



CleanAHull[®]

Ultrasonic Antifouling System

OPERATION & INSTRUCTION MANUAL

MODELS: CLHU-2 & CLHU-4

REVISION: 22.1



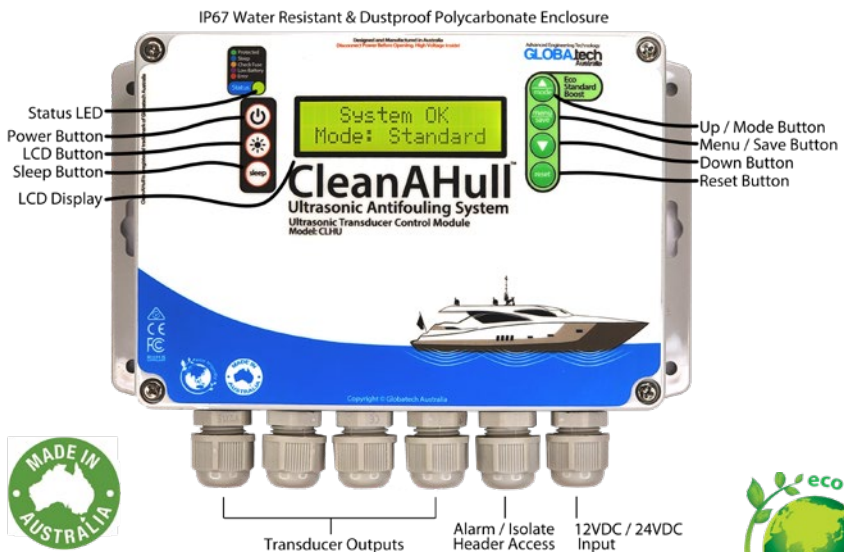
Congratulations on your purchase of your new Ultrasonic Anti-fouling System!

This CleanAHull® system is designed for the prevention of algae and other sea growth. Developed to extend the life of existing anti-fouling paint coatings on hulls and running gear. In turn providing vastly improved performance, fuel economy, cooling effectiveness and reduce overall running costs all while being environmentally friendly. Protection is achieved by introducing acoustic ultrasonic energy (ultrasonication) into the structures at specific calibrated frequencies.

CleanAHull® is suitable for use on any materials that can transmit the ultrasonic energy well including; aluminium, steel, stainless steel, titanium, GRP, FRP, Kevlar, hard plastics and more.

This device does not require penetrations to the structures being protected. Our system mounts to the inside of the hull using the provided high quality mounting hardware and bonding agent.

For application specific advice and recommendations please contact your sales representative or GLOBAtech Australia for assistance at info@globa.tech



Glossary

Outlined below in this Installation, Instruction and Operating Manual is an overview of the most effective way to install the CleanAHull® Advanced Ultrasonic Antifouling System. Following this installation manual will result in the most effective installation and timely install.

1. Warnings, Injury, Safety, Notes and Disclaimer

2. Inside the box

3. Planning & Transducer Positioning

4. Fitting the Transducer(s) / Transducer Footprints

- Mounting Footprint overview
- Transducer Installation Process
- Direct Transducer Bonding Installation on GRP / Fibreglass
- Installation videos are available at Globa.tech
- Alternate transducer mounting options

5. Installation of the Control Module & Running of Cables

- Running of Power and Transducer Cables
- Transducer Cable Termination
- Powering on and Systems Checks
- Wiring Diagram
- Vessel Integration / Alarm Output and Isolation Wiring

6. General System Operation & Display Information

- General operating instructions
- Display use and information explained
- System menu's and functions
- Additional functions
- Transducer Monitoring

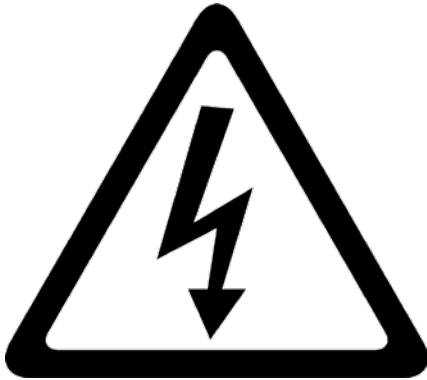
7. Troubleshooting

8. Maintenance

9. Warranty Policy

10. Product Registration

WARNING



RISK OF ELECTRIC SHOCK RISK OF PERSONAL INJURY

- Incorrect Installation of this product can result in electric shock.
- Always ensure system is isolated from power during module / transducer installation.
- Do not perform installation alone.
- Installation locations/areas may pose a safety hazards.
- Use appropriate safety equipment when performing installation.
- Follow instructions & contact manufacturer if you have questions or concerns.
- It is advised to seek professional assistance with installation.

