

**AQ1B Compact Underwater Metal Detector  
User Manual**



*Aquascan International Limited*

UNDERSEA DETECTION EQUIPMENT

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# AQUAPULSE 1B-Compact

## UNDERWATER

## METAL DETECTOR



# Operating Instructions



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# AQ1B Compact Underwater Metal Detector User Manual



## INTRODUCTION

The AQUAPULSE name has been established for more than two decades and conveys the message of underwater detection excellence using the Pulse Induction (PI) principle. Unlike some of the land based detection solutions that perform dismally underwater the PI system provides a very powerful means of detection for every form of ferrous or non-ferrous metallic item. The AQUAPULSE is a modular system with a range of interchangeable detection heads that allows for a flexible approach to detection under various underwater conditions.

### NEW AQ1B-Compact

In July of 2009, the new “MINI” version of the AQ1B was introduced; this replaced the previous AQ1B version. The AQ1B-Compact is the same detector technology as in the past but with some improvements:

- New smaller/lighter case
- Circuit upgrades
- Smaller/lighter NiMH battery pack – can be charged any time without worrying about the “memory effect” – same or better battery operation time
- New Off/Reject Switch – now a 6-position switch **(SEE IMPORTANT NOTES IN SECTION “INITIAL TESTING” ITEM 9)**

A standard AQUAPULSE 1B-Compact (AQ1B-Compact) kit consists of the following items:

1. Sealed electronic unit
2. Bone conductor earphone (or Land headphones) with cable and plug.
3. Search Loop and shaft or Search probe with cable and plug.
4. Mains Battery charger (100-250v) with AC charging lead.
5. Harness and belt with quick release buckle.
6. Operating instructions.

# AQ1B Compact Underwater Metal Detector User Manual



The **Aquapulse 1B-Compact** underwater metal detector is a precision built instrument using the latest pulse induction techniques, and has been designed for both ease and simplicity of use in the underwater environment, featuring good detection performance for locating both ferrous and non-ferrous metals.

The unit is ruggedly built to withstand normal diving usage, but to get the best trouble-free operation and long life, certain simple operation and maintenance procedures must be followed. Read the instructions carefully before diving with your detector.

## **Initial Testing of your AQ1B-Compact Detector:**

*Note: It is highly recommended that you familiarize yourself with the AQ1B on land before taking it into the water. This section explains the basic functionality of the AQ1B and how to use the controls. It is much easier to learn to operate the unit without the challenges of limited visibility, restrictive dive equipment, currents, etc. So, please take the time to perform this Initial Testing of your unit before venturing into the water with it.*

### **1. Charging the batteries**

The AQ1B is supplied only partially charged and will require a full 14 hours charging duration to bring the unit to a fully charged status. **Make sure the AQ1B is in the OFF** position and plug the output lead from the charger into the AUDIO & CHARGE socket on the control bulkhead. Please note that this can only be inserted one way round due to the locating (polarising) pin. Screw down the retaining collar. This should be good finger tightness only.

***N.B. DO NOT ON ANY ACCOUNT PLUG THE CHARGER INTO THE PROBE SOCKET AS DAMAGE MAY BE DONE TO THE ELECTRONICS***

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Ensure the charger is correctly connected to the Charge/Audio socket **before** plugging the charger into the mains supply (100 – 250vAC). After running for an hour or so the charger may get slightly warm to the touch. This is quite normal.

***N.B. THE CURRENT TYPE OF CHARGERS SUPPLIED WITH THE AQ1B (JAN 2011 ONWARDS) PROVIDE A CONSTANT RATE OF CHARGE FOR APPROXIMATELY 14 HOURS; FOLLOWED BY A TRICKLE CHARGE (MAINTENANCE) MODE. WHILST CHARGING AT THE “REGULAR” RATE THE LED LIGHT WILL GLOW ORANGE, ONCE THE CHARGING PERIOD BEEN COMPLETED THE CHARGER DROPS INTO “TOP UP” MODE INDICATED BY GREEN/YELLOW-FLASH & FINALLY INTO TRICKLE CHARGE MODE, AT THIS STAGE THE LED CHANGES TO FIXED GREEN.***

During subsequent partial recharge/top up requirements; batteries will not be damaged by being left on charge for a longer period than necessary, this is due to the controlled charge current being automatically followed by a trickle charge mode. If the batteries become fully discharged - due to natural extended usage or through the unit accidentally being left in the on state – the unit should be fully recharged as soon as possible to avoid irreparable damage to the battery cells.

