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Advanced Ultrasonic Antifouling Installation / User Manual - MK. III



www.CleanABOat.com

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CleanABOat.com Advanced Ultrasonic Antifouling:
Improved Economy | Improved Performance | Improved Range
| Environmentally Friendly | Simple to use | Reliable |
Huge Cost Savings over time.

Congratulations on your purchase of your new Ultrasonic Antifouling System!

CleanABOat.com Advanced Ultrasonic Antifouling is designed as an advanced protection system to destroy algae and prevent barnacles on your hull.

This device uses an advanced Digital Ultrasonic sound wave system and as such does not penetrate or interfere with the hull. Our system mounts to the inside of your hull using the provided high quality mounting and bonding agent.

Because of our simple installation method the system can be installed with the boat in the water or out of the water without any concerns.

Our system is the most Advanced Micro controlled Digital Ultrasonic System available and once it is installed and turned on it just works! Our advanced system is Australian made from the highest quality components available around the globe.



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DISCLAIMER

Due to the nature of the vessels this product is installed in, there may be confined spaces i.e. in the bottom or “bilge” of a boat. There may be residual fuel or other fumes in this space so extreme care and safety must be exercised at all times. During the installation of this system you may be in a claustrophobic environment, we advise that an observer/assistant is with you at all times when you undertake this installation.

You will need to know a few skills if you are to correctly perform the installation yourself. It would be beneficial to have experience with sanding, drilling, a familiarity with mixing and handling of epoxy bonding resins and glues and their application process, and a moderate understanding of electronics including your vessels configuration.

The success of this product is DIRECTLY proportional to the quality of the installation.

If you are unsure if you are capable of performing the installation or have any questions, concerns or doubts about what is mentioned here or the procedure outlined for the actual installation in this user manual we advise you contact us or employ a CleanABOat installer or shipwright/marine electrician to perform the installation for you.

CleanABOat.com can take no responsibility for a defective installation, nor injury or damage to persons or property.

IMPORTANT! READ THIS MANUAL IN ITS ENTIRETY PRIOR TO COMMENCING ANY OF THE INSTALLATION PROCESS.

SAFETY CONCERNS

WARNING! Electrical Safety

The 12-24VDC power supply to the device MUST be protected by a suitable in line fuse or circuit breaker on the positive wire. Fuse Ratings outlined in wiring instructions below. Please Note: Previous Models MK1 and MK2 Models only accept 12VDC.

WARNING! Cable Connections

Prior to opening the unit or connecting any transducer cables you must ensure the unit is switched OFF and the in line fuse is removed, if a circuit breaker was used ensure it is OFF. Failure to do so may cause damage to the unit OR to your person.

WARNING! Performance

Our CleanABOat Advanced Ultrasonic Antifouling System must be installed in accordance with the instructions provided in this installation user manual. Failure to install correctly may result in reduced performance and effectiveness, or cause personal injury and/or damage to property.

WARNING!

It is advised that you do not swim under the boat close to the hull for any extended period of time whilst the system is operating. We recommend using the sleep button on either the Helm Control or on the face of the unit itself during swimming under or adjacent to the boat.

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Installation Fusing

For installation an in-line fuse should be placed between the battery and the Module. The rating of this fuse should be based on the information below. If possible the system should be wired into the vessel's main fuse box.

Power source 12 - 24VDC

Red Wire (+) positive

Black/White Wire (-) negative

- Double System – 10 Amp fuse in-line
- Quad System – 15 Amp fuse in-line

While installation of our device using this manual is a relatively simple process, if you are not feeling confident or are in doubt, seek professional advice, we have a list of Installers available on our website www.cleanaboat.com and can also provide technical support by emailing info@cleanaboat.com and our helpful team.

Enjoy your advanced Protection system.



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Hull Transducer Mounting / Positioning

Transducer mounting is important as the success of your installation is governed by the effectiveness of the transference of Ultrasonic Sound waves into the hull of the vessel. For this reason we will give you instruction and guidance on how to select the most appropriate locations and what to avoid when selecting the location.

Hull Construction

Of great importance is the construction material of the hull. Due to the nature of ultrasonic sound waves it is critical that your hull be of a construction material that lends itself to the easy propagation of ultrasonic sound. GRP (Glass Re-enforced FibreGlass), Aluminium & Steel are the only construction materials that ultrasonic antifouling will work on.

