

HT-2000 Battery Backpack Electrofisher Manual



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Introduction

Halltech's HT-2000 Battery Backpack Electrofisher is a 24-volt Battery powered Electrofisher enclosed in a watertight Pelican case, mounted on a non-conductive backpack frame. The HT-2000 works effectively in waters with high to low conductivity.

A 24 volt rechargeable battery powers the HT-2000. Each HT-2000 unit is supplied with two batteries and a charger to extend operating time. Smaller batteries are also available for light duty.

The HT-2000 transforms the battery output into higher voltages. The output voltage is variable from 50-950 V using 11 settings. The output frequency is variable from 5-250 Hz using 11 settings. The absolute maximum output power produced by the HT-2000 Battery Backpack Electrofisher is 2 kW peak at a **2 mSec max. pulse width**.

The Battery and electrical circuits are contained in a water tight, rugged Pelican case, attached to a non-conductive, durable pack frame.

The pack frame straps are adjustable to fit a wide range of body sizes. The straps are also equipped with military-style quick release shoulder harnesses.

To remove the unit quickly, release the waist belt and pull down on the red release straps.



The HT-2000 Battery Backpack Electrofisher is also equipped with two LCD displays. One is the eight-digit seconds counter and the other is a four-digit readout connected directly to the multifunction meter. The multifunction meter can display mean current, peak power, and battery voltage.

The HT-2000 comes with a wide range of safety Features: Red strobe light, audible “power on” alarm, water immersion alarm, tilt alarm, waterproof internal battery, anode pole operator switch, electrode out of water shut off, emergency shut-off switch on pulsator unit (ESO), non-conductive light-weight backpack frame, and harness quick release mechanisms.

Light emitting diodes (LED's) indicate which feature was triggered. The LED's and audible alarm indicate when an overload, immersion, low battery, electrode out of water, or tilt sensor has been tripped.

Each new unit is supplied with a lightweight fiberglass telescoping anode pole (straight grip or crutch style) with waterproof switch, anode ring, and stainless steel trailing cathode. These accessories along with the batteries and charger fit in the field case provided and should always be contained therein during transport.

Important Instructions

Lithium Ion batteries are quite different from the ubiquitous Lead-Acid battery we have grown to love and hate. Lithium based battery technology is considerably more advanced than Lead-Acid. In order to package more electrical capacity into a smaller and lighter packaging, these batteries need to be treated different. Many of the habits we have become accustomed to with handling batteries, need to be re-examined.

Lithium Ion batteries are always shipped to the customer in a semi-charged state as an industry standard practice. Please charge them prior to using them.

It is not necessary or even desirable to discharge our Lithium Ion batteries prior to charge. Doing so would be a waste of electricity, promote excessive wear and tear on the battery.

In comparison to the old Nickel Cadmium batteries, which HAD to be discharged in order to avoid “memory effect”, Lithium Ion batteries are focused on the ideal model of what a battery should be like, without suffering any of the idiosyncrasies problems associated with Nickel Cadmium batteries.

Lithium Ion batteries require NO trickle charge or top up (these actions would be very detrimental to their life span, the opposite of what Lead-Acid batteries require). Their full capacity is immediately available. There is no significant “break in” period such as there may be with Lead-Acid batteries whose full capacity is not immediately available when new and takes a few usage cycles to build up.

The day before any planned expedition, please begin to charge the batteries, one at a time to full capacity through the night. A single battery **from a state of full discharge should take about 5 to 6 hours to be fully charged** (the green light will let you know). If a battery has already some charge within it, the charge time will be proportionately reduced.

A partially charged battery does NOT need to be discharged prior to accepting any fresh charge. There is no danger of a partially charged battery becoming over-charged if it is placed on charge, since the intelligent circuitry in the charger will detect the state of the battery and charge only up to the prescribed maximum voltage and current levels.

It is not recommended to charge two batteries in parallel at a time from a single charger. The specially designed charger is matched to charge these batteries one at a time and will automatically stop charging (shining the green light) when the batteries are at maximum charge.