***N.B. DO NOT USE ANY BATTERY CHARGER OTHER THAN THAT SUPPLIED; AS THIS COULD RESULT IN DAMAGE TO THE BATTERY PACK.***

When the charge period has elapsed, disconnect the AC supply to the charger **first**, and then unplug the connector from the socket on the detector. Charging can be terminated before the 14 hour period has elapsed if the unit just requires a top up charge. NB. The operational usage time on a full charge with a healthy battery pack will be in the order of 8 to 10 hours, recharging will require a 1 hour charge time for each hour of usage; in other words a 1:1 usage/charge time to replenish. Some earlier types of charger had a 6 hour time out period requiring the charger to be switched off and back on to extend the charging to periods exceeding the 6 hour cut off.

2. For initial testing on dry land a beach is the ideal venue; allowing easy burial of a range of test items, alternatively a piece of soft ground that will allow easy burial of items. Note. Testing can be carried out without burial of test items; however it is more constructive to have items buried out of site to learn the pinpointing technique.
3. To prepare the AQ1B for use, plug the connector on the sensing coil into the LOOP/PROBE socket and screw down the retaining collar. This should be good finger tightness only.

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***N.B. PLIERS OR OTHER TOOLS SHOULD NOT BE USED TO TIGHTEN THE PLUG COLLARS. THESE ARE DESIGNED TO BE USED FINGER TIGHT WITH THE BLACK RUBBER BULKHEAD SEAL IN PLACE ON THE PLUG PINS. OVER-TIGHTENING, OR INSTALLING THE PLUG WITHOUT THE RUBBER SEAL CAN PERMANENTLY DAMAGE THE SOCKET, WHICH MAY CAUSE THE CONTROL UNIT TO FLOOD.***

***Note: plugs can only be inserted one way round due to the polarising pin.***

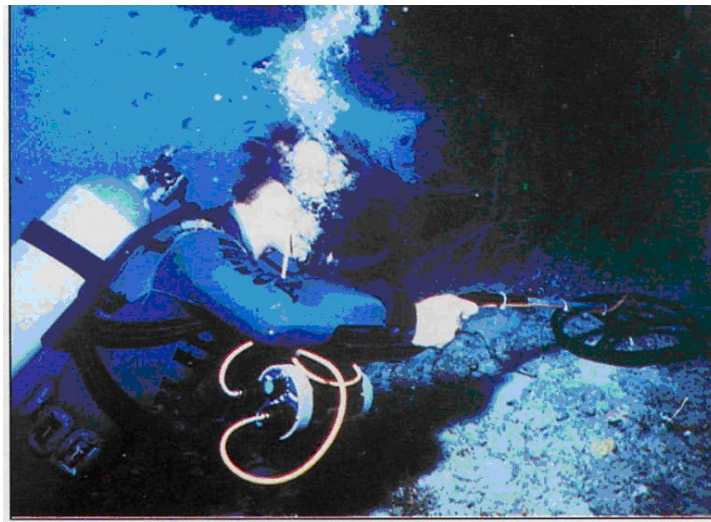
4. Plug the connector on the Bonephone (or headphone) lead into the PHONE & CHARGE socket and screw down the collar as above. NB. For testing on land the headphones – if available - are much easier to work with.
5. Hold the search loop well away from any metal and switch the unit on by rotating the REJECT control to the MIN position (first position clockwise from OFF). If a continuous sound is heard immediately, the SET AUDIO control should be rotated anticlockwise until the audio threshold is reached; this is indicated by a low frequency ticking sound. Alternatively, if the unit is initially silent, the SET AUDIO control should be turned clockwise to reach the audio threshold. The audio can be set so that a normal slow ticking sound is heard, or alternatively set slightly below the threshold so that operation is initially silent.  
**Note: The Set Audio control is capable of 10 full 360 degree rotations. DO NOT try to turn this control past the stop point in either direction as irreparable damage will result to the control.**
6. Initially test the operation of the detector by scanning the loop over metal objects e.g. a coin, keys or any convenient metallic object. The audio note will rise rapidly reaching a maximum pitch when the object is centred on the loop axis.
7. Ideally additional checks are made on pieces of buried metal to give the operator more realistic practice of pinpointing objects. Scan the loop from side to side and locate the position of maximum tone. Repeat the scan in the forward and backward directions. The point where the audio is at a maximum on both scans is where the object lies. Alternatively, note the initial threshold of change in tone for each scan to define the detection boundary, the object will lie in the centre of the bounded area.
8. Check the detector on various sizes and shapes of both ferrous and non ferrous metal objects to get a 'feel' as to how it responds on different targets.
9. The 6-position 'REJECT' control, when set at its lowest setting (MIN – 1<sup>st</sup> position clockwise from the OFF position), will give maximum sensitivity to small gold rings and thin section foils. As the setting is increased by turning the control clockwise from settings 2 through 6, the detector will 'reject' signals from silver paper, ring pulls and other low mass non ferrous objects.

