H-4114.MCU

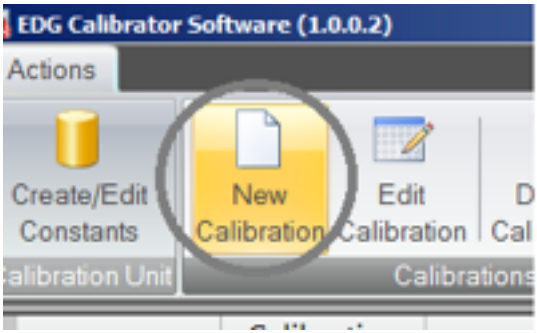
EDG Calibration Module

EDG Calibration Procedure For SD Model

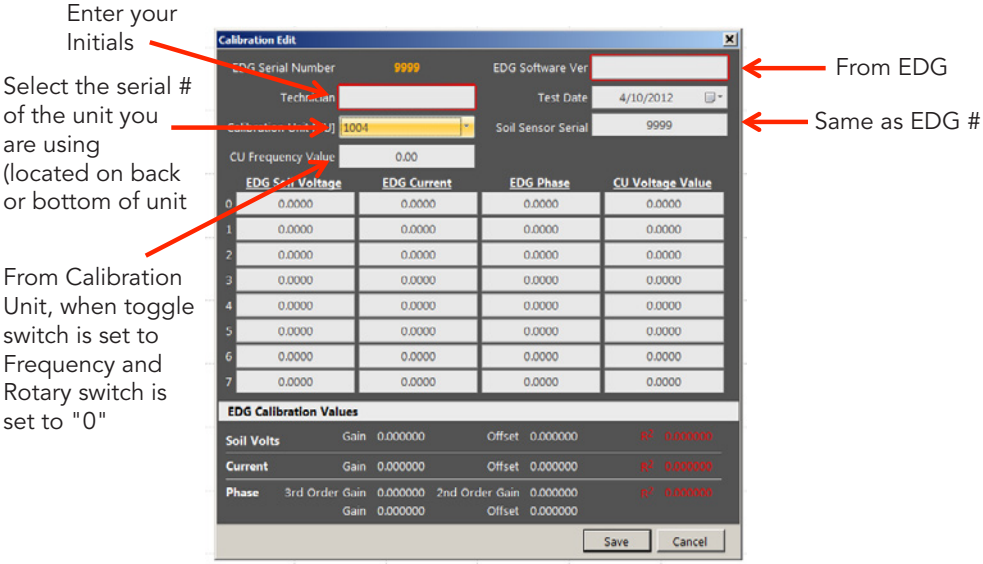
1. Set the toggle switch of the Calibration unit to Frequency, rotary switch to "0" position.
2. Connect the soil sensor to the EDG and power on. Allow to warm up for at least 5 minutes.
3. Insert soil sensor into the calibration unit with the label in the back, Make sure the brass terminals on the sensor make contact with the spring terminals on the calibration unit.

NOTE: never have a powered soil sensor plugged into an unpowered calibration unit

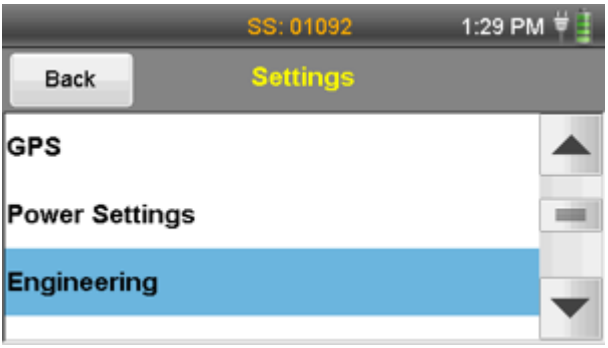
4. Run "EDG Calibration Software" on the PC
5. Ensure the calibration software is the most up to date version.
6. Click on "**New Calibration**" and enter the **EDG Serial number** (use next label number for serial #)



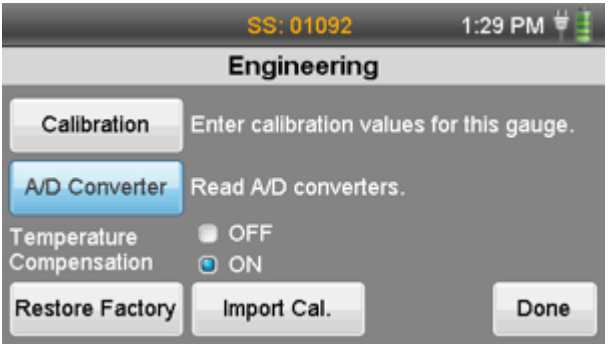
7. In the main window, double click on the EDG serial number you just entered and fill in the values as shown:



