



# Ultrasonic Antifouling Smart 2 lite

En / Installation manual  
Ver. 02/2020

**Please read and follow the installation manual carefully! In order for the device to work properly it has to be installed correctly, especially the ultrasonic transducers.**

## Package Contents

- main box Smart 2 lite
- 2 transducers with connectors IP68
- Transducer mounting adapters
- 8 m cable for each transducer
- 4 m cable for DC connection
- abrasive paper
- cleaning alcohol wipe
- 2 k adhesive
- contact grease
- user manual

## Introduction

Ultrasound is mainly used in industry, medicine, for cleaning purposes... Our device works on the principle of converting electrical energy into mechanical energy through a transducer. The transducer transmits ultrasonic vibrations that resonate through the hull of the boat and thus prevents the formation of biofilm on the hull. Ultrasonic vibrations also create a cavitation effect below the water surface. The cavitation effect destroys the cells of microorganisms and stops them from adhering to the underwater part of the hull. Microorganisms and biofilm are food for algae and seashells that adhere to the hull and underwater parts of a boat, such as rudder, propeller...

Ultrasonic antifouling is environmentally friendly.

Follow the instruction manual and thus correctly install the device. The hull of the boat and underwater parts of the boat will stay clean for a few seasons. Underwater anodes can be replaced during a lift-out or in the water.

## Warning

Install the ultrasonic device on the boat after cleaning the hull thoroughly and applying the antifouling paint. Device will prevent the growth of organisms and partly clean the hull. Place the device on the inside of the boat.

Device is suitable for plastic and metallic hulls (aluminum, iron).

## Technical Specifications

- Main box (IP55)
- 2 Transducers 60W (IP68)
- DC 12V or 24V
- Frequency range 20-55khz
- 2 Transducer resonate band
- Power adjustable 4 steps
- Burst time adjustable 2 steps
- Burst pause time adjustable 2 steps
- Average consumption 250mA - 1A
- Output Transducer voltage max. 300V (1000Vpp)
- Low voltage protection

## The location of Master Box and Transducers

At the beginning it is necessary to find a suitable place for the **MASTER BOX** location. It is best suited somewhere in the middle of the boat or in the engine room and in a dry place. We suggest you place the generator in a room with other electrical devices.

It is necessary to focus on the location of the transducers and the length of the cables. The cables for the transducers are 8m long, the cable for powering the device is 4m long. The master box must be connected to the service battery 12 or 24 V system. The battery must be in good condition. We recommend a 150W solar system for constant power supply. The device must be permanently connected to the voltage.

**TRANSDUCERS** are mounted according to the type of boat and in the area where the fouling is stronger.

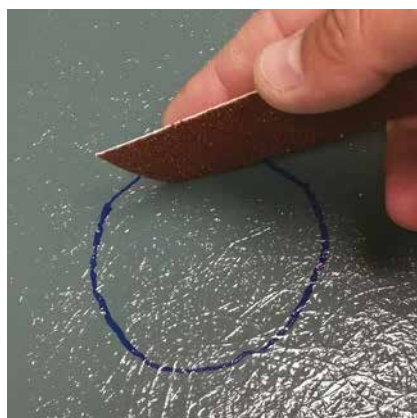


Transducer is installed on the inner side of the hull. It has to be installed on the location, where there is no additional reinforcement of the hull and no shaft bearer 20-30 cm around. If you have a “sandwich” hull, you will need to remove **a small section of inner core allowing the transducer to make contact with the outer skin of the hull.**

Transducers are mounted directly to the hull or with ADAPTER (recommended).

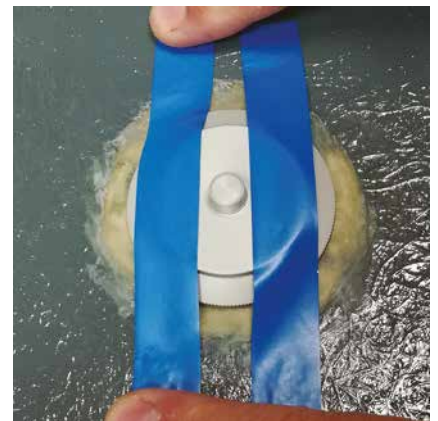
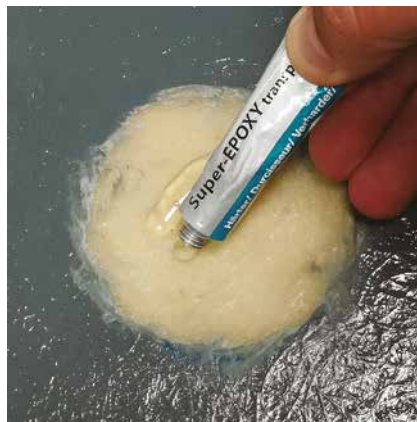
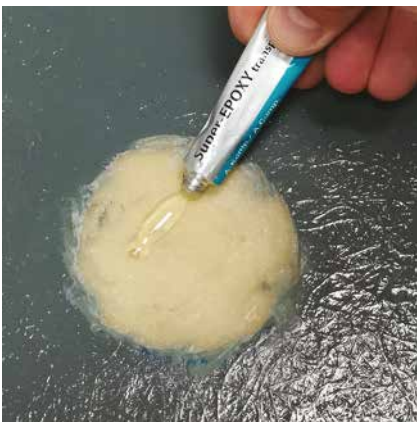
## The installation of transducer on the hull.