**NOTE: DO NOT TRY TO TURN THE REJECT SWITCH PAST THE 6<sup>TH</sup> POSITION AS PERMANENT DAMAGE WILL OCCUR. THE SWITCH WILL STOP AT THE “12’OCLOCK” POSITION – IT WILL NOT TURN ALL THE WAY TO THE “MAX” MARKING ON THE TOP LABEL OF PRE-2011 CONTROL UNITS.**

10. Having performed the above checks, switch the unit to OFF. The **Aquapulse 1B-Compact** is now ready for use on land or underwater.

## **Underwater Operation**

1. The control unit of the detector can be worn or carried in a number of ways, the choice will be influenced by which of the sense head variants is being utilised. The most obvious choice is worn on the waist secured by the quick release buckle, however, if the 38cm (15”) loop is being used the control unit can be fitted to the lower cup of the “armsaver” section. Other options include strapping to the upper arm, clipping to any suitable position on the diver or attached to a container that may be used for collecting detected items. When the armsaver is being used one of the small straps should retain the control unit, whilst the other should act as a brace for the forearm in the upper cup.



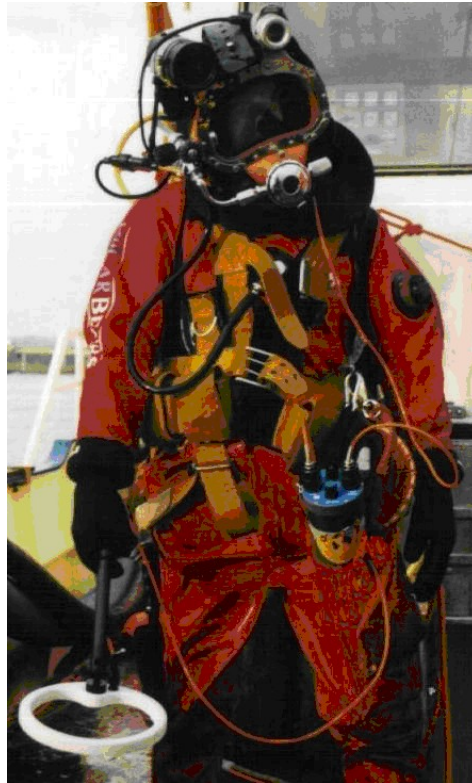
*The above image shows the control module attached to the armsaver*

2. The Bonephone should be placed under the hood; if no hood is worn it can be placed under the strap of the facemask or under a suitable neoprene headband. Position the Bonephone so that it is on a bony part of the head close to the ear.