INJURY, SAFETY AND OPERATIONAL CONCERNS

- It is highly recommended that electrical component installation is conducted by a qualified / experienced marine electrician.
- Ultrasonic transducers operate at high voltage.
- Always ensure the system is electrically isolated prior to opening the control module, connecting or running wires. Failure to do so could result in damage to the system, vessel or persons.
- The DC power supply to the device **MUST** be protected by a suitable in-line fuse or circuit breaker.
- Ensure you install the electrical system in accordance with local regulations.
- As a safety precaution, always have another person present during the installation procedure.
- Ensure that the correct safety equipment is used when installing or using power tools.
- There may be confined/unsafe spaces during the installation posing a heightened risk of injury.
- Ensure your work environment is safe as installation near water and electricity poses risk of drowning and electrocution.
- Ensure that cable's are routed safely and fastened to avoid obstacles and trip hazards.
- It is advised to avoid diving under the hull for any extended period of time whilst the system is operating, use the sleep function to isolate output if diving is necessary.

DISCLAIMER

The success of this product is directly proportional to the quality of the installation, suitability of layout and material being protected.

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 procedures outlined for the installation in this instruction manual we advise you contact us or employ an installer or shipwright/marine electrician to perform the installation for you.

Globatech Australia can take no responsibility for a defective installation, nor injury or damage to persons or property as a result thereof.

IMPORTANT: Read this manual in it's entirety prior to commencing any of the installation process.

Purchasers Obligation

It is the Purchaser/Vessel owner/Skippers/Engineers responsibility to regularly check on the operation of the system to ensure it is operating correctly and the Ultrasonic Protection is active.

Anti foul / Bottom Paint Coatings

Follow Manufacturers instructions thoroughly to ensure correct adhesion and longevity of the coating.

2. Inside the box



Control Module
with 5m power cable attached.



J-B Weld
footprint bonding epoxy



Fuse Holder
including spare fuse

Loctite 515
transducer face gasket



Transducer
each with 10m cable

CleanAHull - 4 Channel (CLHU-4)



- 1 x CleanAHull control module with 5m DC power cable & 4 Transducer outputs
- 4 x CleanAHull Ultrasonic transducers, each with 10m of cable. Extendable to 100m.
- 4 x CleanAHull Transducer mounting footprints
- 1 x J-B Weld Epoxy bonding material with mixer
- 1 x Loctite 515 transducer gasket material
- 1 x In-Line fuse holder and spare fuse
- 1 x Colour printed instruction manual

CleanAHull - 2 Channel (CLHU-2)



- 1 x CleanAHull control module with 5m DC power cable & 2 Transducer outputs
- 2 x CleanAHull Ultrasonic transducers, each with 10m of cable. Extendable to 100m.
- 2 x CleanAHull Transducer mounting footprints
- 1 x J-B Weld Epoxy bonding material with mixer
- 1 x Loctite 515 transducer gasket material
- 1 x In-Line fuse holder and spare fuse
- 1 x Colour printed instruction manual

3. Planning & Transducer Positioning

Hull / Structure Construction & Design

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 energy. GRP/ Fibreglass (Glass Re-enforced Plastic), Aluminium, Steel, Kevlar and Carbon Fibre work very well.

Mounting

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

Obstructions

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

It is also good practice to avoid mounting the transducer(s) close to any Depth Sounder or Fish Finder, keeping transducers more than 1m away.

Positioning

On the next page is a guide to the actual locations that we have found works best for hulls. Use this as a guide to find suitable locations in your vessel. Also refer to the above instructions, Hull Construction, Hull Access, Hull Mounting and Obstructions to assist in the final location positions.

Larger Vessels / Commercial Applications

Ultrasonic Antifouling is suitable for commercial applications, please contact us to assist in a solution.

Depicted in this manual are vessels typically up to 100' in water hull length, larger vessels can be protected simply with additional transducers, the Globatech team is happy to assist with a layout specifically for your vessel. For information on transducer layouts or commercial applications, please contact your local reseller/distributor or at www.globa.tech / info@globa.tech for assistance and more information or assistance.

Targeting Protection

Protection can be targeted to objects by mounting a transducer directly onto the object. This can be performed for protection of box coolers, sea chests, stern and bow thrusters and their tunnels, sea strainers, piping, rudders, foils, stern drive legs, stabilisers, trim tabs, etc. If you would like more information on the suitable applications please feel free to contact your local agent or contact us via email at info@globa.tech and we would be happy to discuss your installation.

Cable Runs

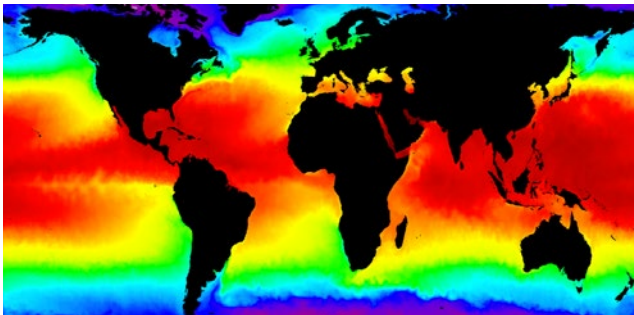
Each transducer requires it's cable to be run back to the corresponding control module for electrical connection. It is generally a good idea to ensure there is a secure/safe cable run back to the desired control module location prior to installing the transducer(s). When running cables it is good practice to encase the exposed cable within conduit where possible. Where possible avoid long runs where the transducer cable is paired along side other critical cabling, in this scenario a gap between the cables of ~20cm should be used. When passing across critical cables, this should be done perpendicular. Avoid installing cables where they will be submerged in bilge water for extended periods of time. Where possible ensure excess cable is cut away prior to termination in the control module.