Only the supplied charger should be used to charge these batteries. Any other charger, be it plug-in, automotive or solar, may cause harm to the batteries. They could overheat or be overcharged, (all Lithium type batteries are sensitive to overcharge, as little as 0.05 Volt can spell the difference between fully charged and overcharged, which is why the charging requirements on Li Ion are stricter) which would render the warranty null and void.

Once properly charged, use them normally without having to completely discharge them - that would be unnecessary and will only waste the battery capacity. If during normal usage, the battery happens to discharge to the point of automatic shutoff, switch over to the fully charged backup battery and set the discharged battery aside in a cool dry place.

Never attempt to recharge an excessively warm battery (this applies to any and all battery types). First, wait for it to cool, then charging will be more effective.

If the battery has discharged to the point of automatic cutoff, please be sure to recharge the battery within a reasonable period of time (<1 week). For your regular usage, there is no harm in charging them to full because due to regular use they will soon be running an electrical load.

The notice of leaving the batteries only at a partial charge **only** applies to long-term storage **and not for regular planned and scheduled usage**. If the batteries are going to be unused for a significant length of time (more than a month), it is best for their lifespan to leave them somewhere between a full charge and empty charge and store them in a cool dry place. Some folks have stored them in the fridge where 6 months storage time is possible with very little loss in charge.

For long term storage over the winter months, be sure to put them onto a charger every 3 months, let the batteries charge for 30 minutes to 1 hour just to maintain some charge level within them. Keep them cool and dry, never allow them to freeze or become immersed in water (that goes for any battery). These batteries contain protection circuits which guard against excessive discharge (cutting off the battery from the load until charge is applied) and short circuits. There is some “intelligence” designed into them, helping them approach an ideal model of a battery.

Controls and Features

The HT-2000's controls, except the emergency shut off switch (ESO) and anode pole switch, are located within the watertight Pelican case. The front panel displays, controls, and connectors are shown on page 6 and described below.

Halltech's new anode design is very different from historical anode designs. The HT-2000's anode is a telescoping pole that allows the anode to be reduced to half its size to allow easier transportation and storage. It may also be adjusted to a comfortable length based on the operator. The anode ring angle is also adjustable. If desired we also offer an anode pole that comes equipped with a crutch style handle. The crutch style handle allows the user to grasp the anode with greater ease. There is also an area on the handle where a strap can be added to reduce fatigue to the users arm.

The switch on the anode is the last of three safety switches; the anode switch must be depressed in for the unit to produce an output voltage. The **output voltage switch** is located in the middle of the unit on the far right side. The output voltage ranges from 50-950 V in 11 steps (50, 100, 150, 250, 350, 450, 550, 650, 750, 850, 950V):

- 50 to 350 volts are typically used in high conductivity waters (>300 microsiemens).
- 450 to 750 volts work best in moderately conductive waters (100 to 300 microsiemens).
- 850 and 950 output voltage should typically only be used in low conductivity waters (less than 100 microsiemens).

Increasing the output voltage just one step may increase the output peak wattage 100% plus or minus depending on the conductivity on the water and the voltage setting.

The **Frequency [Hz] switch** is located in the middle of the unit on the far left side of the panel. The output frequency is in a range from 5-250 Hz in 11 steps (5, 10, 20, 40, 60, 80, 100, 130, 160, 200, 250Hz). The frequency is best described as the number of times the fish is shocked per second, or the number of pulse waves produced each second.

When first shocking a new site, **start with the lowest frequency setting**. Gradually increase the frequency until the desired effect is achieved. For example when shocking a body of water with a high conductivity (> 300 microsiemens) at an output voltage of 150 volts and a frequency of 60, and if you are rolling some fish but feel you are not shocking all of them, try increasing the frequency to 80 or 100 Hz before increasing the voltage to 250 V.

The **Multifunction Meter switch** is located directly in the middle of the panel. The multifunction meter readout is located at the top right of the panel. The multifunction meter can display mean current in Amps (xx.x display), peak power in Watts (xxxx display), and battery voltage in Volts (xx.x display).

The battery voltage option is very useful for checking the level of charge of the battery being used. The peak power option displays how many peak watts the unit is producing. This is also useful because the unit will automatically overload when this value becomes too high.

