

<b>Subject:</b>	COR-TEST-MS5
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**Preface:**

This document will guide users through the processes necessary for setting up and calibrating the NANO-M controller to the COR-TEST-MS5 apparatus

**Materials Required:**

- NANO-M Controller
- Small, flathead screwdriver
- #2 Phillips head screwdriver
- COR-TEST-MS5 Calibration Plug



**Procedure:**

**Releasing the Logic Board**

1. Loosen the liquid tight connector, located on the right side of the case, by turning counterclockwise.
2. Remove the faceplate from the NANO-M by loosening the screws from the lower casing.  
*Note: The #2 Phillips head screwdriver fits the two faceplate screws.*
3. Flip the faceplate graphic-side down.



**Figure 1: The logic board on back side of faceplate of NANO-M**

### Installation of Cor-Test-MS5

1. Loosen the screws securing the black and red conductors, located on the corrosion probe terminal block, using the flathead screwdriver. See figure below.

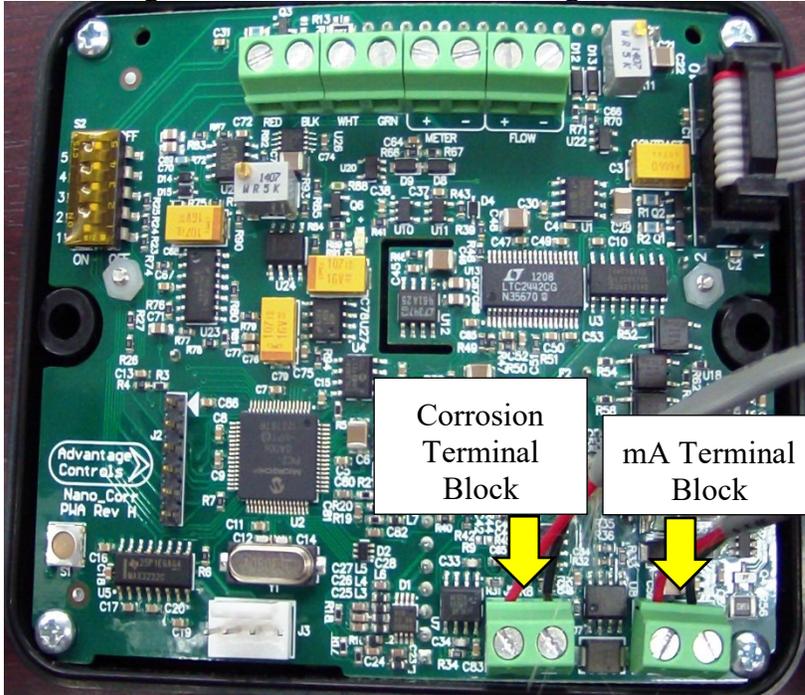


Figure 2: The corrosion probe input terminal block is closer to the center of the board and the milliamp terminal block is closer to the outside edge of the board.

2. Pull the two conductors out of the corrosion probe terminal block.
3. Pull the pair of conductors through the side liquid tight fastener.
4. Set the corrosion probe aside.
5. Insert both the red and black conductors of the COR-TEST-MS5 into the corrosion terminal block.  
*Note:* The orientation/polarity of the wire colors are not significant.
6. Tighten the screws of the corrosion probe terminal block.

### Faceplate Reinstallation

1. Flip the faceplate; graphic-side up.
2. Attach the faceplate with the screws removed earlier.
3. Apply power to the Nanotron-M by plugging in the power cord.



Figure 3: The LCD display will illuminate, and a startup sequence will commence upon power up. When the 'Initializing' message appears on the display, the NANO-M is ready for user interaction.

### Configure Probe Tip Type

1. Press the Down Arrow or Up Arrow key to navigate to the 'Probe Tip Type' menu heading.

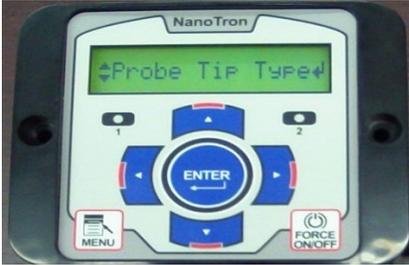


Figure 4: The Probe Tip Type Menu Heading

2. Press the ENTER key when the 'Probe Tip Type' menu heading has appeared.  
*Note:* Note the current probe tip type. After the calibration procedure has been performed, changing the probe tip type will be required for installations that use a tip type other than Carbon Steel.
3. Press the Up Arrow key or Down Arrow key to select the probe tip type, 'Carbon Steel'.
4. Press the ENTER key to confirm the probe tip type.