Power Supply

A 12 / 24VDC Battery power supply is required to power the system. While the ultrasonic antifouling system typically draws only an average of ~200-350mAh for each transducer installed, it does need a good power supply to support the peak output periods. A Shore power or Solar panel battery charger system should be in place to ensure 100% battery supply is maintained. It is necessary to install with an in-line fuse.

Water Temperature Considerations

In higher water temperature / tropical climates / high growth areas, more transducers will be required to provide adequate protection. Refer to the key below for a rough estimation of your regions water temperatures and consider increasing the number of transducers you will install.

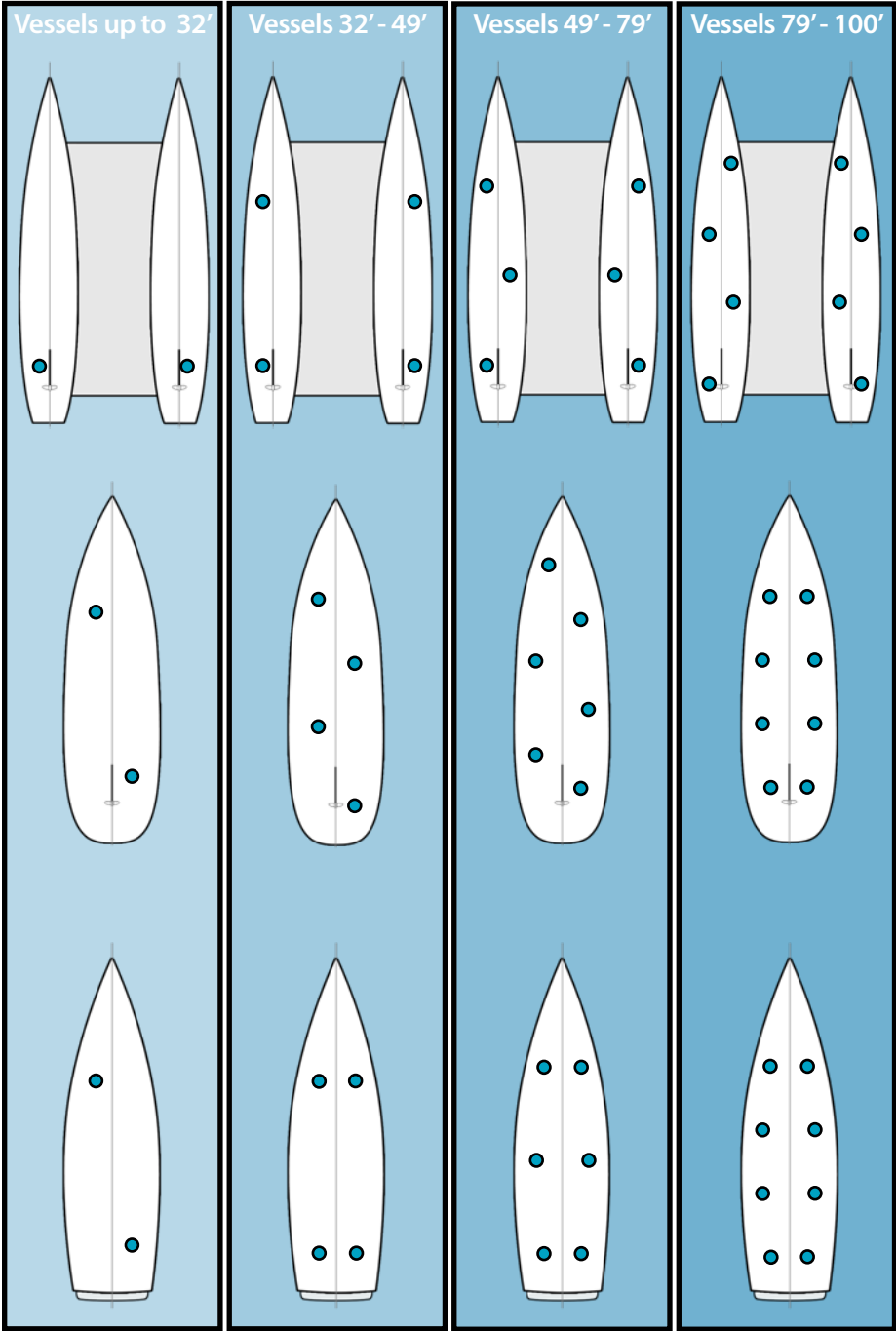


Recommended Hull Plans

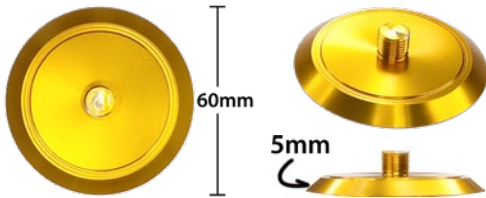
Power Boat Mono Hull
Showing up to 100'

