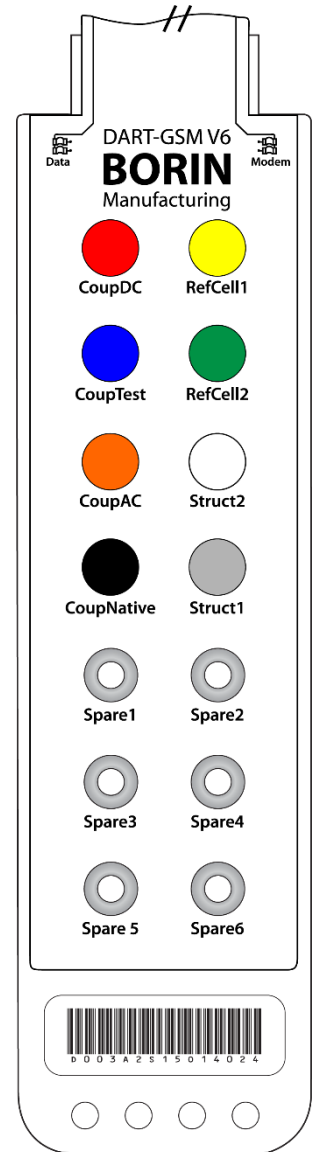
Connect the Wires:

For **Stelth® 7** reference electrodes with **THREE** coupons and the **DART® GSM** system, please connect to the color coded and labeled terminals at the bottom of the **DART®** as follows.

The terminals are shielded from shorting to metal structures by soft vinyl caps designed to remain in place during and after connecting the wires.

To connect each wire:

- 1) Unscrew the bolt through the vinyl cap to open the terminal.
- 2) Insert the cable through the side hole in the vinyl cap and into the terminal opening. Insert the screwdriver through the hole in the top of the vinyl cap and tighten the screw to secure the wire.
DO NOT DISCARD THE VINYL CAPS provided to protect the terminals from shorting to any metal structure; **THIS CAN DAMAGE THE DART® MODULE.**
 - Connect *Structure 1* Wire to the **Grey Struct1** Terminal (Connect **only** after a 60 day waiting period for the coupon to reach its natural corrosion state as per **Stelth® 7** Installation Instructions)
 - Connect *Red* Wire (Live Lead Wire From Test Coupon) to the **Red CoupDC** (IR Drop) Terminal
 - Connect *Black* Wire (Lead Wire From Native Coupon) to the **Black CoupNative** Terminal
 - Connect *Yellow* Wire (Reference Cell Lead Wire, Sensing Element) to the **Yellow RefCell1** Terminal
 - Connect *Orange* Wire (Lead Wire From AC Coupon) to the **Orange CoupAC** Terminal
 - Connect *Blue* Wire (Dead Lead Wire From Test Coupon) to the **Blue CoupTest** (IR Free) Terminal
 - If you have 2 structures, connect *Structure 2* Wire to the **White Struct2** Terminal
 - If you have 2 reference electrodes, connect the wire from the second reference electrode (Reference Cell Lead Wire, Sensing Element) to the **Green RefCell2** Terminal
- 3) Zip tie the wires through the holes at the bottom of the **DART®** terminal board for easy wire management.



Take initial readings:

Coupon readings taken immediately after the installation of any **Stelth® 7** are only useful for verification of **DART®** readings vs. manual readings; these initial readings should not be used for analysis of coupon ON and Off potential readings, but only as a reference of the initial potential. Once the 60 day waiting period has been completed, the readings are valid for analysis.