To indicate if a feature has been activated, the HT-2000 has been equipped with a series of LED lights located near the top of the panel. The **Overload Function** enables the unit to automatically shut down and sound the tone alarm when the output power becomes excessive.

The LED light located at the far left will light up if an overload has occurred. You must use a lower output voltage or frequency if an overload occurs. To reset the **overload LED** you must push the front panel reset button, cycle power with the ESO button or the ON/OFF switch located on the panel. Toggling the anode pole switch will reset the unit and allow it to continue shocking but will not clear the LED indicator lights. The front panel reset button and the seconds counter reset must be simultaneously depressed to reset the seconds counter.

The **Immersed Function** is a safety feature that will not allow the unit to operate when the water level is up to or above the anode connection on the bottom of the backpack unit. A sensor is connected between the two screws beside the anode connector. If these screws become immersed in water or if water is present between them the unit will shutdown, the tone alarm will sound and the **immersed LED** (second from the left) will light up.

The **Tilt Function** is a safety feature that will not allow the unit to operate if it is not perpendicular. If the operator was to fall or lean greater than 45° front and back or to either side, the unit will shutdown, the tone alarm will sound, and the **tilt LED** (second from the right) will light up. A pole switch reset will restore normal operation. If an operator were to fall, this feature would disable the unit.

The **Electrode out of Water Function** will inhibit output voltage when either the anode or cathode is not in the water. If the unit is running and an electrode is removed from the water, the unit will shutdown, the tone alarm will sound, and the **Electrode out of Water (EoW) LED** will light up. Areas exist where keeping both of the electrodes in the water all of the time is impossible. In extremely low conductivity waters, the electrode out of water feature is activated. These two conditions can be resolved by disabling the out of water feature.

The switch at the centre of the LED's (**reset and disable**) allows the operator to disable the function when needed. The operator must press the button to disable the feature every time the unit is powered on using either the emergency off switch or the ON/OFF toggle switch on the panel. For this reason, **the operator is consciously aware that the feature has been disabled. When the feature is disabled the unit will still be emitting an output voltage when one of the electrodes is out of the water.**

The operator must take every precaution not to allow any contact with either electrode because this could result in serious injury or death. The EoW disabled LED indicates that the anode is always live when pulsed, even when removed from the water.

In addition, the HT-2000 has indicators to notify the operator when the battery is too low to operate the unit effectively, and a LED to indicate if the fuse is blown. There is a **tone volume** screwdriver adjustment for the loudness of the alarm on the front panel.

HT-2000 Battery Backpack Electrofisher Operation

1. Plug the anode and cathode into their proper connectors located on the bottom of the Pelican case and install the battery. **NOTE: The Red/Black color coding of the battery connectors is extremely important. If your battery, in any way fails to match the Red/Black color coding, do NOT force the connection. Call us instead!** Circuit damage will result if the battery is incorrectly attached and this will not be covered by warranty.
2. Do not attempt to apply power to operate the Electrofisher to any other port **EXCEPT** the pair of **Red/Black** Battery terminals on the front left of the metal panel.
3. Connect the anode pole strain relief clip to the backpack frame. With the battery installed and properly connected, place the multifunction meter to “Battery voltage” and turn the unit on using the ON/OFF switch on the front panel, then pull and turn the emergency off switch to activate the unit. The readout in the display at the top right of the panel will tell you how much of a charge is in the battery. A fully charged battery will give a reading above 23V and no higher than 30V.
4. Make sure your anode ring and cathode tail are clean of any deposits or residue from any previous usage. Then get into the water and make sure both electrodes are properly set in the water. Choose the desired output voltage and frequency, starting always at a minimum value.
5. If the conductivity of the water is unknown, use a low output voltage (100 or 150V) and frequency (40 or 60Hz) to start. Depress the anode pole switch and observe the reaction of the fish.
6. If the unit is not producing satisfactory results, try increasing the frequency a few levels before increasing the output voltage. Only increase the output voltage one-step at a time, releasing the anode pole switch to change the electrofisher output frequency and/or voltage levels.
7. Repeat this procedure until satisfactory results are obtained. **Never change voltage or frequency ranges while the anode thumb switch is depressed - this will damage the unit.** By placing the multifunction meter to the peak power option, you can see the output wattage of the unit. Make sure the anode ring is not directly above the cathode because this will greatly increase the output wattage and is a common source of overloads and false alarms.
8. Check all of the units’ safety features and functions before using the unit each day. Ensure all operators are familiar with all controls and safety features. The anode pole switch should be toggled on and off to ensure proper operation.
9. The overload feature is tested by passing the anode ring over the cathode and the unit should overload and shutdown. The immersed function should be checked. An easy way to check this function is to hold a small piece of wire between the two small #4 screws by the anode connection, located at the bottom of the unit.