Sail Boat Mono Hull
Showing up to 100'

Catamaran Hull
Showing up to 100'



4. Fitting the Transducer(s) / Transducer Footprints

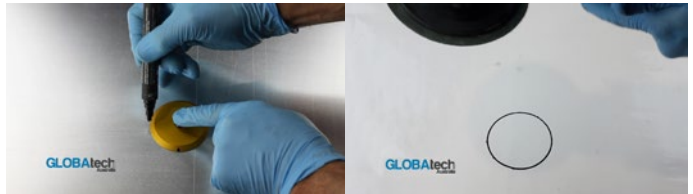


Mounting Footprint

The system utilises a specially designed mounting footprint to make installation as simple as possible, pictured to the left. Ensure you follow the below installation instructions correctly to achieve the desired results. It is also possible to directly bonding transducers to the hull, however the footprint is included if required.

1. Mark the desired mounting location

Begin by marking out the desired mounting location, this is the same for all surfaces and gives a rough guide of the area we are working on.



2. Surface Preparation

Next we will prepare the area to be bonded to by sanding it with 60 Grit sand paper. This will remove any top coating of paint/gel coat or surface oxidation and provide a clean keyed surface for bonding with JB Weld adhesive. This process varies slightly between GRP/ Fibreglass/Painted Steel/Aluminium and Bare Steel. However the point is to have a bare, clean, keyed surface for epoxy bonding with JB Weld.

Using 60 grit sand paper sand away the paint/surface to prepare the surface for epoxy bonding. Ensure the prepared area is flat and keyed to the 60 grit sand paper.

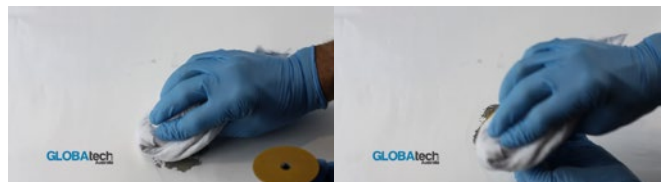


Mounting the Transducer using the Footprint

3. Clean Surfaces Thoroughly

Clean both the hull and the base of the footprint thoroughly using Acetone and a clean rag. It is important that all surfaces to be bonded are clean of any dust or debris.

**CLEAN ALCOHOL ONLY FOR SURFACE
CLEANING**



4. Mix JB Weld Adhesive

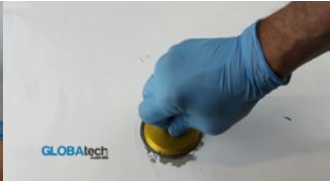
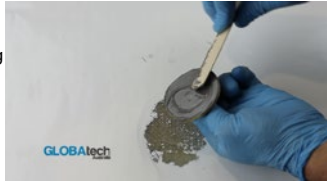
Dispense equal parts of JB Weld Adhesive onto a clean mixing board and thoroughly mix until a uniform dark grey colour is achieved. Ensure no air bubbles have been mixed in.

Note: In cold climates mix JB Weld ~5 - 10 mins before application to allow JB Weld to thicken slightly prior to bonding, preventing sagging or runoff.



5. Apply JB Weld Adhesive & Place Footprint

Apply a suitable amount of the mixed JB Weld adhesive to the base of the Footprint and press the Footprint into position, twisting left and right while applying downward pressure to ensure a perfect contact with the hull and that there are no air cavities.



6. Clean Footprint Face & Tape Down

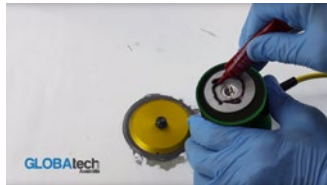
Carefully clean the top face of the footprint and thread to ensure no JB Weld adhesive or other debris present. Tape footprint in position to ensure it does not move while the adhesive cures. Curing should occur over a period of 24 hours, please allow longer in cold climates.



7. Remove Tape, Clean Surfaces & Apply loctite 515

After the JB Weld adhesive has cured (24 Hours +) remove the tape and proceed to clean both the face of the footprint and the face of the transducer to be installed with acetone and a clean rag.

APPLY THE LOCTITE 515 TO THE FACE OF THE TRANSDUCER AS SHOWN.



8. Install Transducer onto Footprint as tight as possible by hand

While holding the loop of cable in one hand and the Transducer in the other, carefully screw the transducer down onto the footprint as tight as possible by hand. Move on to running the transducer cable, allow 24 Hours before powering the system up to allow the loctite 515 to cure. Ensure Transducer and footprint face are in perfect contact.



