Ultrasonic Marine

AF200 SERIES

ULTRASONIC MARINE ANTIFOULING SYSTEM

Ultrasonic Marine anti-fouling uses ultrasonic sound waves to kill micro-organisms and bacteria that attach themselves to unprotected boat hulls. These micro-organisms are a food source for barnacles and mussels. When you eliminate the environment where these micro-organisms live and thrive, then you eliminate growth of barnacles and mussels.

Ultrasonic Marine anti-fouling system creates sound waves that move water molecules over the underwater profile of your boat's hull. The system consists of digital control box connected to a number of transducers. The transducers are fixed directly to the inside of the boat's hull and the control at a place of your choosing.

Properly installed and maintained the USM anti-fouling system will not only help keep the hull clear but also rudders, props and keels clear too. A cleaner hull will not only give better fuel efficiency but also less time spent in a dry dock.

- Affordable initial costs and long term savings.
- Low consumption – typically under 4 watts per transducer.
- Minimal installation – no holes are needed in the hull.
- Active transducers to eliminate interference to other equipment.
- Suitable for glass-fibre, aluminium & steel hulls.
- Designed & manufactured to military standards. Built to the same standards as our military products which have included items for Awacs, B2, Apache & Chinook helicopters, C130 and nuclear submarines.
- Designed originally to the requirements of the UK Royal Navy.
- Designed and manufactured in the U.K.

Ultrasonic Marine is a division of Citadel Products who have over 50 years experience in ultrasonics having originally designed and manufactured transducers for intruder alarms.

CONTROL BOX AND TRANSDUCER

Installation consists of a control box with status LEDs.

Size 110 x 120 x 67 mm deep.

The active transducer has a status LED to show correct operation. It measures 57 mm x 100 mm high.

Transducer is to IP68 & the Control box to IP66 environmental protection.

Care has been taken to exceed the requirements of the CE specifications to avoid electromagnetic interference to other equipment nearby.

Connections between control box and transducers are by screened coaxial cables.

CONTROL BOX

There is an input for 12V or 24V DC ships supplies and also for the optional 110/230 volt AC power supply to run from a shore supply.

The system automatically switches over to the vessel's battery when disconnected from the optional shore supply. If the battery voltage is low, the power is gradually reduced and at a determined point, switched off to protect the battery.

An alternative solar supply can be used instead of the shore supply and should be rated at least 80 watt output according to where the vessel is based and number of transducers installed.

The outputs will drive up to 4 transducers which are connected by our standard RG59A cables. Maximum length of each run should be less than 30 m.

They can be made up on site using standard RG59A cables or supplied by us ready terminated with connectors in the following standard lengths:10m & 20m.

The control box is splash proof and can be installed in the most convenient position in the craft, including the harsh environment of the engine room.

TRANSDUCER HAS LED TO SHOW STATUS

The active transducers contain all the high voltage drive circuitry.

This eliminates interference to other equipment through radiation from a long cable from the control box. We use a 24 volt AC feed with control signals.

TRANSDUCER SHOWING TRANSMITTING FACE

The transducer is simply bonded to the hull using Devcon epoxy resin.

A reasonably flat area should be chosen on the hull and sanded clean to key the surface and improve adhesion.

Only glass-fibre, aluminium or steel hulls are suitable.

Stainless studs shown in picture can be supplied for welding to water and oil tanks to help in the installation of the transducer.

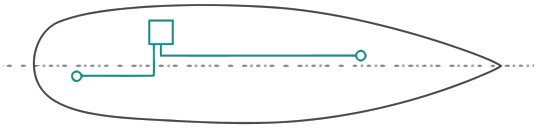
Guide to typical number of transducers :

Up to	10 m	(33 ft)	waterline length	One
"	16 m	(53 ft)	"	Two
"	22 m	(72 ft)	"	Four
"	28m	(92 ft)	"	Six

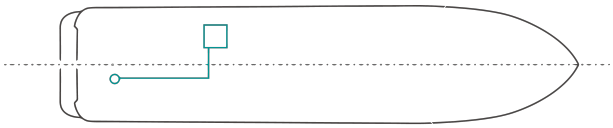
Twin screw vessels should preferably use an extra transducer.

See diagrams below of suitable positions.

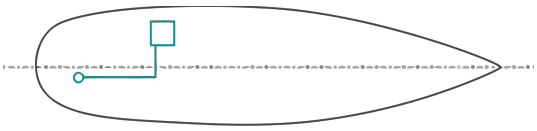
Typical Position for Sail Boat
Up to 10m Water Line Length



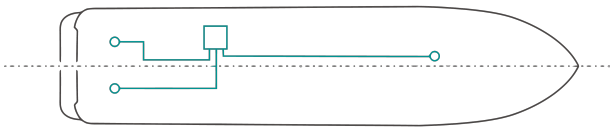
Typical Position for Power Boat
Up to 10m Water Line Length



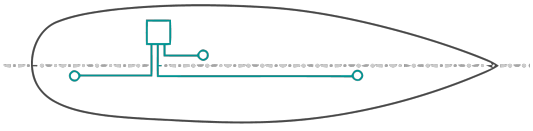
Typical Position for Sail Boat
10m - 16m Water Line Length



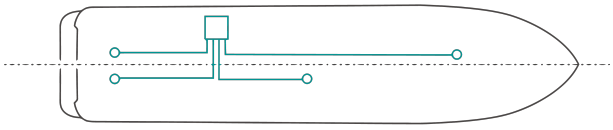
Typical Position for Power Boat
10m - 16m Water Line Length



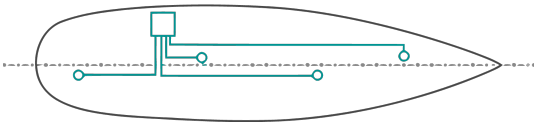
Typical Position for Sail Boat
16m - 22m Water Line Length



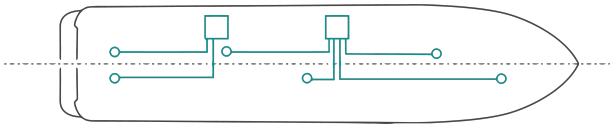
Typical Position for Twin Screw Power Boat
16m - 22m Water Line Length



Typical Position for Sail Boat
22m - 28m Water Line Length



Typical Position for Twin Screw Power Boat
22m - 28m Water Line Length



Specifications:

CONTROL BOX AF204C

Input voltage 11.5V to 30.5V DC

Average consumption 4 watt maximum per transducer.

Operation -35 to +50 degrees C

IP66 environmental protection.

Size 11 x 12 x 6.7 cms

TRANSDUCERS AF201T

IP68 environmental protection.

Operation -35 to +50 degrees C

Size 10 x 5.7 cms

Order codes:

Control box	AF204C	
Transducer	AF201T	(State number required)
Power supply	AF200PS	(For 110V/230V AC OPERATION)

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Ultrasonic Marine is a division of Citadel Products outside the United States.

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