**NOTE. NEVER PLACE THE BONEPHONE DIRECTLY OVER THE EAR AS THIS COULD INTERFERE WITH PRESSURE EQUALISATION.**



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*Diver prepared for EOD survey using AQ1B-Compact/20cm - Harness mounted*

3. Dive to the area of seabed to be searched.
4. Switch the unit on (one click, to the MIN position) and rotate the SET AUDIO control to achieve the audio threshold point, keeping the search loop at arms length and slightly up from the seabed, this avoids detecting any metallic part of the personal diving equipment or any buried items while the audio threshold is set.
5. Begin your search by scanning the loop from side to side close to the seabed in a fanning action. Avoiding passing the loop close to regulator, air tanks or weightbelt as these or any other metal object on the diver, will give responses.
6. If too much signal is obtained from the seawater such that the 'SET AUDIO' control will not achieve the desired threshold, turn the 'REJECT' control one click at a time, clockwise until the 'SET AUDIO' control comes back into range.  
**NOTE 1: There are only 5 REJECT positions – from the OFF position you can only turn the REJECT switch 5 clicks clockwise. Do NOT attempt to turn the switch past the 5<sup>th</sup> position or permanent damage will occur.**  
**NOTE 2: Different water depths will make a small difference to the threshold Setting; this can be readjusted by the control knob. This depth related effect does not occur in fresh water.**



## Detection & Interpretation:-

Detection of buried metal is indicated by an increase in the audible signal when the detector head is passed over a localised area of the seabed, with maximum response being obtained when the head is centred over the object. The shallower the object the more pronounced the peak response will be, whereas deeper objects tend to give a more gradual change in response as the head is panned across the seabed.

**NOTE.** Due to the sampling method of the AQ1B system it is possible when detecting large metallic objects to go beyond the peak audible change and into a “saturation” mode where the audible signal will disappear. The changes that occur in the observed response are very non linear with proximity and in fact increase by a factor of 64 times each time the distance between the object and the sense head is halved, this ultimately leads to dramatic overload in the sampling system. In such cases it is advisable to keep the sensing head sufficiently high above the seabed to maintain an audible response whilst the sensing loop is passed over the area; this should allow the centre of detection to be noted.

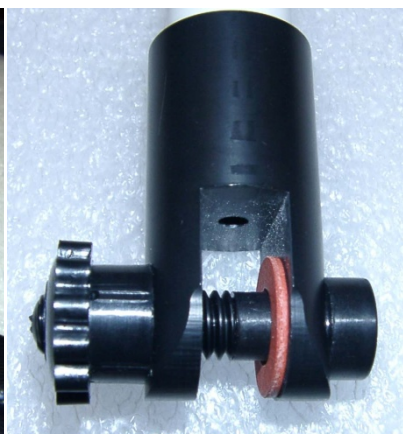
Rather than looking for the peak response over the centre of the metallic object another option is to define the boundary of detection, this simply is done by noting the point that detection is first indicated when scanning towards the object from multiple directions. When excavating very small detected objects it can be sometimes difficult to actually see the item, a method of checking sediment as it is removed is to put the detector head to one side of the area to be excavated and drop the removed material on to the sense head – this will easily determine if the object has in fact been removed with the seabed material. The sense head can then be used to recheck the excavation for any further metallic items.

## Using Arm Saver Kit with 38cm Loop

1. Place the 38cm Loop on a flat level surface.
2. Remove the Nut, Bolt and Washer from the Lower Shaft and place the “friction” Washer in the recess on the Swivel Connector at the centre of the Loop as shown.



*Washer in connector recess*



*Nut, Bolt & Washer*

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3. Next slide the end of the Lower Shaft over the Washer and the Connector as shown below.



4. Secure the Lower Shaft in place using the Nut & Bolt you removed from Lower Shaft in step 2.



5. Now slide the opposite end of the Lower Shaft inside the Arm Saver as shown below and secure with the Nut and Bolt from the Arm Saver.