Bonding the Transducer without using the Footprint

The transducers can be fitted to the hull without the use of the footprint. **This method is recommended where possible and is more important on thicker GRP hulls or where a core has been removed and re-enforced (foam/balsa/etc).**

This method of installation is harder to achieve in some situations and should be avoided on steep surfaces. The step below continue on after step 2 **marking and preparing the surface** to show the bonding of the transducers directly. All surfaces must be prepared in accordance with Steps 1 and 2.

3. Clean Surfaces Thoroughly

Clean both the hull and the base of the footprint thoroughly using Acetone and a clean rag. It is important that all surfaces to be bonded are clean of any dust or debris.

CLEAN ALCOHOL ONLY FOR SURFACE CLEANING



4. Mix JB Weld Adhesive

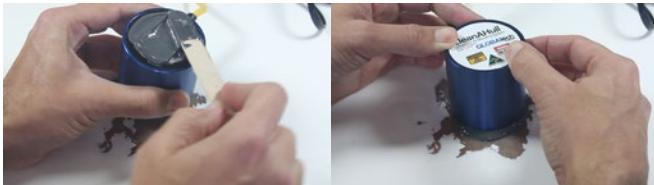
Dispense equal parts of JB Weld Adhesive onto a clean mixing board and thoroughly mix until a uniform dark grey colour is achieved. Ensure no air bubbles have been mixed in.

Note: Mix JB-Weld - 10 mins before application to allow JB-Weld to thicken slightly prior to bonding, preventing sagging or runoff.



5. Apply JB Weld Adhesive & Place Transducer

Apply a large amount of the mixed JB Weld adhesive to the base of the Transducer and press it into position, twisting left and right while applying downward pressure to ensure a perfect full face contact with the hull and that there are no air cavities.



6. Tape Down

Carefully tape the transducer into position. The transducer must not move during the curing process so it is critical that the transducer be taped tightly in place. Curing should occur over a period of 24 hours, please allow longer in cold climates. After curing remove tape and run the transducer cable. Power system on after a total of 48 hours.



Alternate Transducer Footprint / Mounting Options

Transducer Mounting Options

The Globatech Ultrasonic Antifouling Systems can be used to target protection for items such as Jet Drives, Nozzles, Sea Chests, Strainers, Shafts, Props, Thrusters, Platforms, Pipe work, Marina Pens, etc. This can be achieved often using the default flat Transducer mounting footprint provided however we also offer a custom service and can produce customised footprints for mounting onto specific outer diameter of pipe work, etc. Contact our technicians to discuss your alternate mounting applications and requirements



Rudder Protection

Mounted here on Larger rudder tiller assembly. The Ultrasonic Signal Can travel through the tiller and down the shaft to protect the Rudder.



Stern Drive Protection

Transducer mounted here on a Stern Drive Transom Shield. Demonstrated the protection via the internal Transom Shield. Energy Transmits through to the stern drive via the mounting bolts.



Pipe work Protection

Custom mounting footprints shown here for use in protection of raw water systems.

Custom Footprint

For pipe work mounting



Jet Drive Protection

Mounted here on the nozzle of this UltraJet. Helping to maintain smooth clean operation



Cored Hull Protection

Customised cored hull protection



Volvo Transom Shield

Volvo Transom Shield Mounting location



Bow Thruster Protection

Showing one of the two transducers mounted to this Bow Thruster. Transducer mounted provides targeted protection for the Thruster blades and tunnel.



Jet Drive Protection

Mounted here on the intake of this UltraJet. Targeting protection for the intake system.

5. Installation of the Control Module & Running of Cables



figure 1

Control Module Positioning

The Control module should be mounted vertically upright, positioned away from direct sunlight, where possible the control module should be installed in a cool dry place not too far from the chosen power supply. And away from excessive heat sources.

Control Module Display

Be careful when removing the control module lid, do not pull on the ribbon cable. Pinch both sides of the IDC plug header as shown and unplug carefully. **figure 1**

Running DC Power Cable and Protection Fuse

It is recommended that the system be wired directly to a battery or quality power source. A safe and secure cable run to power should be achieved. If possible avoid extending the provided 5m of DC Power cable. If extension is necessary utilise the same or higher gauge wire to avoid voltage drop. The power source must be installed with an in-line fuse or circuit breaker rated for 15A.

figure 2

Do not install the in-line fuse until the system is ready to be powered on.



figure 2

Running Transducer Cables(s) and Termination

It is recommended to use flexible conduit where possible to protect transducer cabling. Choose safe, dry cable runs. If extension of the transducer cable is required the cable should be no more than 100m total length. At the cable join, polarity should be maintained (red to red and black to black, etc), the join should be soldered thoroughly and 2 layers of self amalgamating heat shrinking should be used to ensure the join remains water tight, cable of the same rating should be used.

Avoid any looping of transducer cables. When terminating the cables they should be cut to length at the Control Module.

Transducer cables are polarity specific. **(RED to + and BLACK to - should be observed).**

Transducer cables are to be run through the provided cable gland in the bottom of the control module, **figure 6**.

