

UltraSystem PowerPlus

INSTALLATION MANUAL



Control unit

MARINE GROWTH PREVENTION SYSTEM (MGPS)



CONTENTS

Important information	page 1
Control unit location	page 2
Control unit installation (mounting)	page 2
Electrical connections	page 3
System schematic diagram (DC System)	page 4
System schematic diagram (AC System)	page 5
Transducer positioning and installation	page 6
Transducer connection to control unit (important)	page 6
Final checks and switching on	page 6
The UltraSystem in operation.....	page 7
Maintenance and Routine Checks	page 7
Troubleshooting guide	page 8

IMPORTANT INFORMATION

The UltraSystem has taken several years of careful research and develop to optimise and make it fully effective. **PLEASE READ AND FOLLOW THESE INSTRUCTIONS CAREFULLY.** This system must be installed in accordance with the instructions in this handbook. Failure to do so could result in poor product performance, personal injury or damage.

WARNING: Risk of injury. Ensure appropriate tools are used and safety gear worn when undertaking the installation.

WARNING: Risk of electrical shock. Ensure the power supply is isolated during the installation. Electrical work for DC and AC voltages should be carried out by a competent and qualified person.

WARNING: DO NOT operate the system for more than 5 MINUTES without transducers being installed and in contact with material to dissipate its energy.

IF IN DOUBT SEEK PROFESSIONAL ADVICE

Ultrasonic Antifouling support team:

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CONTROL UNIT LOCATION

The control unit should be located in a dry and ventilated locker or compartment above water line level. Water ingress into the unit must be avoided at all times.

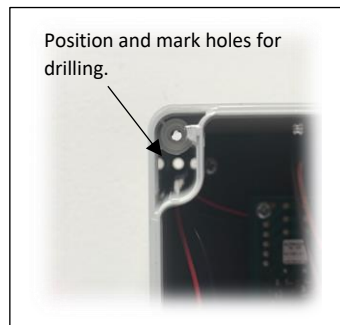
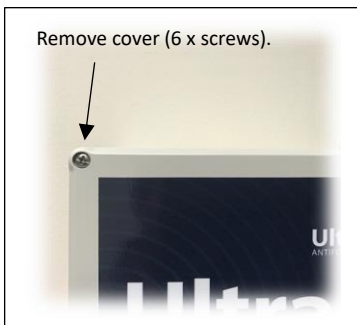
Keep away from sources of high temperatures such as heater outlets and exhaust pipes.

Mount vertically to allow a good free flow of air through the vents located top and bottom of the housing. Efficient cooling is required to provide optimum operation, therefore the vents must not be covered or blocked.

Consideration should be made for the length of cable supplied which connect the transducers to the control unit.

CONTROL UNIT INSTALLATION (mounting)

1. For mounting the control unit, remove the housing lid to access the four rear holes (fig.1) *Care should be taken to protect the electronics when working with the cover removed.*
2. Hold the unit in the desired position and mark each hole (fig.2). Alternatively, the measurements for hole centres are marked on the rear of the housing.
3. Drill each mark for either 10g self-tapping screws or M5 machine screws depending on your installation.



CABLE LAYOUT and ELECTRICAL CONNECTIONS

CABLE LAYOUT

Plan the cable layout for both the power and transducer cables. All cables should be adequately secured, protected from physical damage and excessive vibration. Route cables through conduits for additional protection.

DO NOT CUT AND RE-JOIN TRANSDUCER CABLE. If it is necessary to run a transducer cable through a bulkhead, a 20mm drill bit or hole saw should be used to accommodate the plug. Always check the other side of the bulkhead before drilling to ensure it is clear and safe avoiding damage to other items. Use a rubber grommet to protect the cable from chaffing around the area of the hole.

DO NOT COIL SURPLUS TRANSDUCER CABLE. Coiling up cable can affect the output. Lay excess cable out over its own length and tie together.

ELECTRICAL CONNECTIONS

AC VOLTAGE: The AC version is supplied with a fixed cable and plug. The plug can be removed if wiring direct onto an AC power supply panel.

NOTE: the AC power input must be protected by a fuse or circuit breaker rated to 5 amps (250v).

NOTE: Removing the AC cable from the internal power supply unit will void the warranty.