10. The immersed LED should light up and the tone alarm should sound when a connection is made between the two sensors. To test the electrode out of water function, submerge the anode, depress the anode thumb switch, and raise the anode ring out of the water. The alarm will sound and the unit will shutdown.
11. Test the tilt feature by depressing the anode thumb switch, and leaning either forward or to a side. The unit will shutdown and the tone alarm should sound before the operator reaches a 90° bend.

HT-2000 Battery Maintenance

Your HT-2000 comes equipped with either a sealed and fused 24 volt Lead Acid Gel Cell battery or a single Lithium Ion 24 volt battery pack as the primary power source for the electrofisher. It powers everything onboard except the seconds counter. A fully charged battery can range from 23 to under 30 volts depending on the condition and type of the battery.

It is essential to keep your battery in good condition. The following recommendations below will help you maintain your Halltech Electrofishing battery:



1. Always store your battery in a cool dry environment.
2. **Lead Acid Gel cell batteries:** Always store your Lead Acid battery FULLY charged. Complete full charge monthly or keep on trickle charge. Never store in a discharged condition nor allow self-discharge during idle times as this can negatively impact their useful life.
3. **Lithium Ion batteries:** For the longest useful life, store Halltech Lithium Ion batteries at a partial charge in a cool dry place, then charge to full capacity prior to use. Trickle-charge-maintaining or charge-topping up is **not recommended**. **Use only the matching charger**. Do not substitute any other charger. Never leave Lithium batteries totally discharged for more than several days as this can negatively impact their useful life.
4. **NEVER** mix **Lead Acid batteries** with a **Lithium charger**, or vice versa. Halltech Lithium Ion chargers are specifically matched to Halltech Lithium Ion batteries. **Halltech is not liable for any damages caused due to any improper charging of Halltech Lithium Ion batteries. Improper charging will void all warranties.**
5. Never charge any battery directly after use. Charging any warm battery can shorten its useful life. Do not continue to charge a warm battery.
6. Never try to quick charge from one battery directly to another. It could be extremely dangerous since all batteries have enormous energy storage capabilities. Use only the appropriate and matched charger to perform recharging duties.
7. **ONLY** use a Halltech-brand charger to recharge your Halltech Lead Acid or Lithium Ion battery. Inexpensive automotive/store bought chargers will either over or undercharge and do not have current sensing circuitry to protect the battery.

8. Halltech's HT-2000 has a built a warning light into the electrofisher, that alerts the user when the battery voltage is too low and alarms when the battery drops to 20 volts or lower. This feature is **not** to be used as an indicator of when you should charge your battery. It is simply in place to protect the battery from deep discharge and subsequent damage.
9. For the most effective electrofishing, always use a fully charged battery. When the battery drops below 24 volts the operator may see a difference in fish capture.
10. For storage in the off-season make sure to charge your **Lead Acid type** batteries at least once every month using either your HT-2000 smart charger or HT-2000 Maintenance charger.

***The **HT-2000 Lead Acid** Maintenance Charger is separately purchased from your electrofishing kit and can charge up to **4 (ONLY Lead Acid Gel) batteries** at a time with automatic trickle/de-sulphate mode (applicable only to Lead Acid type batteries, **not applicable to Lithium Ion batteries**). There is no need to disconnect your **Lead Acid Gel** batteries from your charger in the off-season. Leave them connected and enjoy longer service life from your Halltech batteries.

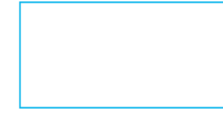
HT-2000 Electrofisher Troubleshooting

The following, is a troubleshooting section to help you correct some of the more common problems associated with using the HT-2000 Battery Backpack Electrofisher.