**Warning!** The device will work properly only if the transducer and the surface of the hull fuse perfectly. The transducer mounting location should be a flat surface so that the transducer will have good contact. Sand the transducer location well with the sandpaper, which is included in the package. **Paint is not allowed in the area of attachment of the transducer!** Wipe the area with an alcohol wipe and clean it well, to degrease and **remove the dust.** Similarly wipe Transducer or Adapter. Wait 5 minutes to dry well.





**Important.** Use the supplied adhesive Epoxy 2K. Read the instructions supplied with the glue! From each tube squeeze the same amount. Mix well about 1 minute. The transducer is applied onto the mixed adhesive and pushed hard on the location of the bonding. The glue achieves hold within a few minutes. Stabilize with a cross of adhesive tape (recommended). Adhesive reaches its strength after 1h. **Leave it to dry for min. 1h at 20 deg. C. !**



Apply a thin layer of contact grease OKS11 to the the transducer. Screw the transducer onto the adapter. Fasten it tight to remove any air bubbles. **After 10 min. tight it again!**



**Do not wind the cable because of the coil effect!**

For the laying of the transducer cable we recommend the use self extinguishing rigid conduit. The cable surge can be cut. If it is too short, it can be extended with a protective box. Max lenght up to 12m.

**Main Box installation**

The best position for the generator is near the battery you attempt to plug into. The cable for battery connection is 4 meters long. The position of the installation depends on the length of the cables of transducers and generator.

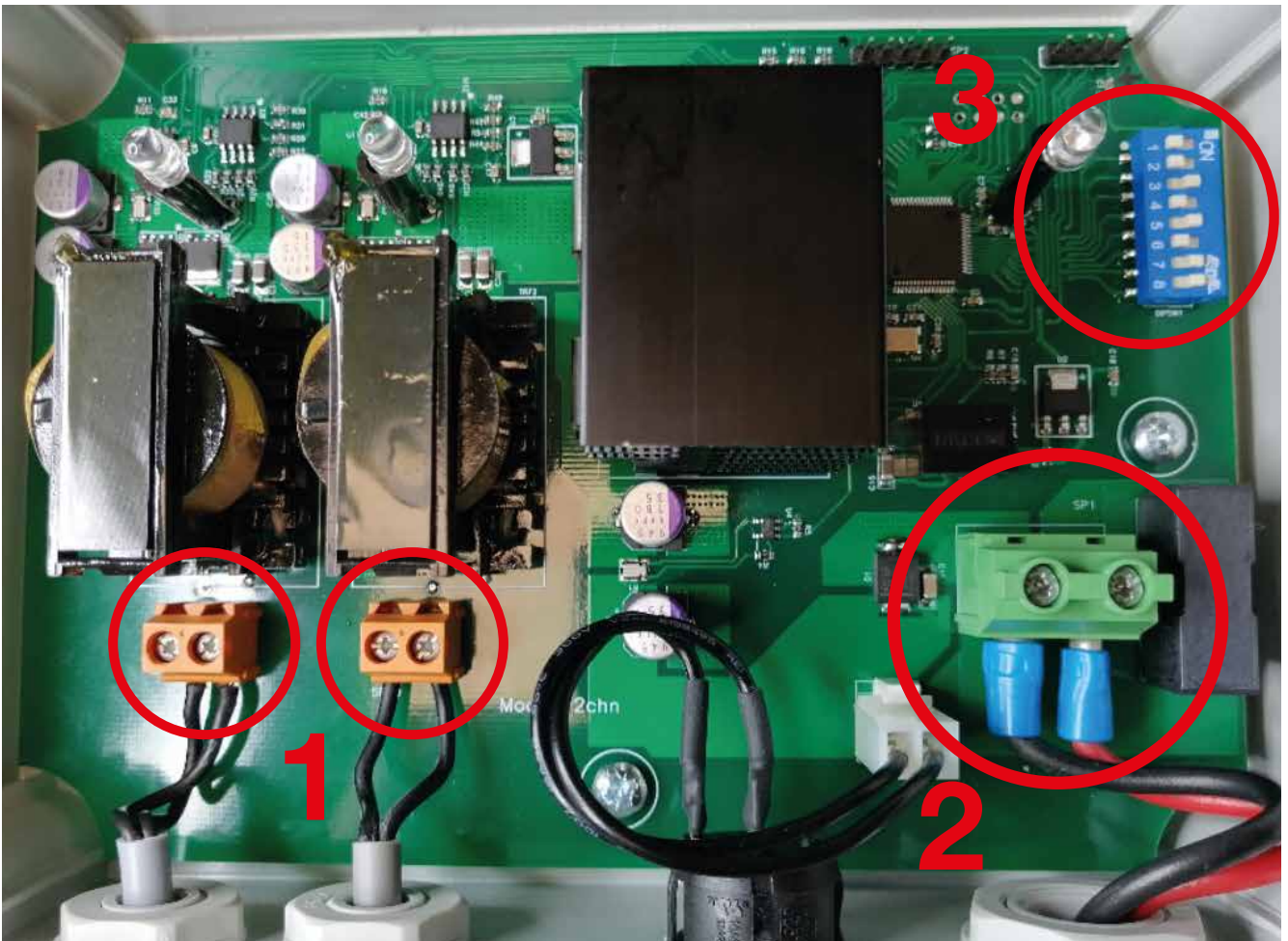
**Make sure that the switch is in the OFF position.**