When terminating the transducer cables into the screw terminal plugs inside the unit, ensure there are no frayed strands of wire exposed. Cables should be stripped back a short distance, roughly 8mm **figure 3**, and twisted prior to screwing into the appropriate plug terminal and tightened, **figure 3 & 4**. When connecting the transducer plug, ensure the transducer cabling is not bunched inside the control module, it should exit the plug and travel down towards the bottom of the enclosure before exiting via the cable gland, **figure 5 & 6**. After securing the Transducer cabling neatly and checking your connection is tight, screw the cable gland tight by hand to seal the cable in place, **figure 6**.

IMPORTANT NOTICE: Disconnect Power Supply Before opening Control Module. High Voltage inside.

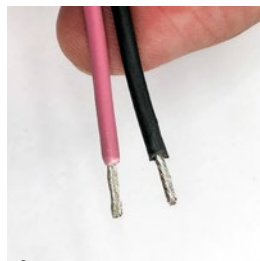


figure 3



figure 4



figure 5



figure 6

Powering on and System Checks

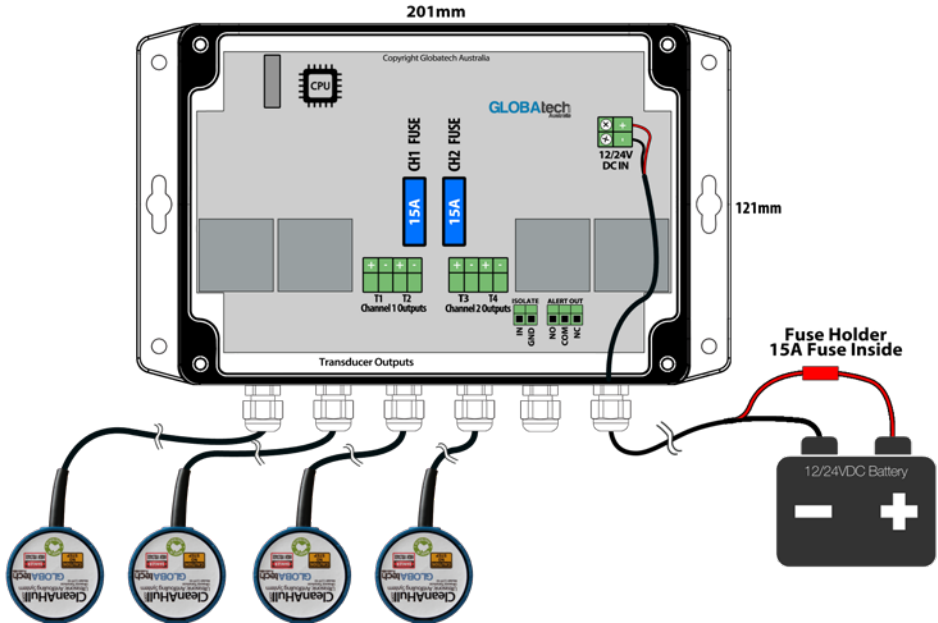
Prior to installing the in-line fuse and powering the system on all transducer cables should be terminated correctly and secured neatly. Once complete, install the control module lid being careful to plug the lid cable in as shown **figure 1**, tighten the 4 retaining screws then install the in-line fuse. At this stage the system will automatically power up and perform a quick system check before automatically beginning protection.

Configure Channels

Using the system menu, ensure that you disable any channels that are not in use. See **section 6** for more information.

Wiring Diagram

shown is CLHU-4 Model



Vessel Integration, Alarm and Isolate Functions

Vessel Integration

The system includes a control isolation header along with an alert header. These can be used to integrate with a vessel management systems, SCADA or similar to generate a visible / audible alert or manage the device as required for the specific application.

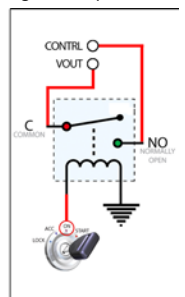
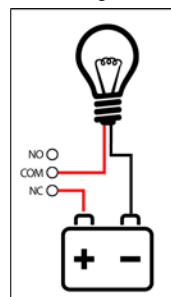
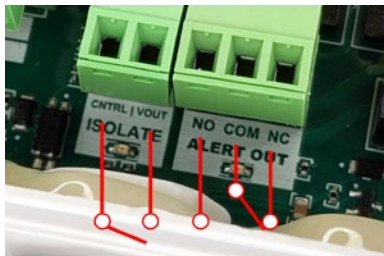
Control Isolation

The Control Isolation header is an opto isolated trigger designed to isolate all outputs and alarms when it's pins are bridged. It is important to utilize an external relay close to the control module to trigger the isolation function, as shown in the examples below.

Alert Output

The Alert Output is an isolated relay that remains ON while there is NO error state. The relay will switch off (connecting COM & NC in ANY error state). To this end, the system will raise an alarm even if the unit completely loses power.

This relay is rated at **1A 24VDC / 0.5A 125VAC** across it's contacts, do not exceed this rating. Shown below is a basic alert lamp configuration to demonstrate functionality, naturally this could be used for more advanced alert wiring & vessel integration inputs.