*Note: There are three possible securing positions on the Arm Saver so that you can select the one which is more comfortable for you and most suitable for the job you are carrying out.*

6. The top of the Arm Saver is designed to secure the operators arm and the AQ1B Module with the Velcro straps supplied. The module is placed so that the Velcro

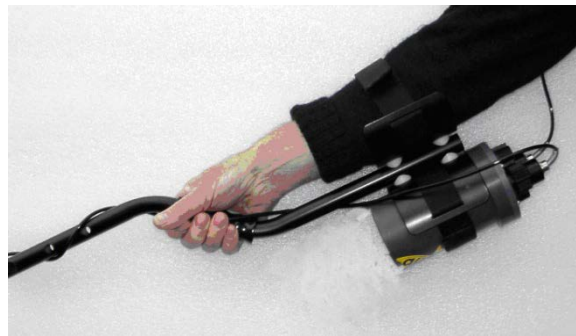
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on the body mates with the Velcro in the lower cup (shown uppermost below), the Velcro on the strap then allows the strap to secure the module firmly in place



7. When assembled the upper stem and module should appear as in the image below; this also shows the upper cup located and secured to the operators arm. This arrangement works equally well on land or for underwater searching.



8. The image below shows the upper and lower stems attached to the 38cm loop & fitted the AQ1B control module.



9. With all the AQ1B configurations the control unit can optionally be used with a waist belt as shown below, the belt is fitted with a quick release cam buckle for securing the belt in place. The method of assembly is similar to section 6 above.

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First the module Velcro is engaged with the Velcro on the inside of the belt; then the inner straps are closed to secure the module to the belt.



## Care and Maintenance

Proper care of your **Aquapulse** will be repaid by a long and trouble free life and attention should be given to the following points: -

1. After use, and before removing plugs, make sure that the unit is switched off, wash down with clean fresh water. **NEVER use chemicals to clean your detector as these will damage o-rings and seals, which can cause them to fail and allow the incursion of water into the control unit.**
2. Dry the detector paying particular attention to the area around the plugs. Clear any excess water by blowing. It is very important to keep the Ikelite connector sockets and pins clean and dry when not in use. Dirty or corroded pins and/or sockets will seriously degrade the performance of your detector. After disconnecting the cables, you can clean out the socket with a cotton swap and wipe off the plug pins with a soft rag. Ikelite does not recommend using silicone grease or any other material on the connectors. The rubber seal provides adequate isolation of the connectors from the water. Use of these type products tends to accumulate sand and other debris which can actually interfere with the seal and the signal transmission. **NEVER utilize petroleum products such as Vaseline on the rubber seal; these will harden the rubber seal making it non-functional.** The rubber seal should be replaced any time it becomes stiff, as this will interfere with its function.
3. Recharge the batteries if the total hours used is approaching 8 or more.
4. **Never** leave your **AQ1B-Compact** lying in the hot sun, as this could raise the internal temperature to the point where it may distort the case and harm the electronics. This warning also applies to Aquapulse accessories such as loops, probes, and bonephones/headphones.
5. The electronic unit is sealed and pressure tested in the factory, no attempt should be made to access the electronics. If any servicing is required, contact your supplier who will advise you where to send the unit. If you ever notice any of the screws becoming loose on the control unit, they should be tightened immediately.

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## Battery Care & Checking Battery Performance/Status

The AQ1B-Compact internal battery pack is an 8-cell NiMH series pack giving a capacity of approximately 2700mA/Hrs. This capacity relates to an operational period of approximately 8 to 10 hours from full charge. Note: self-discharge occurs naturally in a rechargeable battery. During inactivity this self-discharge causes the battery to slowly discharge itself over a period of months.

### 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 type is preferred since this measurement of voltage needs to be made to a resolution of tenths of a volt

1. With nothing connected to the detector, turn the detector ON (one click clockwise).
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 initially read about **11.2 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 9.6 volts. Once the voltage falls below 9.6 volts it will drop at an accelerated rate. The detector will not function correctly if it goes down around 8 volts or lower. If you measure the voltage and it is near or below 9.6 volts, it's time to re-charge the battery pack.