Take the readings on the **DART®** module with your high impedance multi-meter:

- 1) AC Voltage Reading on the *Structure 1* vs. *Reference Cell 1* (AC Voltage Pipe to Soil Potential)
- 2) DC Voltage Reading on the *Structure 1* vs. *Reference Cell 1* (Pipe to Soil Potential)
- 3) DC Voltage Reading on the DC “Native” Coupon vs. *Reference Cell 1* (Native Coupon to Reference Electrode Potential)
- 4) DC Voltage Reading on the DC “Test” Coupon vs. *Reference Cell 1* (IR-Free Coupon to Reference Electrode Potential)
If you have 2 structures and 1 reference electrode:
- 5) DC Voltage Reading on the *Structure 2* vs. *Reference Cell 1* (Pipe to Soil Potential)
If you have 2 structures and 2 reference electrodes:
- 6) DC Voltage Reading on the *Structure 2* vs. *Reference Cell 2* (Pipe to Soil Potential)

Please Compare manual readings (using a multi-meter at the corresponding terminals) to your **BORIN® Data Center** readings. These **note:** readings would require the structure cables to be connected to the **DART®**, which are usually connected **after** a 60 day wait. If readings need to be verified before the 60 day wait period, then the structure cables can be connected for a short period of time to take the readings, **making sure that the structure cables are disconnected and taped (to keep from shorting) after the test to allow it to complete the 60 day period.**

Download the latest parameters:

Use a provided magnet, and hold it over the identification label on the **DART®** for at least 30 seconds. This will wake the unit up, and allow it to download the latest settings so it begins working. Confirm the unit connected to the data center using the BORIN® Data Center website, per the **BORIN® Data Center DART® GSM Instructions**.

Install the DART® with bottom terminal board inside the water shielded enclosure (i.e.: pipe).

If you need to remove the **DART®**, use the hook ring to pull or push the **DART®** into the conduit.

Understanding LED indicators

Data LEDs:

- | | | |
|--------------|------|---|
| Green | ON: | Active measurement cycle and writing to the SD memory card |
| | Off: | Inactive measurement cycle and access to the SD memory card |
| Red | On: | Failure writing to the SD memory card |
| | Off: | No failure |

Modem LEDs:

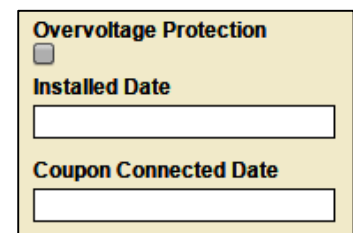
- | | | |
|--------------|--------|---|
| Green | Flash: | Modem initialization phase |
| | On: | Modem established connection and shows communication activity |
| | Off: | No modem activity |
| Red | On: | Modem communication failure (for several seconds) |
| | Off: | No failure |

General Software Set Up for the Comanche/Dart RMU

Once your Comanche/Dart is installed and properly field wired, it's time to connect to the **BORIN** Data Center.

Comanche/Dart units are called *installations*, and they can be grouped into *sections*. If you have a manager account in the Borin Data Center, you can find all of your from-the-factory units in **View Unassigned Installations** tab. If you have an installer account follow the instructions below:

1. Go to <https://borin-rmu.com/>
2. Sign in using your **installer** user name and password.
3. Go to the **Installer Console** screen with a list of factory set uninstalled Dart RMUs.
4. Under **Serial Number**, type the last 4 digits of the serial number of the Dart you will install.
5. The factory set configuration for that serial number will be listed, compare complete serial number for accuracy and click on it.
6. The **Edit Installation Details** window will pop-up.
7. Rename the installation appropriately.
8. Choose which section this installation will apply to from the drop down list.
9. Enter Latitude and Longitude where the Dart is being installed.
10. Check box if overvoltage protection board is installed. Does not apply to Dart V6.
11. Enter Installation Date (and coupon connected date if it applies).
12. In the notes field write down the manual readings measured with your multi-meter prior to installation.
13. Make sure you have activated the Dart with the magnet as per the Dart **GSM Installation Instructions**.
14. Click on the **Refresh Info Box** button to confirm that your readings are there. *The first attempt at communication with the unit can take from 1 to 15 minutes.*
15. Your initial Data Center readings will be displayed. Click **Save**.
16. Compare your Data Center readings with your manual readings to make sure they are within range.

A screenshot of a software interface window titled "Edit Installation Details". It has a light yellow background and a thin black border. The window contains three sections: "Overvoltage Protection" with a small square checkbox, "Installed Date" with a white text input field, and "Coupon Connected Date" with another white text input field.