6. General System Operation & Display Information

System Smarts Overview

The system utilises a smart micro controller with intelligent drive circuitry, calibration, transducer monitoring and advanced algorithms, unlike any other Ultrasonic Antifouling device available. The CleanAHull® system operates while constantly checking, monitoring and maintaining it's own safe working environment to maximise protection while ensuring longevity of it's own parts. The system will even shut off the output and shift into low power mode if your battery runs low so as to ensure there is no over drain on your batteries. If there are any issues at all the system will give you a detailed error message on screen to make troubleshooting a breeze.



Status LED & Audible Alarm

The system uses a multi-colour LED to display the system status at a glance without the need to read the LCD screens. Below is the Status LED key. During any error state the Audible Alarm will sound.

Power On | Protection On
Transducer output indicated by Green

Check Fuse | Some Protection
Some Outputs Still working. Check Display

Low Battery | Error
Low Power. No Protection. Check Battery / Charger

Power On | Sleep | Isolate
No protection

Error | No Protection
No Outputs working. Check Display



Power Button

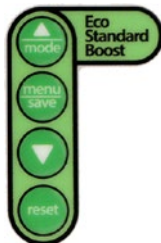
The power button is used to turn the device on and off.

LCD Button

The LCD button is used to cycle between screens. This will also turn on the LCD backlight if it has timed out. LCD Button will also return back to a previous menu screen when within the system menus.

Sleep Button

The sleep button is used to put the device to sleep for 4 or 8 hours. Press once for 4 hours, twice for 8 hours. Press once to cancel.



Mode / UP Button

Used to switch between modes; ECONOMY, STANDARD and BOOST
Used to move up within the system menus.

MENU | SAVE Button

Use to enter the System Menu and to save the changed selections. Upon saving you will return to the previous menu screen.

DOWN Button

Used to move down within the system menus.

Reset Button

This is a hard reset button for the system, typically only to be used if instructed or necessary.

Additional Functions

Each system stores a number of time and health variables to keep track of protection timers, error timers, etc. To view these values, turn the unit off using the power button and then press the sleep button. To cycle through the available screens, use the LCD button, to exit this menu press the power button. When troubleshooting, your representative will request some or all of these screen information.

Understanding Transducer Monitoring

Transducers are tested via a built in transducer check process once per week. This process will identify a transducer presenting a potential issue and raise an alert. See the **Transducer Status Key** to the right.

Transducer OK

Transducer is testing OK and no alarm will be raised.

Transducer Disconnected

Transducer is testing as not connected, this could be a broken wire, broken transducer or a transducer enabled without having a transducer connected. Investigate further.

High Current

The high current result means that on the last transducer test there was an over current detected, the channel was shut down & an alarm raised. Whilst in High Current the output for that channel will be disabled until the next test, which will be performed every hour whilst there is an error detected.

Low Current

The low current result means that the transducer may be in fault or there is likely an issue with the transducer cabling. Investigate further.

Output Off \ Disabled

The channel is not being tested or monitored in this state and there is no output to that channel.

LCD Display

The LCD Display on the front of the control module provides up to the second details on the status of the system and access to the system menu's. This is useful in determining the overall health, status and operation of the system.

System Status Screen

Displayed here is the System Status, Power Mode, Battery Voltage and Current
Essentially any relevant live information, such as sleep, errors, isolate, etc

System Power Modes

The system allows for fast adjustment of overall output energy

ECONOMY - Reduced power mode
STANDARD - Normal operating mode
BOOST - Increased output mode

Battery / Current

This will display the input voltage and current consumption

Temperature Status

This screen will display the highest temperature of important internal systems averaged over the past 1 second.

PSU - Power Supply, **CPU** - Central Processor, **DRIVE** - Output Driver Circuit, **TRANS** - Transformer

Fuses & Transducer Status

Shown here is the status of the 2 internal fuses.

FUSE 1 operates transducer channels 1 & 2

FUSE 2 operates transducer channels 3 & 4.

Transducer Status shows the status of each transducer.
see below for Transducer Status Key.

System Menu

The System menu allows you to configure important settings relative to the operation of the system. Including the ability to enable & disable individual channels, trigger a full system calibration or full transducer test sequence.



Transducer Status Key	
Transducer OK	✓
Transducer Disconnected	X
High Current	H
Low Current	L
Output Off \ Disabled	-



MENU 1 - Channel Set

Provides the ability to enable & disable individual transducer output channels. **EG; if an installation is utilising only some of the available outputs, unused outputs will need to be disabled.** It can also be used to disable and silence an alarm on a channel while any alert/issue is being resolved.



MENU 2 - Re-Calibrate

Manually trigger a calibration run on all enabled channels. The calibration function will be run automatically once per week, this option is there to provide the ability for installers or operators to re-run the calibration when required or requested by the agent / manufacturer.