Hull Mounting

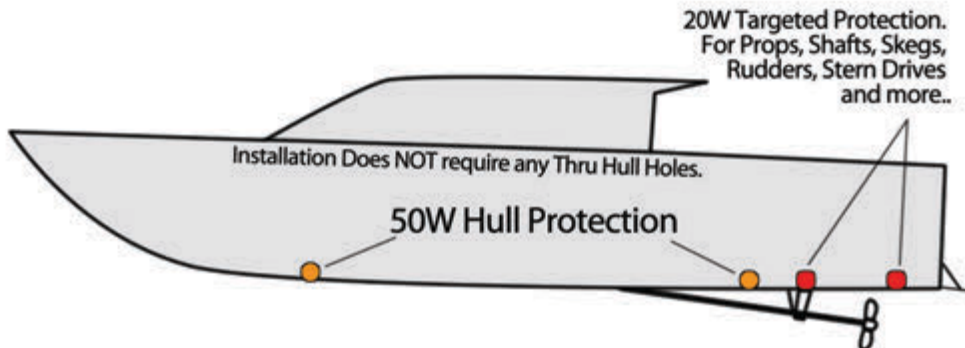
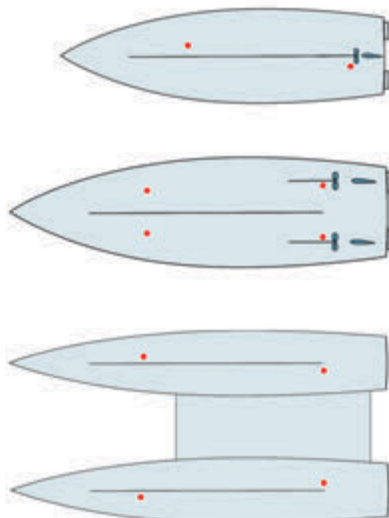
It is important to ensure you are bonding your transducer directly onto the hull, ensuring you are not bonding to a false floor, cavity, over a keel, or on the inner layer of a balsa/foam cored vessel.

Obstructions

Avoid mounting your transducers close to any large objects which may act as obstructions to the Ultrasonic sound waves. This includes things such as water tanks, bulkheads, bearers, stringers, transom, fuel tanks, etc. It is best to be approx. at least 30cm from any such obstruction.

Positioning

Above right is a guide to the actual locations that we have found work best. Use this as a guide to find suitable locations in your vessel. Also refer to the above instructions, Hull Construction, Hull Mounting and Obstructions to assist in the final location positioning.



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Preparing the Surface for Transducer Mounting



Example of good contact with fibreglass hull

It is important to prepare the location for the Ultrasonic Transducer correctly. The requirements for best Transducer Mounting are as follows:-

- Clean flat surface
- Direct connection to Hull, this includes removing any spacing or other layer such as sandwich foam or balsa core.
- If Steel or Aluminium, do not connect over welds or seams in the material, ensure flat surface free of debris.
- Avoid placing close to bulkheads or structural joins in the vessel, these can reduce the effectiveness if mounted too closely.
- Ensure the surface is keyed / sanded using 120 - 200 grade sandpaper and thoroughly clean prior to Transducer / Mounting Ring Bonding

Mounting your Transducer / Mounting Ring



1. Prepare the underside of the Transducer mounting ring by sanding it until dull (100-400 grit paper). Then clean thoroughly.



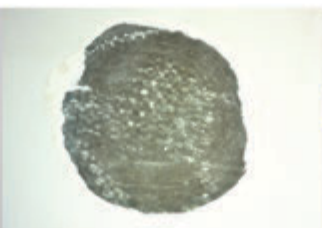
2. Squeeze out equal parts of the bonding agent supplied with your Ultrasonic Antifouling kit.



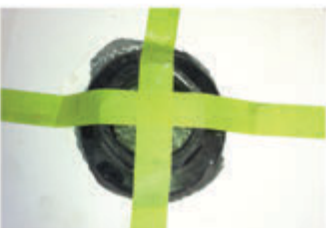
3. Thoroughly mix the two parts together; the colour will be consistently grey throughout. Ensure you mix until the colour is consistent.



4. Apply an amount to the outside portion of the mounting ring as shown above. Avoid getting any compound on the thread or close to it.



5. Double check that you are on the hull is prepared and cleaned correctly. Cleaning should be performed with Acetone.



6. Ensure even pressure, push the mounting ring onto the prepared area as shown above. Using a quality tape hold the ring in place so that it will not move. Allow 24 hours for the ring to bond with the hull.

NOTE: Ensure there is no bonding resin oozed onto the inside area or thread of the mounting ring. If there has, clean this away as it may cause an obstruction to the transducer when we screw it in place.