*Battery Test Points (shown on the Standard AQ1B)*



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## Checking Battery Pack Performance

***Note: If you feel you are not getting proper performance from your battery pack, you should perform the following battery pack test.***

- 1.0 Connect an Aquapulse Loop or Probe to your AQ1B-Compact module. Power on your AQ1B-Compact (MIN position – one click clockwise from OFF) and leave it on overnight to fully discharge the battery.
- 1.1 Power off the AQ1B-Compact and disconnect the loop.
- 1.2 Charge the AQ1B-Compact for a 14 hour period. The mains re-charger will automatically time out and drop to the low current state after 14 hours. The latest type of charger is identified by the multicoloured LED and its option of a direct connection to a mains socket or a “figure 8” mains lead. The predecessor to the current charger had a single state GREEN LED and a mains connecting lead, this version timed out after 6 hours and required to be switched off then back on to start a second 6 hour charge period followed by a final 2 hour top up to ensure a full charge is achieved.
- 1.3 Once the AQ1B-Compact is fully charged, disconnect the charger from the Mains and then disconnect it from the AQ1B-Compact.
- 1.4 Connect an Aquapulse sensing loop and Bonephone or Headphone to the unit and switch it on to the MIN position. Set the loop up away from any metal and adjust the SET AUDIO control to get a steady slow clicking sound.
- 1.5 Make a note of the detection range on a suitable test object.
- 1.6 Leave the system operating and re-confirm the functionality and detection range of the unit every 30 minutes - re-adjusting the tick-over as necessary.
- 1.7 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.
- 1.8 With a new battery pack, the operation time from a fully charged state should be in the range of 8 to 10 hours. If the performance becomes unacceptable after less than what you (the operator) determine to be an acceptable minimal operational period, then the AQ1B-Compact 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 NiMH batteries as hazardous material and dispose of your old battery pack in line with local guidelines.***



## Troubleshooting Guide

**Symptom:** *No Response from AQ1B-Compact Module*

Check the following:-

1. Check that the battery has been charged -
  - If not, place AQ1B-Compact on charge and then re-test.
2. Check that both Sensing Loop and Bonephone are correctly connected
  - Try using an alternative Bonephone/Aquapulse Headphones.
  - Try using an alternative Loop or a known good Aquapulse 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 Aquapulse Resistance Chart below: -

Item	Approx. 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
Land Headphones	15.0 (Minimum Volume)
U/W Headphones	10.5

**Symptom:** *Erratic Performance from AQ1B-Compact Module*

1. First check the resistance as in the above table.
2. Check that the metallic contacts of the bulkhead connectors are clean.
3. Check that the metallic contacts 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.

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## AQIB-Compact METAL DETECTOR SYSTEMS



### AQ.1.020

Standard 20cm (8" Kit) – Consists of Control Module, Quick Release Harness, Bonephone, Battery Charger & 20cm (8") Loop with Stem.

This is the most compact and economical version in the AQUAPULSE 1B-Compact range. The short folding stem allows the diver to stow the loop until required. The control module is pre-fitted with a D-RING connecting system. This version has the highest sensitivity to very small gold items due to the more focused sensing area.

See the accessories listing for an optional transit case for this version.

### AQ.1.030

Standard 25cm (10" Kit) – Consists of Control Module, Quick Release Harness, Bonephone, Battery Charger & 20cm (8") Loop with Extendable Handle. This version has a slightly more powerful sensing loop than the 20cm kit and longer reach due to the extending stem.

The extending handle allows for short duration use for beach and land searches. For extended use on land the complete Arm-saver assembly - as supplied with the 38cm kit - is a more practical solution.



### AQ.1.010

Standard 38cm (15" Kit) – Consists of Control Module, Quick Release Harness, Bonephone, Battery Charger & 38cm (15") Loop & Adjustable Arm Saver Assembly.

This version is the most powerful general-purpose search tool due to the large field of energisation created by the 38cm coil. This version allows a very wide sweep width - approx. 3m (10ft) and deep penetration into all types of bottom material.