DC VOLTAGE: ***NOTE:** the power supply must be a permanent supply to enable the system to operate continuously and when the batteries are isolated.*

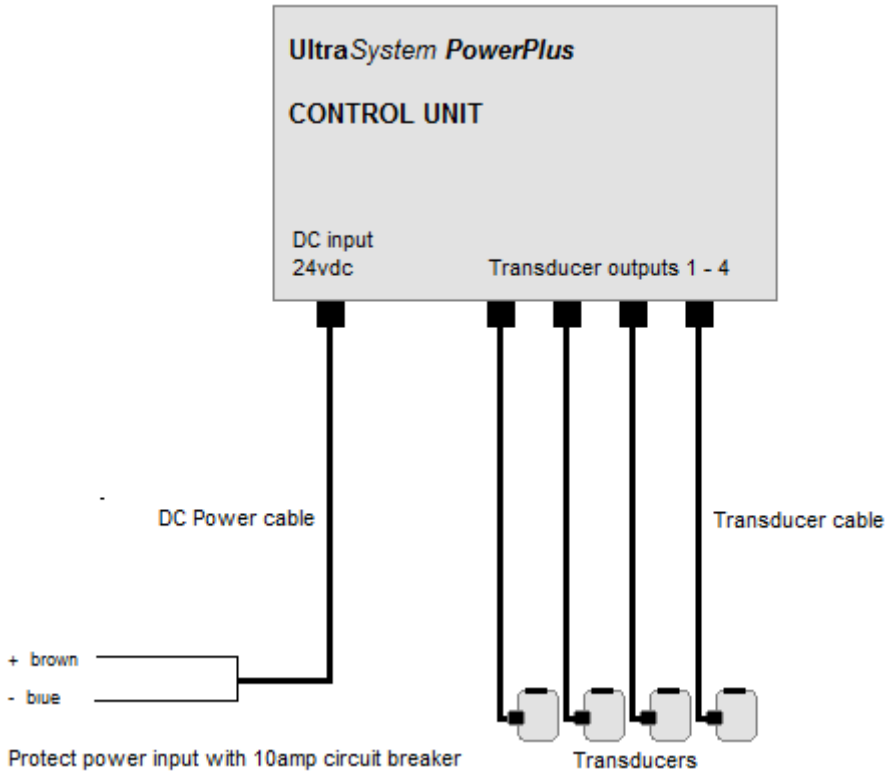
Connect the DC (+) cable directly to the battery source, either to the (+) terminal or live terminal of the battery switch. A permanently live (+) BUS Bar can also be used. The negative (-) cable connects to any common 0 volt terminal or BUS Bar.

NOTE: the positive (+) cable must be protected by a fuse or circuit breaker rated to 10 amps.

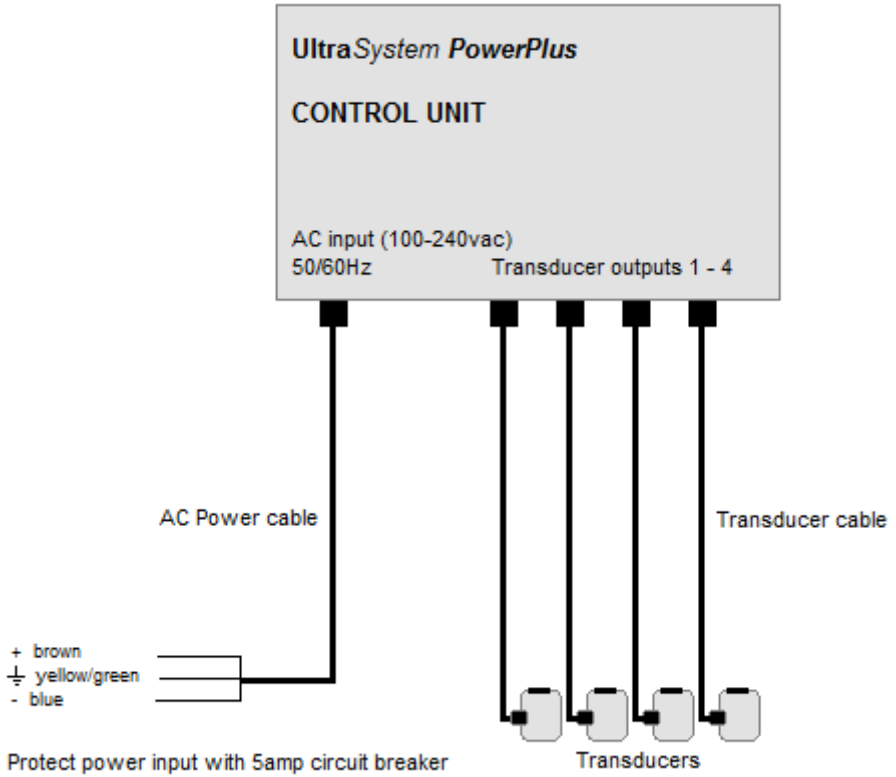
DO NOT REVERSE THE POLARITY ON CONNECTION! The polarity must be checked.