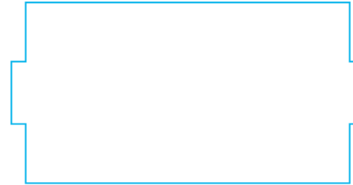
1. Turning the unit off and on by using the emergency off switch on top of the unit or the ON/OFF switch located on the panel is a **hard reset**. Toggling the anode switch on the anode pole is a **soft reset**.
2. A **hard reset** or pushing the front panel reset button is required to extinguish any of the LED light functions such as Overload, Tilt, Electrode out of Water, and Immersed. To reset the seconds counter, both the front panel reset and the seconds counter reset must be pressed simultaneously.
3. The voltage needed is very dependent on the conductivity of the water. If an overload occurs when the output is activated using the anode pole switch, it is likely that the conductivity of the water is too high for the voltage selected.
4. Reduce the voltage and activate the output again, continue this process until an appropriate voltage is selected. To compensate for using a lower voltage, increase the frequency to better the unit's results.
5. Focus on the fish being captured to ensure they are recovering quickly, and that no burns or spinal abnormalities are present. Immediately halt and reduce output voltage and/or frequency if the fish seem to become injured in any way.
6. The HT-2000 Electrofisher is equipped with a tilt feature that will not allow an output voltage to be produced if the unit is not in its normal vertical operating position. The unit's normal operating position is vertical, the same way it would sit on the operators back. A tilt condition is indicated by a tone alarm and the tilt LED will be lit up. Cycling power, using the emergency off switch located on top of the unit, will fix the problem.
7. Please note: Halltech supplied Lithium Ion batteries contain their own custom designed protection circuitry to guard instantly against excessive discharge and short circuits.



HALLTECH AQUATIC RESEARCH INC.
Model HT2000B/MK4/08 Electrofisher



SECONDS COUNTER



MULTI FUNCTION METER

OVERLOAD **IMMERSED** **BATTERY LOW** **RESET & DISABLE** **ELECTRODE OUT OF WATER DISABLE** **ELECTRODE OUT OF WATER** **TILT** **PHONE VOLUME**

40 80 100
 40 130
 20 160
 10 200
 5 250
FUSE 30A MAX
FREQUENCY Hz

MEAN CURRENT
PEAK POWER
BATTERY VOLTAGE



METER

350 450 550
 250 650
 150 750
 100 850
 50 950
OUTPUT VOLTAGE - VOLTS



OFF

+24V - DC BATTERY



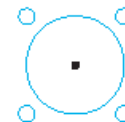
CHECK FUSE

INPUT POWER
24V 20A max
0.5 - 7A average

SERIAL NO. :

PEAK OUTPUT POWER: 2kW 2ms pulsed
FREQUENCY: 5Hz - 250Hz

24V DC
BATTERY CHARGER



CATHODE

ANODE

HALLTECH - HT2000B/MK4/08 ELECTROFISHER - OP WHITE
DEC 17/08 - WO#27533

Halltech's HT-2000 Battery Backpack Electrofisher Specifications

Conductivity Range:	10-2000 microsiemens/cm
Battery:	24 volt 10Ah Lithium Ion or 24 volt 7.5Ah Lead-Acid Gel Cell
Output Voltage:	50-950 V (50,100, 150, 250, 350, 450, 550, 650, 750, 850, 950V)
Output Power:	2kW peak (2000W) 2ms pulsed
Output Frequency:	5-250 Hz in 11 steps (5, 10, 20, 40, 60, 80, 100, 130, 160, 200, 250Hz)
Output Pulse Shape:	+ DC pulse 2 millisecond max
Weight:	22 lbs with Lithium Ion battery (33 lbs w/Lead Acid Gel Cell)
Overload Protection:	Automatic Fast Acting Electronic and 30A safety fuse
Electrodes:	Telescoping anode pole, stainless steel trailing cathode
Timer:	8-digit seconds counter with +/- 0.003% accuracy
Multifunction meter:	Mean Current (xx.x display) Amperes Peak Power (xxxx display) Watts Battery Voltage (xx.x display) Volts
Frontal Panel:	Rechargeable battery without disconnecting the unit

Standard Equipment Supplied

Halltech's HT-2000 Battery Backpack Electrofisher, telescoping or 3 piece anode pole, anode ring, trailing cathode, two 24V batteries (Lead Acid or Lithium Ion), matching battery charger, and a "Pelican" field case.

