

## Troubleshooting Guide

**Symptom:** No Response from AQ1B Module

Check the following:-

1. Check that the battery has been charged -
  - If not, place AQ1B on charge and then re-test.
2. Check that both Sensing Loop and Bonephone are correctly connected
  - Try using an alternative Bonephone/AQ1B Headphones.
  - Try using an alternative Loop or a known good AQ1B Probe.
3. Check that both the Sensing Loop and Bonephone are in good condition. Check by substitution if possible or by monitoring the nominal resistance of both items. Connecting a good quality multi-meter across the pins of the plug can check the resistance.

**NB.** It is good policy to firstly check the multi-meter's reading with the leads shorted together - this provides a measure of what residual reading to take into account.

➤ See AQ1B Resistance Chart below: -

| Item       | Resistance (ohms)     |
|------------|-----------------------|
| 20cm Loop  | 1.4                   |
| 25cm Loop  | 1.6                   |
| 38cm Loop  | 1.8                   |
| 12" Probe  | 5.8                   |
| 36" Probe  | 5.8                   |
| Bonephone  | 5.4                   |
| Headphones | 15.0 (Minimum Volume) |

**Symptom:** Erratic Performance from AQ1B Module

1. First check as above.
2. Check that the stainless contacts of the bulkhead connectors are clean.
3. Check that the stainless connectors of the Sense loop and bonephone are clean. If necessary reduce the contact resistance by slightly prising the gap in the male contacts, this will increase the firmness of the connector on insertion.
4. Check that the cable to the Sense Loop has not been damaged causing water ingress.
5. Check that the male connector seals are in place and clean.

## Checking Battery Pack Voltage

To test whether or not your battery pack is charged, you may use the following test, which requires a DC voltmeter. A digital voltmeter is preferred since these voltages are low and measurement needs to be made in the tenths of a volt resolution.

1. With nothing connected to the detector, turn the detector ON.
2. With the detector placed so the printing on the top label is in normal orientation, place the positive lead of the voltmeter on the TOP pin of the Loop connector (See diagram).
3. Place the negative lead of the voltmeter on the TOP pin of the Phone/Charge connector (See diagram).
4. You should now be able to read the voltage of your battery pack.
5. A fully charged new battery pack should read approximately 9.8 volts. This might decrease slightly as the pack gets older. As the detector is used, the voltage will drop gradually, but performance is not affected until the voltage drops below 8.4 volts. Once the voltage drops below 8.4 volts, it will drop at an accelerated rate. The detector will not function correctly if it gets down around 7 volts or lower. If you measure the voltage and it is near or below 8.4 volts, it's time to re-charge the battery pack.



*Battery Test Points*

## Checking Battery Pack Performance

*Note: For routine maintenance this should be carried out every three months.*

The recommended procedure is as follows: -

1. Connect an AQ1B Loop or Probe to your AQ1B module.
2. Power on your AQ1B and leave it on overnight to fully discharge the battery.
3. Disconnect the loop and power the AQ1B off.
4. Charge the AQ1B for at least 14 hours using the provided AQ1B charger.
5. Once the AQ1B is fully charged, disconnect the charger.
6. Connect an AQ1B sensing loop and Bonephone/Headphone to the unit and switch it on. Place the loop away from any metal and adjust the SET AUDIO control to get a steady slow clicking sound.
7. Make a note of the detection range on a suitable test object.
8. Confirm the functionality and detection range of the unit every 30 minutes - re-adjusting the tick-over as necessary.
9. When it becomes impossible to set the threshold, or the detection distance has dropped dramatically, this can be considered to be the end of charge status for the battery.
10. If the performance becomes unacceptable after less than what you (the operator) determine to be an acceptable minimal operational period, then the AQ1B Battery Pack needs to be replaced.

*Note: If your battery needs to be replaced please contact our technical support dept to arrange for an installation of a replacement battery, or in the case of an approved service agent please refer to the servicing data provided.*

*Please consider Nicad batteries as hazardous material and dispose of your old battery pack in line with local guidelines.*