Remove the lid from the main box and fix it with screws on the wall or any other convenient place. We suggest you place the generator in a room with other electrical devices. Run the cable of the transducer through the cable thread of the generator and connect it to the connectors (1). Polarity is not important. Fasten the cable threads.

Connect the supply cable to the connector (2) and directly to the 12V or 24V battery.

**First connect the + pole, then the - pole!**

Set the DIP switch (3) according to your needs. Settings on last page.



## Warnings

When voltage drops below 11V (12V DC system) or 22V (24V DC system) Smart 2 lite switches to minimum settings. Battery indicator single blink, transducer indicators on.

When voltage drops below 10,5V (12V DC system) or 21V (24V DC system) Smart 2 lite switches OFF. Battery indicator double blink, transducer indicators off.

When battery is charged Smart 2 lite switches back to normal (as set).



## Maintenance

Device Smart 2 lite does not require any maintenance. Check the transducers periodically. They work properly if you hear a quiet clicking.

In the event that the transducer loses contact with the hull, turn the power off at the main switch and repeat bonding. Use epoxy glue.

If the device is not working, open the generator housing and check the electrical fuses. Check the power supply from the battery and reset the device using the main switch.

If you do not manage to resolve the problem, do not hesitate to contact us on the following e-mail address:

[info@smart-antifouling.com](mailto:info@smart-antifouling.com) • [sales@smart-antifouling.com](mailto:sales@smart-antifouling.com) • [www.smart-antifouling.com](http://www.smart-antifouling.com)

**The warranty period of the device is 5 years upon presenting the copy of the receipt.**

## Switch 1 Transducer working mode



Both together



Cyclic

## Switch 2 Transducer working time in cyclic mode



5 seconds

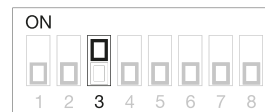


10 seconds

## Switch 3 Burst frequency 20-55 kHz

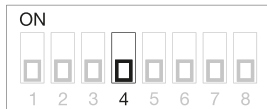


Random



Swap

## Switch 4 Burst time

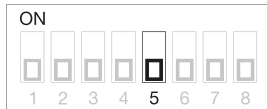


Short (lower consumption, lower efficiency)



Long (higher consumption, higher efficiency)

## Switch 5 Pause time between bursts



Short (higher consumption, higher efficiency)



Long (lower consumption, lower efficiency)

## Switches 6 and 7 Power settings



Low power



Medium power 1



Medium power 2



High power

## Switch 8 Transducer type



Single band 40 kHz

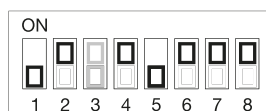


Dual band 25 / 45 kHz

## Examples



By default



Highest consumption



Lowest consumption