Parts Identification

Position of the Red "Power On" Strobe Light, "Emergency Off" Switch.
Rear view of the custom Backpack frame and straps.

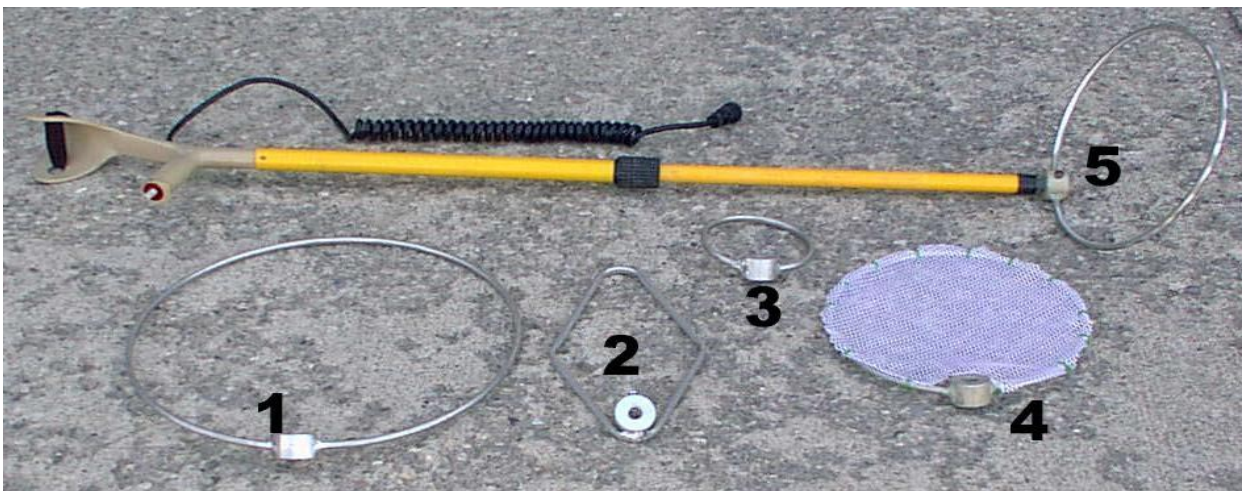


Telescopic Straight Anode Pole



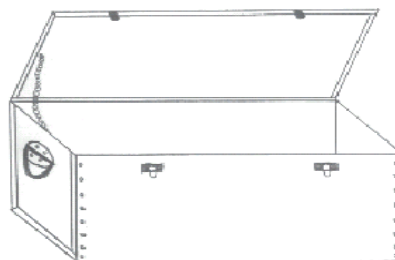
Anode Ring Options

- 1.....Oversized Round Anode Ring
- 2.....Diamond Shaped Anode Ring
- 3.....Small Round Anode Ring
- 4.....Round Net Anode Ring
- 5.....Standard 11" Round Anode Ring



Accessories

- 24V 10Ah lithium ion battery or 24V 7.5Ah lead acid gel battery
- Telescoping straight grip, crutch grip or 3 piece anode pole
- Anode rings (various shapes & sizes)
- Field case "Pelican"
- Matching battery charger
- Cathode tail
- Electro-fishing dip nets (various net shapes)
- Polarized sunglasses
- Shoulder length rubber gloves
- Excellent selection of GPS units
- Excellent sonde units and Y.S.I. meters
- Large assortment of hack kits
- Dry bags
- Fish measuring boards
- Head lamps and flashlights
- First aid kits



HT-2000 Electrofisher Return Instructions

If you are returning any Halltech electrofishing products for maintenance or service please complete the “REPAIR ORDER” form, and attach it to the equipment you are sending back.

Packing the HT-2000 or Any Other Electrofishing Equipment:

If your unit is packed in the new black field case, follow the instructions on the separate HT2000 Electrofisher Packing Instructions sheet under heading “Packing to ship”.