## **AQ1B - ACCESSORIES**



### **AQ.4.061**

Aquapulse Bonephone: – Fully waterproof earphone, utilises Ikelite underwater connector to connect to the AQ1B-Compact Control Module. Normally placed against the skull at the back of, or below the ear whilst underwater, enabling the diver to clearly hear the change in the Detector tone when metal is sensed

### **AQ.4.062**

Aquapulse Bonephone with Extending Flexible Cable:– Fully waterproof earphone; utilises Ikelite underwater connector to connect to the AQ1B-Compact Control Module. Normally placed against the skull at the back of, or below the ear whilst underwater, enabling the diver to clearly hear the change in the Detector tone when metal is sensed. The AQ.4.062 is supplied with an extendable flexible cable which allows more freedom of movement with the Bonephone whilst underwater.



### **AQ.4.030**

Aquapulse Land Headphones: – Rugged headphones for use above water; enabling The AQ1B-Compact to be utilised as a powerful land detector. The Headphones feature an adjustable volume control and a comfortable fit for the user.

### **AQ.4.031**

Aquapulse Underwater Headphones. Rugged audio headphones for use underwater, offering an alternative to the Bonephone. These are particularly useful in warm waters where a diving hood is not normally worn. They also provide a more powerful sound level that can enhance the ability to sense even the most subtle changes in the audible output.



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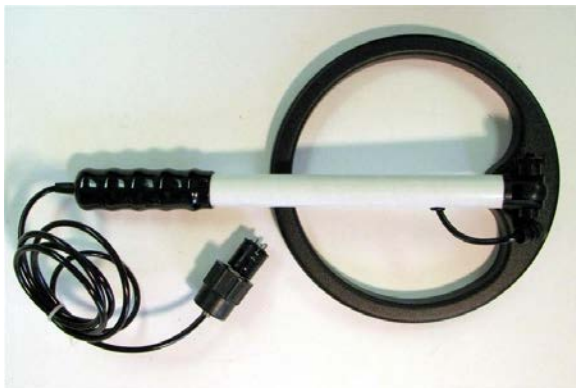


## AQ.4.000 part 1

Arm Saver – Used in conjunction with a 38cm Loop and Lower Shaft. Set of straps enables user to use forearm to comfortably support 38cm Loop for long periods of time. AQ1B-Compact Control Module can also be secured to lower cup of the Arm Saver.

## AQ.4.000 part 2

Lower Shaft – Used in conjunction with Arm Saver and 38cm Loop. Extends the sensing loop to a distance that eliminates background detection of metallic items on the diver. Allows the sense head to be swung over a wide arc for good search coverage. Locks into one of three Arm Saver positions to optimise the overall length



## AQ.4.080

20cm (8”) Loop with Stem – Fully Waterproof compact search loop uses Ikelite underwater connector that enables the Loop to be easily connected and disconnected.

## AQ.3.001

20cm (8”) Loop – Same loop as AQ.4.080 but comes without Stem & Handle. This can be used with the Extending Handle (AQ.04.001) and the Arm Saver kit (AQ.4.000)

## AQ.3.002

25cm (10”) Loop – Fully Waterproof robust, mid-sized search loop uses Ikelite underwater connector that enables Loops to be inter-changed. AQ.3.002 is normally used with the extending handle to give a flexible usage.