MENU 3 - Test Transducer

Manually trigger a transducer functional test on all enabled channels. The test function will be run automatically every week, if a transducer is in error the test will be run every hour until the error clears. If a transducer is detected to be in **OVER CURRENT** (shown with a H on the Transducer Status screen) the channel in error will be disabled while an alarm is raised and this channel will only come back online during transducer testing and when the error state is cleared. See Transducer Status Key above for more information.



7. Troubleshooting

The system fails to power on

Check in-line fuse is OK. Check Battery/Input voltage is OK. Check the positive and negative cables are connected to the correct polarity. Check the LCD connector inside the unit is connected (remove in-line fuse before removing control module front to inspect).

Transducer wasn't clicking when I checked it

Manually run the transducer test function from the system menu, then check the transducer status screen on the LCD. Check closer to the transducer. Ensure the system is turned on and there is no errors displaying on the screen. If problem persists switch the unit off and remove the in-line fuse, then check the termination of the corresponding transducer wires inside the module, being careful to follow the polarity colouring. If persistent ensure no damage to cables.

LCD Error Status Explained

- OVER VOLT** - The input voltage is above the specified input range. **Fix this immediately.** Check your battery charging system.
- LOW BATTERY** - The system is in Low Battery mode, check your battery charger or PSU is operating / check your battery is OK.
- OVER TEMPERATURE** - The system is experiencing an over temperature situation, ensure the local environment is cooled. If the error continues consistently consider moving the module to a cooler location in your vessel.
- SMPS ERROR** - There is a internal Power Supply Error within the module, turn the module off and remove the in-line fuse, check the internal fuses, wait 30 seconds before powering back on. If problem persists make contact with your local distributor.
- FUSE ERROR** - Check Internal Fuses, inside the enclosure resides a fuse for each transducer output. The Transducer Fuses screen will indicate the fuse requiring replacement, replace with the same rated fuse (15A)
- TRANSDUCER ERROR** - Refer to more information on Transducer errors in **section 6**.

A transducer fuse continues to blow

Check for any foreign interaction or damage to the cable for the transducer, the transducer fuse blowing can indicate a break in the cable causing a short, a broken transducer or a transducer that is broken away from the mounting/bonding. Ensure there is no frayed wires across the terminals inside the control module (switch off and remove the in-line fuse before opening the module).

I get over temperature errors often

Typically the system should never enter Over Temperature state, this usually indicates the chosen location of the module in the vessel is in a hot environment. Try controlling the temperature in the immediate area or moving the control module to a cooler location.

I get over volt errors often

The over volt state is achieved when the input voltage exceeds 30VDC. This indicates your charge circuitry is providing too high a voltage. Check your engine charge function and battery chargers / solar charge regulators / power supply immediately. While in over volt there will be no Ultrasonic Protection. **Excessive over volt can damage the electronics.**

I get low battery errors often

It is important that a good steady battery supply is provided, check your battery charger and battery function, ensure no other high drain accessories are sharing the same power supply and potentially causing a low voltage while they are on. While there is a low battery error present there will be no ultrasonic protection.

The system is alarming TRANSDUCER ERROR for a transducer channel I don't have installed

Using the System Menu, enter the Channel Set Screen and ensure any transducer channels not being used are disabled to prevent monitoring and output on unused channels.

Please visit [Globa.tech](https://globa.tech) for more help and troubleshooting tips.

8. Maintenance

It is recommended that the system be checked regularly to ensure active Ultrasonic Protection. Also that the vessel is used frequently to assist in the removal of any dead algae, slime and debris buildup. Using a soft bristled broom it is recommended to clean away dead algae, slime buildup regularly.

9. Warranty Policy

Globatech Australia products are warranted for a period of 24 months against faulty materials and/or workmanship from date of sale or a maximum of 48 months from the date of manufacture subject to the following terms and conditions:

- The goods must be installed and operated in accordance with the manufacturers recommendations and instructions set out within this guide.
- In the event of a claim the goods are returned to the manufacturer with a copy of the merchant invoice.
- In the event of a claim any associated expenses including but not limited to; diagnosis, removal, and/or installation of the goods is the responsibility of the client/purchaser including any freight costs.
- The warranty shall be void where the goods have been used for a purpose for which they are not intended, or altered in any way that is detrimental, or opened or tampered with by an un-authorized party, or damaged by mechanical abuse, or damaged by transient voltages, or damaged by over voltage, or contaminated by water or other substances, or damaged by incorrect application.
- Save and except for the express warranty set out above and to the maximum extent permitted by law, all conditions and warranties which may at any time be implied by the common law, Trade Practices Act, Fair Trading Act or any other State or Federal Act are excluded. To the extent that these cannot be excluded and where the law permits, the manufacturer in respect of any such condition or warranty shall be limited at their option to the repair or the replacement of the goods or the supply of equivalent goods or refunding the cost of the goods .

10. Product Registration

Please head to <https://globa.tech/register> to register your product for Warranty and other information.

Globa.tech has a team of technicians ready to assist any of your questions or concerns about the operation of your system.

Installer Details:

Installation Date:

Notes:

Advanced Engineering by
GLOBA.tech
Australia

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