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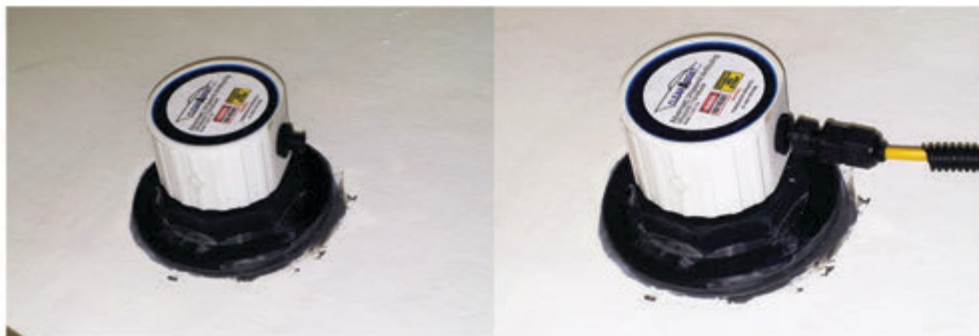
It is very important that the face of the transducer remains in solid contact with the hull at all times. It is for this reason that we recommend bonding the transducer to the hull as per the below instructions. While this will make it difficult to replace or move a transducer should the need arise it will allow the system to operate much more effectively. The bonding of the transducer will also prevent the transducer coming loose at any time due to environmental factors, such as engine vibrations, hull flexing, etc.



7. Ensure the face of the transducer is clean from debris. Use acetone or similar to clean the surface in preparation for bonding resin.

8. Apply a even film of bonding resin to the face of the transducer as per above

The Application of this film will also assist in filling highs and lows on the surface of the hull.



9. Screw the transducer, with it's film of bonding resin on the face, down into the mounting ring that has now cured. Ensure that the transducer is screwed down all the way in perfect contact with the hull. Only hand tighten.

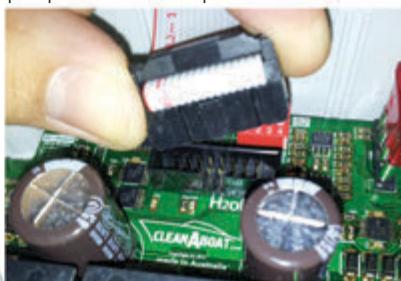
10. Plug in the provided Transducer cabling, ensuring that the locking shroud is locked in place.

NOTE: Avoid excessive vertical stress on the cable connector.

Removing the Control Module Lid

Unscrew the four philips head screws. These screws will likely not unscrew completely, they are designed to stay with the front lid.

Lift the front Control Module Lid slowly to reveal the lid connector. Holding both sides of the lid plug carefully pull up to remove. Do NOT pull on the cable.



NOTE: It is important that you are careful not to touch any of the electrical components inside the module. Also avoid dropping anything in.

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Cabling and Connecting Transducers

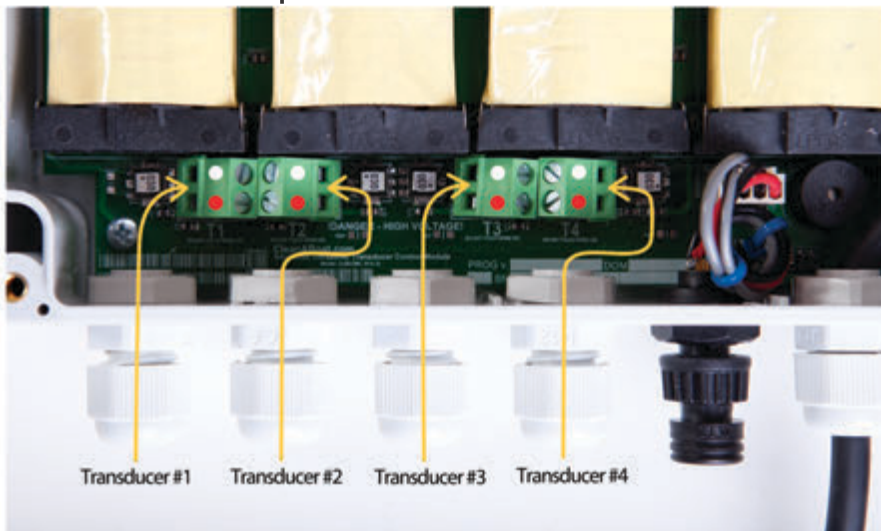
Once you have installed your Transducers it is time to run your cables from your transducers to the final location of your Control Module and connect them up.