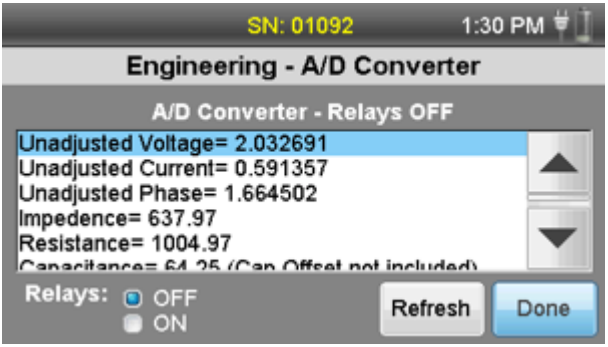
8. After entering frequency on the EDG, switch the toggle switch on the calibration unit to "voltage"
9. On the EDG, press the "**Setup**" icon (bottom left) and scroll down and click on "**Engineering**"



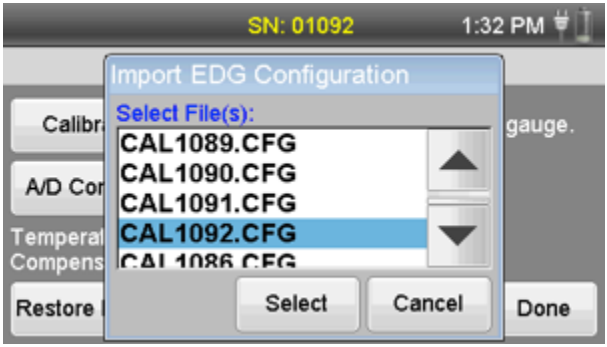
10. Enter password 2-2-2-3-4.
11. In the main "Engineering" screen Click on "**A/D Converter**".



12. Entering the EOG calibration unit voltage values for rotary switch position "O". Wait a few seconds for the reading on the calibration unit to stabilize. The "CU Voltage Value" is the reading from the calibration unit display.



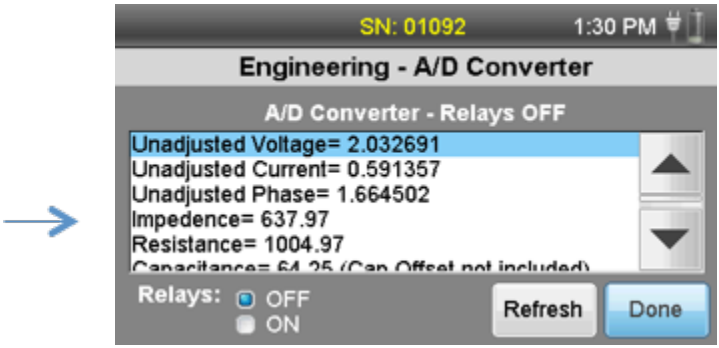
13. Switch the rotary switch to "1" wait a few seconds for the reading on the calibration unit to stabilize and click on "**Refresh**" on the EDG.
14. Repeat for the remaining rotary switch positions, until the table is complete.
15. Insert a Fat formatted USB flash drive into the USB po1t on the EDG.
16. Rotate the rotary switch to position "O". Wait a few seconds for the reading on the calibration unit to stabilize.
17. Select the calibration position button on the EDG, then select calibration position "O". The unadjusted voltage, current and phase values for position "O" will be exported to the USB flash drive.
18. Repeat for the remaining rotary switch positions.
19. Remove the USB flash drive from the EDG and inse1t it into an open USB port on the PC
20. In the main window of the calibration software, select the "Import" button in the lower left corner and then select the file to be impo1ted fom the flash drive. The unadjusted voltage, current and phase values will be entered into the table.



21. If none of the R2 values are in red, the calibration was successful, otherwise, look at the graphs to see if single points are off (possible recording error). Repeat procedure if this is the case.
22. Select the **Export EDG** icon in the EDG calibration software menu. Locate the USB

drive and select "OK". Remove the drive from the PC.

23. Return to the main Engineering screen on the EDG. Insert the USB flash drive into EDG and click **Import Cal**.
24. Click on the calibration file and click **Select**. Wait for the prompt that the import was successful.
25. Remove the soil sensor from the calibration unit and connect the Calibration Check Box to the sensor.
26. Click **AID Converter** again.
27. Read the impedance value form the EOG. Repeat about 5 times and take an average value of the impedance.