Securely pack the unit in its field case. If a field case is not available, choose an appropriate sized box (double wall with at least 4” of space surrounding the equipment). If you add additional items in the case, please pack them with extreme care as loose items are known to damage the strobe lens of the HT-2000.

Ensure that every part is packed in the kit (**unless instructed otherwise**). Cathode tail, anode pole, two batteries, charger, anode ring, and electrofisher unit with back pack frame attached.

Pack the surrounding space with packing material. Bubble wrap and expanding packing foam are recommended.

If the unit is being shipped across any border, confirm all the necessary shipping documents are securely attached to the field case or chosen box. Contact your shipping company if you are unclear of what documents are necessary.

If you have any other questions or concerns please contact us during business hours:

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Service@HalltechAquatic.ca
www.halltechaquatic.com
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LIMITED PRODUCT WARRANTY

Halltech Aquatic Research Inc. (HARI) warrants its own products against manufacturing defects and faults as well as faults due their parts and / or components, **for 2 years (24 months) from the date of receipt** of the product by the purchaser. This warranty is non-transferable.

This warranty will be **rendered null and void** and **HARI will bear absolutely no liability if a Halltech Lithium Ion battery, as supplied by HARI, is charged on a non-HARI supplied or otherwise improper charger**, causing damage to said battery or other material. **Use only Halltech-supplied Lithium Ion chargers on Halltech-supplied Lithium Ion batteries. Permit no substitutes.**

The warranty does not cover faults or damages caused by normal wear and tear, nor by natural causes or exceptional events, such as abnormal conditions, improper storage, exposure to moisture or immersion in water or other possible anomalous destructive conditions. This warranty does not cover unauthorized modifications, repair, misuse, neglect, accidental damage, abuse, improper battery connection or leakage, theft, blown fuses, or the damage caused by connection to any other electrical device.

This limited warranty does not cover consumables such as batteries, cathodes, anodes, chargers, anode rings, pack frames, cases, footswitches, dip nets or other accessory items subject to unregulated use.

In order to activate servicing under warranty, the interested party must send a return request in writing within 30 days of noticing defect using the appropriate form, taking particular care to describe the problem including all relevant customer details.

The form must be returned with the product as well as a copy of the original sales invoice. If after inspection by HARI and if the warranty request is refused, an estimate to repair the unit will be sent to the purchaser. If the estimate is refused by the purchaser, the product will be returned at the purchaser's expense plus a flat \$150 CDN bench fee.

The product must be purchased from HARI or an authorized distributor only.

The product must be appropriately packed to protect it from shocks and possible damage during shipping. HARI may reject returned goods that may arrive unsuitably packaged.

Returned products must arrive at HARI prepaid. Should the damage be due to faults and/or construction defects, HARI will cover the cost of return shipping. In some situations, HARI may reimburse the initial shipping charge to a maximum of \$150 CDN.

HARI, at its sole discretion, may replace the product or refund the purchase price in lieu of repair.

HARI shall not be liable for special, incidental or consequential damages, including but not limited to loss of anticipated benefits or profits, loss of savings or revenue, punitive damages, loss of use of the product or any associated equipment, capital cost, downtime, claims of any third parties, cost of substitute equipment or damage to property.

Purchaser acknowledges that the product outputs high voltages and current for use in aquatic environments and the equipment should only be used by those properly trained and certified in the use of Electrofishing equipment. HARI accepts no responsibility for the training of the purchaser, employees or contractors doing work on behalf of the purchaser.

Governed by the laws of the Province of Ontario, Wellington County, Ontario, Canada. Effective Date: January 1, 2012



HALLTECH Aquatic Research Inc.

REPAIR ORDER
Please Enclose With Unit

Bill To

Company	Contact
Address	Phone
City	E-Mail
Prov/State PC/Zip	PO#

Ship To Check if same as Bill To

Name	Phone
Address	City
Prov/State	PC/Zip

Unit Information **In Warranty** Yes No

Unit Type	Model#	Serial#
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Symptom/Problem

Special Instructions

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Shipping Instructions

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Thank you for using Halltech Aquatic Research Inc.