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| **Atlas-Scientific EC Circuit Calibration Procedure** | | | | |
| Calibration Performed By: | | Probe Serial Number: | | Procedure Drafted By: *Ian Black (2017-09-05)* |
| Calibration Date: | | EC EZO Name: | | Solution Temperature: |
| **Step** | **Procedure** | **Check** | **Results** | **Notes** |
| 1.1 | Turn the external switch to off. Open the unit by removing the switch/pressure end cap. |  |  |  |
| 1.2 | Disconnect the battery. Remove the microSD card. |  |  |  |
| 2 | Connect the MKRZero to the computer via microUSB cable. |  |  |  |
| 3.1 | Open the Arduino IDE. |  |  |  |
| 3.2 | Navigate to Tools > Board. Ensure MKRZero is selected. |  |  |  |
| 3.3 | Navigate to Tools > Port. Select available com port. Usually, MKRZero will be in parentheses next to the com port number. |  |  |  |
| 3.4 | Navigate to File > Sketchbook > MKRZero\_EC\_Cal |  |  |  |
| 3.5 | Navigate to Sketch > Upload. (Ctrl+U) |  |  |  |
| 3.6 | After the IDE has confirmed a successful upload, navigate to Tools > Serial Monitor (Ctrl+Shift+M). The serial monitor should now be displaying EC, TDS, SG, and SAL in raw form at 1.4 second intervals. (Example: 0.00,0.00,0.00,0.00) |  |  |  |
| 4 | Ensure that the carriage return option is selected and that the baud rate is 9600 in the lower right corner of the serial monitor window. At the top of the window, type "C,0". This turns off continuous logging. This command may need to be sent more than once. |  |  |  |
| 5 | Type "RESPONSE,1". This enables response code. |  |  |  |
| 6 | Type "Name,?". The EC EZO will report the name of the device. If brand new, you can name the EC EZO at this stage with the command “Name,xxxxx”, where xxxxx is your chosen name. |  | EC EZO Name: |  |
| 7 | Type "K,?". This queries the probe type. By default the EC EZO should be set to K1.0, which is needed for seawater applications. |  | Probe Type: |  |
| 8.1 | Type "T,?". This queries the default temperature on the EC EZO. If the EC EZO was recently power cycled, the default temperature will be 25C. |  |  |  |
| 8.2 | Type "T,n". Where n is the temperature of the calibration solution to the nearest hundredth (or ambient temperature if you have allowed the CTD to reach equilibrium with the room it is in). |  | New Default Temperature: | This value will need to be manually input into the operating code. |
| 8.3 | Type “c,1” to enable continuous readings. |  |  |  |
| 9.1 | Type "cal,clear". This clears any previous calibration data. |  |  |  |
| 9.2 | Prior to a wet calibration, the probe must be calibrated dry. Type "cal,dry". Wait at least two seconds before proceeding. |  |  |  |
| 9.3 | Place the probe in the lower value calibration solution. Type "cal,low,n". Where n is the lower value calibration solution in uS/cm. This value changes with temperature. No change will be seen in the conductivity reading. If successful, the EC EZO will respond with "\*OK". To determine n, use the provided Google spreadsheet. |  | Low n: |  |
| 9.4 | Remove the probe from the solution, rinse with DI water, and dry. |  |  |  |
| 9.5 | Place the probe in the higher value calibration solution. Type "cal,high,n". Where n is the higher value calibration solution in uS/cm. This value changes with temperature. If successful, the EC EZO will respond with "\*OK". To determine n, use the provided Google spreadsheet. |  | High n: |  |
| 9.6 | Remove the probe from the solution, rinse, and dry. Replace any protective caps. Type “c,0” to turn off continuous reading mode. |  |  |  |
| 9.7 | Type "cal,?". This queries the type of calibration saved on the EC EZO. If the two point calibration was successful, the EZO will respond with "?CAL,2" |  |  |  |
| 10 | Type “RESPONSE,0” to turn off the EC EZO response code. |  |  |  |
| 11 | Type "c,1" to enable continuous reading mode. |  |  |  |
| 12 | Type “L,0” to turn off the EC EZO LED. This saves some battery. |  |  |  |
| 12 | Wait at least five seconds. Close the serial monitor window. Upload the operating code to the MKRZero. |  |  |  |

A close up of a map

Description generated with high confidence

A screenshot of a cell phone

Description generated with very high confidence