28. Click **Done** and click **Calibration** again. Click on the arrows to locate the Calibration Check Value. Enter the impedance value you determined from step 21 using keypad.
29. Click **Done**, **Done** again, then **Back** and scroll down to **Calibration Check**.

    Click test. Repeat the test 4-5 times to ensure the EOG does not fail.
30. Click **Done & Back** until you get back to the main screen.
31. On the membrane switches, hold down both the "setup" and "Measure" keys.
32. Click on "Set Serial Numbers". Enter password" 11977". Enter the EOG serial number.
33. Click on "Store Factory Calibration" to store the calibrations in internal memory.

The EDG is now calibrated!

EDG Calibration Procedure For C Model

Note: Before you begin:

(i) Your test area should be as far from other powered electronic equipment as possible. Do not use florescent lights and compact florescent lights (CFL) on the test area surface (overhead lights ok).

(ii) When taking measurements, do not touch the sensor wires or connector.

(iii) Be sure your EOG is fully charged (overnight) before calibration.

(iv) DO NOT attempt to calibrate your EOG with the charger plugged in.

Collecting Calibration Data

I. Set the toggle switch of the Calibration Unit to Frequency, rotary switch to "O" position, and power it on.

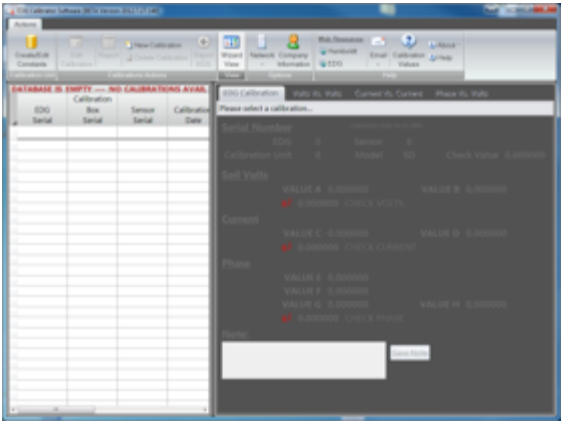
2. Disconnect the charger for the EOG, connect the soil sensor, and power it on. Allow to warm up for at least 15 minutes.

3. Insert soil sensor into the calibration unit such that the sensor cable is on the right.

4. Connect the 3 inch (75mm) alligator clips between the senor pins and the adjacent plunger

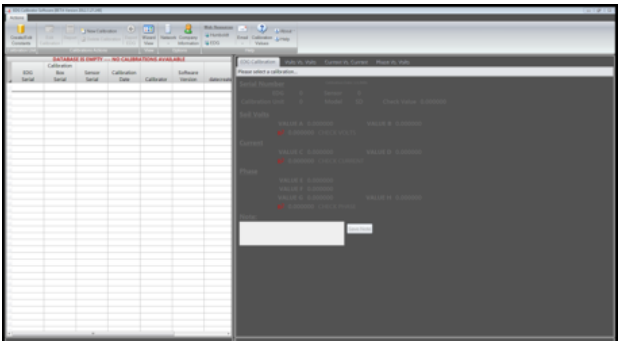
NOTE: Never have a powered soil sensor plugged into an unpowered calibration unit.

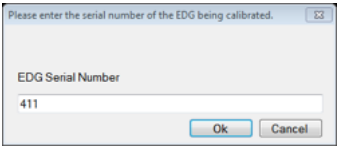
5. Run EDG Calibration Software on the PC. Ensure the calibration software is the most up to date version (check our website).



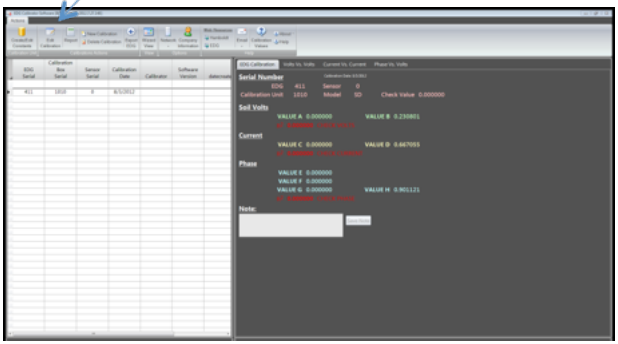
6. If you do not see the screen "EOG Calibration Wizard", you are in advance mode: click on the **Wizard View** icon.