### Configure Dwell Time

1. Press the Down Arrow or Up Arrow key to navigate to the 'Dwell Time' menu heading.



Figure 5: The Dwell Time Main Menu Heading

2. Press the ENTER key when the 'Dwell Time' menu heading has appeared.  
*Note:* The factory default is 10:00 minutes. It is recommended to return the dwell time to the ten minute default after the calibration procedure has been performed.
3. Press the Up Arrow or Down Arrow key to adjust the dwell time to 0:30.
4. Press the ENTER key to confirm the dwell time.

### Configure Conductivity

1. Press the Down Arrow or Up Arrow key to navigate to the 'Dwell Time' menu heading.



Figure 6: The Conductivity Main Menu Heading

2. Press the ENTER key when the 'Conductivity' menu heading has appeared.
3. Press the Up Arrow or Down Arrow key to adjust the conductivity value to 0388 uS/cm.
4. Press the ENTER key to confirm the conductivity value.

### Corrosion Rate Verification

1. Press the Menu key to return to the Run Screen.

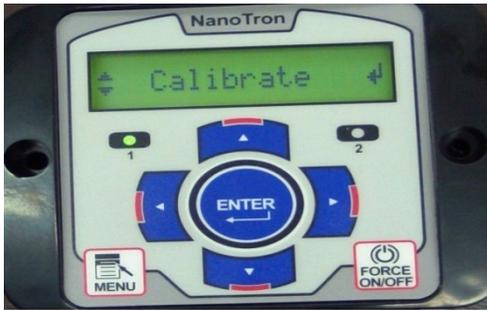


Figure 7: The phrases, "Status OK" and "Initializing", will cycle on the display for approximately one minute.

2. Monitor the display of the NANO-M until a corrosion rate reading appears.  
*Note:* Carbon Steel will have a corrosion rate value between 4.90 and 5.10 mils per year.
3. If the corrosion rate is between 4.90 and 5.10 mils per year, then further calibration is not required. Remove the Cor-Test-MS5, reinstall the corrosion probe into the corrosion terminal block, and perform the reverse of the previously stated procedures.
4. If corrosion rate is below 4.90 or above 5.10 mils per year, then continue onto the 'Corrosion Rate Calibration' section outlined below.

### Corrosion Rate Calibration

1. Press the MENU key to enter into the Main Menu.
2. Press the Up Arrow or Down Arrow key to navigate to the 'Calibrate' menu heading.



**Figure 8: The Calibrate Main Menu Heading**

3. Press the ENTER key when the ‘Calibrate’ menu heading has appeared.
4. Press the ENTER key when the ‘Cal Corr Rate’ menu heading has appeared.
5. Refer to Appendix A to determine the corrosion rate value that should be present when using the Cor-Test-MS5 calibration plug.
6. Press the Directional Arrow keys to modify the currently displayed corrosion rate value.
7. Press the Enter key to confirm the calibrated corrosion rate value.
8. Press the MENU key to return to the Run Screen.
9. Monitor the display of the NANO-M to see the effect of the calibration process.
10. If the corrosion rate is between 4.90 and 5.10 mils per year, then further calibration is not required. Remove the Cor-Test-MS5, reinstall the corrosion probe into the corrosion terminal block, and perform the reverse of the previously stated procedures.
11. If corrosion rate is below 4.90 or above 5.10 mils per year, then investigate all physical connections and review prior steps to ensure that all configurations were performed correctly. Then repeat the ‘Corrosion Rate Calibration’ procedure.

**Appendix A:**

Probe Tip Type	Mils/Yr Corrosion Rate	Conductivity Value
Carbon Steel	5.00	0388 uS/cm <sup>3</sup>
Copper	10.00	0388 uS/cm <sup>3</sup>
Stainless Steel 316	4.50	0388 uS/cm <sup>3</sup>
Stainless Steel 304	4.45	0388 uS/cm <sup>3</sup>
Cupro-Nickel	8.99	0388 uS/cm <sup>3</sup>
Admiralty Brass	8.34	0388 uS/cm <sup>3</sup>
Aluminum 7075	4.24	0388 uS/cm <sup>3</sup>