Important Notes for Running of Transducer Cables

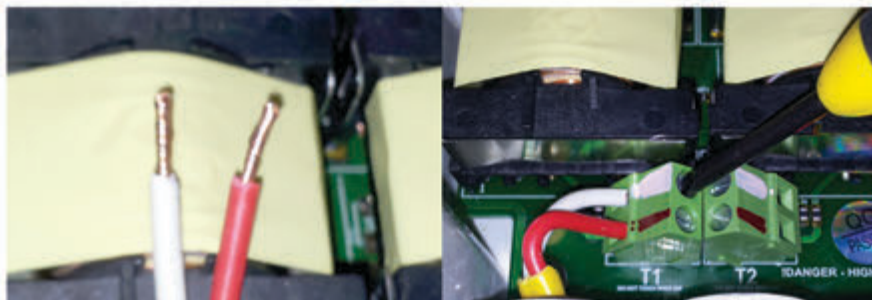
When running your cables, where possible, keep them a short distance from other vessel cabling and when crossing other cabling do so as close to perpendicular as possible.

DO NOT Coil excess cable. When running the cable it is important to trim excess cable and avoid coiling the excess. Our installation is designed for the running of cable to begin at the transducer and be run back to the control module for connection, this allows you to trim the excess at the control module and avoid any coiling.

Connect each transducer as per the below



Note: Image above dictates a Quad unit with 4 Transducer connections. A Double unit will be missing the Transducer 3 and 4 connections



Strip back approx. 8-10mm of rubber and twist the strands tight. Place the exposed portion of the wire into the connectors as shown, being careful to avoid excess strands sticking out. Tighten down the wire using a small flat blade screw driver. Ensure the wire is neatly run through the cable glands and that no excess wire is coiled inside the module then tighten down the cable glands.

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Mounting the Control Module & Connecting Power

1. Find a suitable mounting location for the Control Module. This should be upright in a cool location. Avoid mounting in a location with proximity to any flammable vapors.
2. Mark the location and pre-drill holes in your bulkhead or similar mounting position, then screw the unit to the mounting position. Ensure you have ample space for neat and smooth cabling.

After Mounting the Control Module and connecting all Transducer cables, it is now time to connect Power to the Control Module. An in-line fuse should be used if you are not connecting the module to one of your vessel's circuit breaker switches. Connect 12VDC or 24VDC power via the inline fuse or circuit breaker to the Black/White and Red wires coming out of the Control Module. Black/White = Negative(-) and Red = Positive (+)

Power Consumption, Fuse Specifications & Considerations

Power Consumption should be considered prior to installation. For the CleanABoat.com Advanced Ultrasonic Antifouling system to work effectively it must be powered and operating in protection mode constantly, this will be a constant drain on the battery as outlined below. It is important that you have some kind of battery charging system to ensure the batteries maintain a good charge. As part of the safety features of the system at a low battery voltage the Protection is disabled to prevent damage to the vessel's batteries.

Power Consumption

Version	Power Consumption	Average Current Consumption
Double Transducer	10Ah @ 12VDC	420mA
Quad Transducer	20Ah @ 12VDC	840mA

Fuse Rating

Version	In-Line Fuse Rating	Module Fuse Rating
Double Transducer	10A	M205 3A Slow Blow
Quad Transducer	15A	M205 5A Slow Blow

Module Fuses

In the event of a fuse failure or SMPS Fault alarm on the Control Module you should check the fuse on the side of the enclosure first, this fuse if blown should be replaced with the same rated Slow Blow M205 fuse. If the fuse on the side of the enclosure is not blown and the error persists on the module, remove the module lid as per the instructions in the Installation Manual and check the fuse onboard. If this fuse is blown then it should be replaced with the same rated Fuse.

Mains Powered Battery Charger

A 3A Automatic Maintenance (smart charger) battery charger is recommended as a minimum charging solution to ensure your battery is maintained.

Solar Panel Charging

If solar charging is your only option, IE if your boat is kept on non-powered mooring, there are some things to consider. Given that daylight is limited each day and varies in intensity during different periods of the year we recommend ensuring you provide additional capacity to ensure ample charge during the sunny period of the day.

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Enabling Connected Transducers

Due to the nature of the CleanABoat Advanced Ultrasonic Antifouling MK.III and its ability to monitor each transducer individually we need to tell the unit which Transducers are connected. The system will also not output any signal to a Transducer output which is disabled. We do this by switching the corresponding Transducer Enable switch on. SW2 is used to perform this task, when a switch is up it is enabled. The Switch bank is numbered 1 through to 4 and corresponds to Transducer 1 through to Transducer 4. Simply switch ON any Transducers that you would like to be enabled.