DC SYSTEM



AC SYSTEM



TRANSDUCER POSITIONING and INSTALLATION

For transducer positioning and installation, please refer to the separate manual enclosed which will be relevant to the application and type of transducer and mounting bracket supplied.

TRANSDUCER CONNECTION TO CONTROL UNIT – **IMPORTANT!**

Connect the transducers to the control unit output sockets (TR1, TR3, TR2 & TR4) according to the number of transducers being used as follows:

1 transducer – connect to TR1

2 transducers – connect to TR1 and TR2

3 transducers – connect to TR1, TR2 and TR3

4 transducers – connect to TR1, TR2, TR3 and TR4

Please note: the output sockets are not marked in numerical order.

FINAL CHECKS AND SWITCHING ON

FINAL CHECKS

1. **Check the power cable connections:** correct polarity and protected by fuse/breaker.
2. **Check the transducer cable:** connected at both the transducer and control unit. Control unit connections for transducers must be as per recommendation in section above – check!
3. **Check the transducer:** tight down and no further turn can be made....in good contact!

SWITCHING ON

With the installation checked, switch on the power supply to the UltraSystem. Switch on the Control unit and the LED status lights will show at the top.

THE ULTRASONIC SYSTEM IN OPERATION

When the power is switched on, the system will at first initialise and run through a checking procedure, this is indicated by the green LED light flashing only. Once this procedure is completed, normally taking up to 5 seconds, both the green and red LED lights will show.

Note: the LED lights are located at the top of the housing, their meaning as follows:

LED: #1 'ON'  : system is on.

Light flashes (every one second) at the beginning of every new programme cycle.

LED: #2 'SIG'  : ultrasound signal output.

Light will continuously flash as it runs the sequence.

If at any time the light sequence differs from the above, please refer to the trouble shooting guide in the manual for explanation. A very slight double-clicking sound will be heard at the transducer. This is normal and also an indication of its operation. *The ability to hear this depends on the person's hearing.*

The UltraSystem should be in operation continuously for best performance.

MAINTENANCE / ROUTINE CHECKS

The UltraSystem does not require any maintenance, but it is recommended the control unit is inspected from time to time.

- Check the system is on, the LED lights are showing the normal sequence in operation.
- Check the ventilation openings (upper and lower) for blockages / obstructions.
- Check for any risk of water ingress.

TROUBLE SHOOTING GUIDE

Normal operation (both LED Lights ON):

GREEN LED ON – Power ON (every second a short flash of the LED)

RED LED ON – OUTPUT SIGNAL (continuous random flashing)

Status shown by the two LED lights

NO GREEN, NO RED (No operation)

- For DC units, check DC supply and any fuse or circuit breaker fitted.
voltage should be 24vdc (range 24 – 32vdc)
- For AC units, check AC power supply and any fuse or circuit breaker fitted.
voltage should be 100 – 240vac (50/60Hz)

GREEN flashing: one flash followed by ON for 3 seconds. Input voltage to the PCB is low.

- For DC units, check the DC supply at source. Check condition of cable and connections.
- For AC units, the internal Power Supply (AC-DC transformer) requires testing for correct operation and the output delivery of 24vdc to the PCB.

GREEN flashing: two flashes followed by ON for 3 seconds. Overload on output.

- Check the plugs and cables of the transducers for possible damage / short circuits.
- Connect only one transducer and cable at a time to identify suspect parts.
- Run the control unit without any transducers connected, it should operate normally. If it does not operate without fault, please contact your supplier.

NOTE: DO NOT run for more than 5 MINUTES without transducers connected.

GREEN flashing: flashes on/off every half second. Temperature too high, above 80°C.

- Check the electrical fan is working.
- Check the two vents (upper and lower) for blockages / obstructions.
- Check the ambient temperature of the control unit's location.

If you cannot resolve any issue you have or require further assistance, please contact the technical team at Ultrasonic Antifouling Ltd.

NOTES

Serial number:

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