7. From the Advance Mode Screen select **New Calibration**

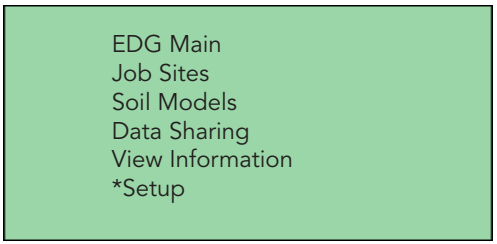




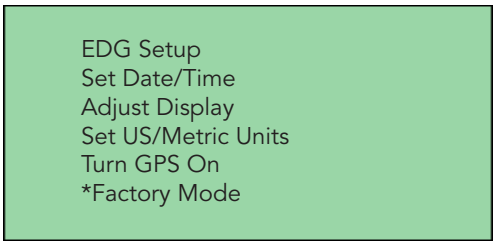
Enter the serial number click **OK** the following screen will display, Select Edit Calibration



8. Enter the Factory Mode on the EDG

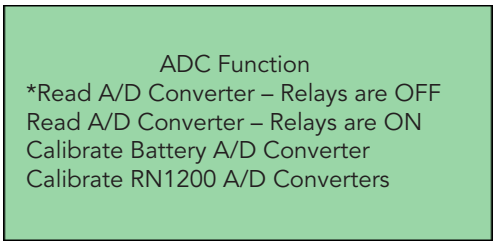


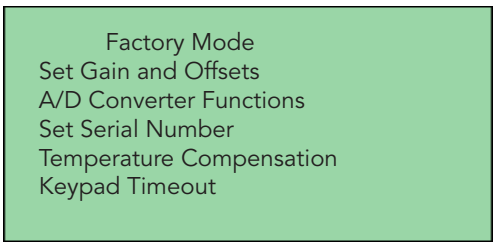
a. use the down arrow key to position the curser at the setup
b. Press the **EDG** key four time and then press **SEL** the following menu will be displayed



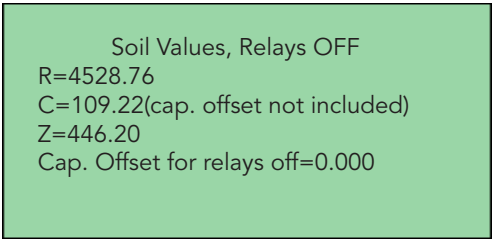
c. use the down arrow key to position the curser at the **Factory Mode** and press **SEL** the following menu will be displayed

9. From the **Factory Mode** menu, navigate down to the **A/D Converter Functions** and press SEL. the **ADC Function** menu will be displayed

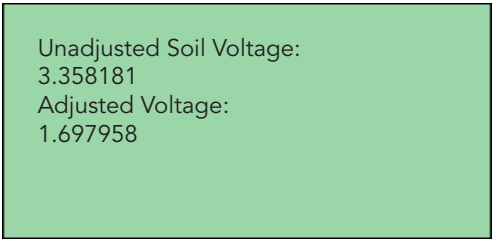




10. From the above menu, navigate down to the "**Read A/D Converter – Relays are "OFF"** and press "**SEL**" the following menu will be displayed

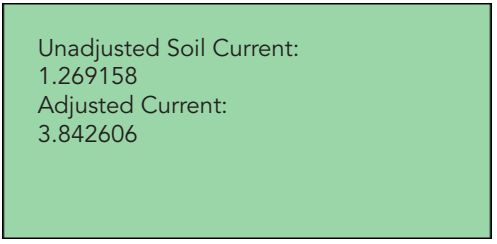


11. Press **SEL** the following menu will be displayed



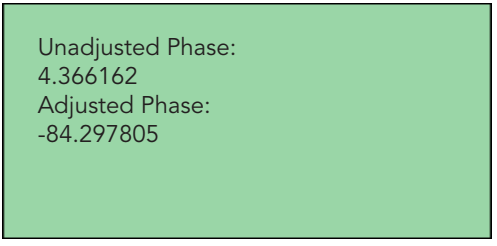
12. Enter the Frequency value from the Calibration Unit (using switch position 0). Then set the switch to "Voltage" and record the Unadjusted Soil Voltage