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## AQ.3.003

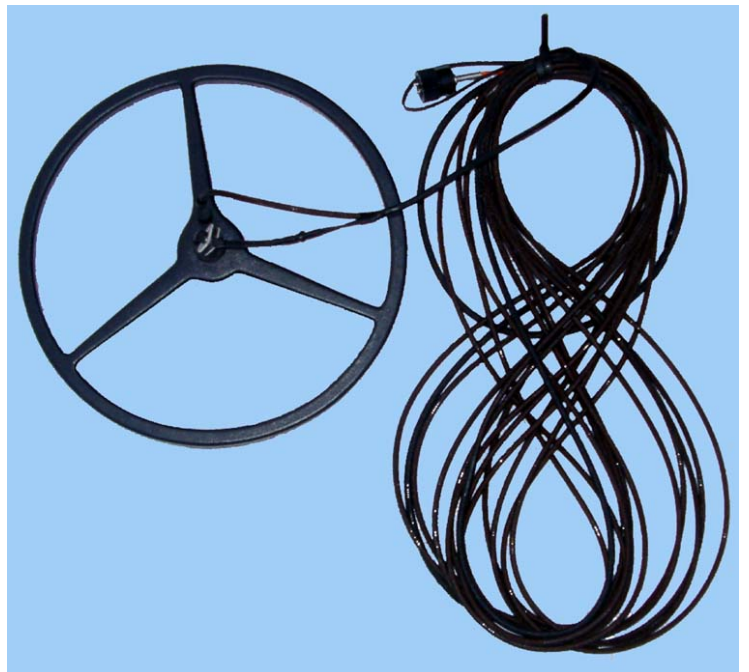
38cm (15") Loop – Fully Waterproof large search loop complete with Ikelite underwater connector. This loop gives the largest sensing range and supplied with the Arm-saver kit to give good sweep range underwater and a good balanced unit for land use.

## AQ.3.004

38cm (15") Loop supplied with a 20 metre (65ft) length of re-enforced cable and standard Ikelite connector for direct compatibility with a standard AQ1B detector.

The extended length of cable allows the sensing loop to be slowly towed behind a boat or simply lowered down for drift searching. This system of operation allows metallic contact areas to be located prior to deploying a diver.

This item is indispensable for extended shallow water searches in low visibility conditions.



## AQ.04.001

Extending Handle – Used mainly in conjunction with the 25cm Loop, fully extendable between 45cm & 87cm.

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## AQ.2.010

AQ1B-Compact Control Module: – The main item of the AQ1B-Compact detector kit. This is a fully sealed electronic control module with a diver depth rating of 100m (tested and proven by divers beyond this depth).

The control unit features a multi-turn adjustment for audio (detection) threshold. The primary control is the rotary on-off power switch which also provides an element of rejection as it is rotated clock-wise, this is primarily intended for the rejection of “ring pulls” during beach search applications; or to accommodate excessive background signals from very high salinity water. In addition to the electronics, the control unit houses the NiMH rechargeable battery pack.

## AQ.4.010

Battery Charger – Switched mode unit with 100v to 250v AC 50/60HZ input voltage range. This is used to recharge the internal battery pack AQ1B-Compact Module. The charger can be supplied with option of US, UK or European type Power Connector.





# AQ1B Compact Underwater Metal Detector User Manual



## **Manufacturer Contact Information**

If you should need to contact Aquascan International Limited for advice on your purchase, to order further equipment or to arrange a repair, please use the following contact information: -

Mailing Address:

Aquascan International Limited  
Aquascan House  
Hill Street  
Newport  
South Wales  
NP20 1LZ  
United Kingdom

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Website: [www.aquascan.co.uk](http://www.aquascan.co.uk)



## **Aquascan International Ltd. EC Declaration of Conformity**

We hereby declare that the following equipment complies with the essential requirements at the Electronic Compatibility Directive (89/336, 91/26 3 and 92/31).

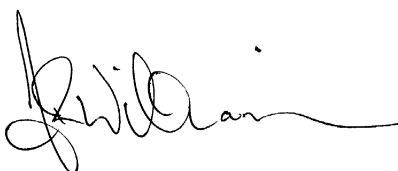
This equipment should not be modified, without our approval, as this declaration will lose its authority.

**Equipment description: - Marine Metal Detector.**  
**Model: - Aquapulse 1B-Compact.**  
**Manufacturer: - Aquascan International Ltd.**  
**Aquascan House**  
**Hill Street**  
**Newport,**  
**NP20 1LZ**  
**S. Wales.**

Tel: +44 (0) 1633 841117  
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**Applicable directives: - EN 55011 General Emission Standard Class A,  
Group 1.**  
**EN 50082 Generic Immunity Standard Part 2.**

A technical construction file for this equipment is retained at the manufacturing base.

**Signed :**  **Date :- 1st January 2009**  
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**J. R. WILLIAMS** **Managing Director**  
**Name :- .....** **Position :- .....**