EM38-MK2 Operating and Calibration Instructions

# **Pre-Calibration**

## Turn the “MODE” knob to “BAT” and ensure there is adequate charge in the battery. A reading of 800+ is usually good for a 10 hectare field.

## Turn the “Mode” knob to “1 m” and let it warm up for 5-10 minutes before calibration.

## Remove all metal from the person of the surveyor (no belts, phones, wallets, watches, etc…). Any nearby metal will interfere with proper calibration of the EM38-MK2 device. The only metal allowed is the Juniper handheld computer, and GPS system. Try to minimize metal near the device.

# **Calibration**

## With the instrument mounted on the calibration pole in horizontal dipole mode, and the “Mode” knob on “1 m”, set the “Q/P” and “I/P” readings to zero.

## Adjust the “Q/P” knob so that an arbitrary value (typically 10 mS/m) is shown on the display for Q/P reading.

## Rotate the EM38-MK2 to vertical dipole mode and note the reading.

## Subtract the horizontal dipole reading from the vertical reading, and then rotate the instrument back into horizontal dipole mode.

The vertical dipole Q/P reading should be double what horizontal mode reads

## Adjust the “Q/P” knob so that the display reads the value calculated in step 2.4.

## Repeat steps 2.1 through 2.5 with the “MODE” knob set to “.5 m”

# **Operation (Without Juniper + GPS)**

## Once the EM38-MK2 is calibrated, it is now ready to be used for conductivity measurement

* 1. Place the device on the ground where conductivity measurement is desired in vertical dipole mode. Note the readings on the Q/P and I/P display. (Q/P is what we are interested in for salinity, so I/P is just for good practice)
  2. Rotate the device to horizontal mode, while still on the ground. Note the readings on the Q/P and I/P display.
  3. Note your location
  4. Repeat steps 3.1 through 3.4 where desired until survey is complete.

1. Operation (With Juniper + GPS)
   1. Connect GPS unit to Juniper handheld computer
   2. Turn on Juniper and make sure battery is full
   3. Open DAT38MK2
   4. Click “Survey Setup” and change survey settings appropriate to your area
   5. Click “Set GPS Port” and ensure that the COM port is correct, and that the Baud rate is also appropriate to your GPS
      1. Click “Monitor GPS Output” and look for real coordinates to ensure device is working properly.
   6. Click “Monitor/Log” and select your EM38-MK2 device. Then begin walking with the device as low to the ground in the desired dipole mode as reasonably possible, the Juniper will automatically log your location and all readings of the EM38-MK2
   7. Pause logging when complete and save file to Juniper. The survey is now complete.