13. Press **SEL** the following menu will be displayed



14. Record Unadjusted Soil Current

15. Press SEL the following menu will be displayed

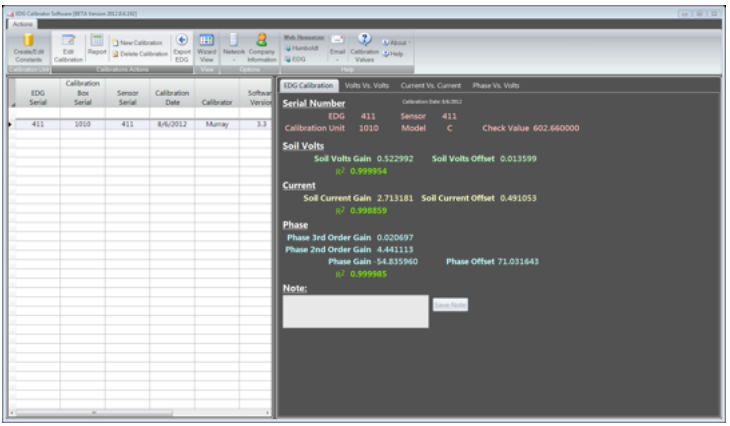


16. Record Unadjusted Phase value
17. Repeat steps 9-15 for all 8 rotary positions on the Calibration Unit. After obtaining each set ofreading, press the **EXIT** button on the EDG. Then move the rotary switch on the Calibration Unit to the next position, wait a few seconds for the reading to stabilize, then press **SEL** again.

18.

19. After collecting and entering the readings for all 8 rotary positions in the above screen, press **Save** you will see a screen with the results:

    Scroll through the data and make sure the serial number, model number, etc are correct.



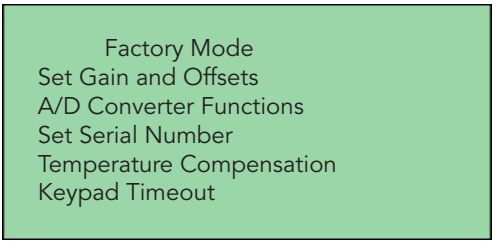
Also ensure the R2 values are green, not red. If red, the calibration is not correct. You can click on the tabs for volts, cunent & phase to view the plots and try to locate the erroneous data (bad data will be far from the fit line).

20. At this point, enter any notes for your records. Don't forget to **Save Note** before continuing.

21. You can click **Next** in Wizard Mode or **Report** in Advanced View to generate the calibration report and then print it.

Entering calibration values into the EDG

22. Return to the "Factory Mode" menu on the EDG and open the "**Set Gains And Offsets**".



23. Press "**SEL**" to advance through the calibration values, and "Exit" to return the previous menu. Delete the old calibration values and enter the new values for the following:

Electrical Test Frequency (note: "Electrical Test Frequency" is the same as"Calibration Freq.")

Soil Voltage Gain

Soil Voltage Offset

Soil Current Gain

Soil Current Offset

Phase 3rd Order Gain

Phase 2nd Order Gain

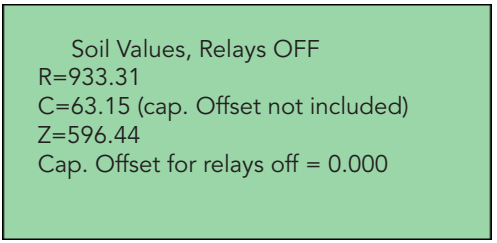
Phase Gain

Phase Offset

(Very important note **DO NOT MODIFY OR DELETE** any values not included in the Calibration report).

24. When entry of the calibration data is complete, **Exit** "Set Gains And Offsets".

25. Navigate back to "**A/D Converter Functions**"
26. Attach the black calibration box to the Soil Sensor and press "**SEL**".



27. Record the Z value for the Calibration Box. It is recommended you exit and read the Z values a few times and take an average.
28. Return to the "**Set Gains And Offset**s" list and enter the Z value for **"Z For Calib. Check"**.
29. Return to the main menu **Select View Information** and verify the EDG passes the calibration check (standard EOG calibration check). Be sure to power down to clear **Factory Mode**.

The EDG is now calibrated and ready to use.

Warranty

Humboldt Mfg. Co. warrants its products to be free from defects in material or workmanship. The exclusive remedy for this warranty is Humboldt Mfg. Co., factory replacement of any part or parts of such product, for the warranty of this product please refer to Humboldt Mfg. Co. catalog on Terms and Conditions of Sale. The purchaser is responsible for the transportation charges. Humboldt Mfg. Co. shall not be responsible under this warranty if the goods have been improperly maintained, installed, operated or the goods have been altered or modified so as to adversely affect the operation, use performance or durability or so as to change their intended use. The Humboldt Mfg. Co. liability under the warranty contained in this clause is limited to the repair or replacement of defective goods and making good, defective workmanship.

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