



6 pro



Ultrasonic Antifouling SMART 6 Pro

Installation manual

Ver. 01/2022

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 PRO 6 with LCD
- 6 dual band ultrasonic transducers with connectors IP68
- Transducer mounting adapters
- 8m cable for each transducer
- abrasive paper
- cleaning alcohol wipe
- 2K epoxy 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

Power supply voltage: 12/24VDC

Transducer power: 60W

Transducer type: 2 resonate bands 25/45kHz

Frequency range: 20-55 kHz

Transducer operation mode: all at once, sequential, random

Transducer power adjust: 1 - 10 on LCD

Transducer burst time: 200ms - 900ms

Transducer pause time: 100ms - 400ms

Average power consumption per transducer: 350mA - 1,5A

Output transducer voltage: 350V (to 1200V p-p)

Features

- Battery 12 or 24 V
- Monitoring of battery voltage, average current and temperature
- Fully programable
- Adjustable working time / pause for each transducer
- Adjustable power and freq. for each transducer
- Fan cooling
- High temperature protection
- Low voltage protection
- Low power consumption and high efficiency
- Multi language menu

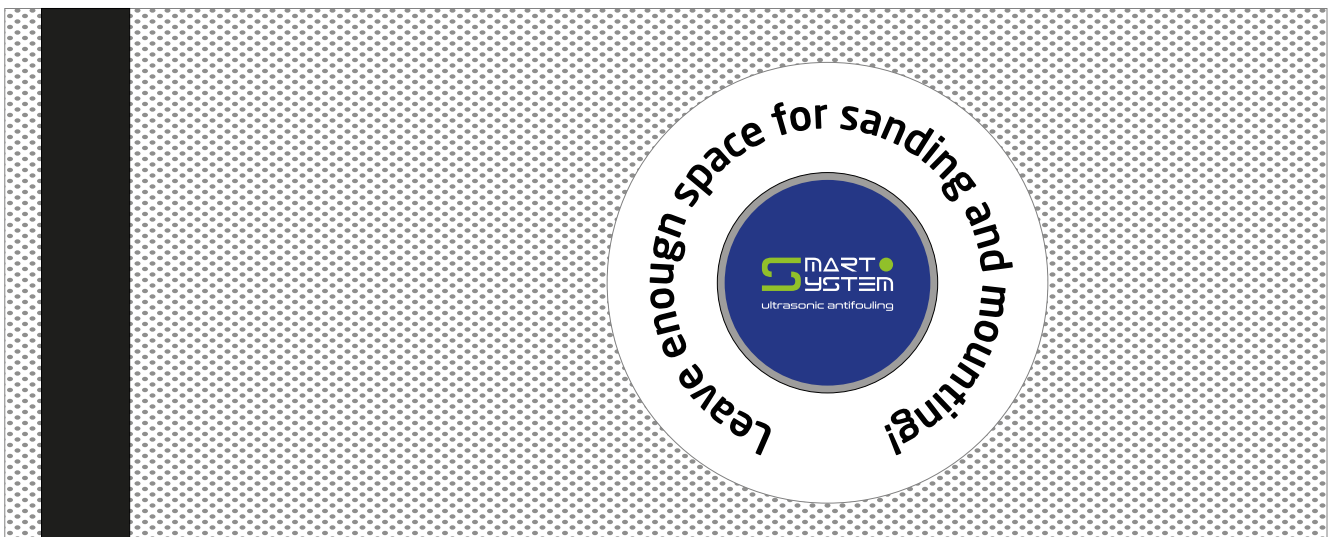
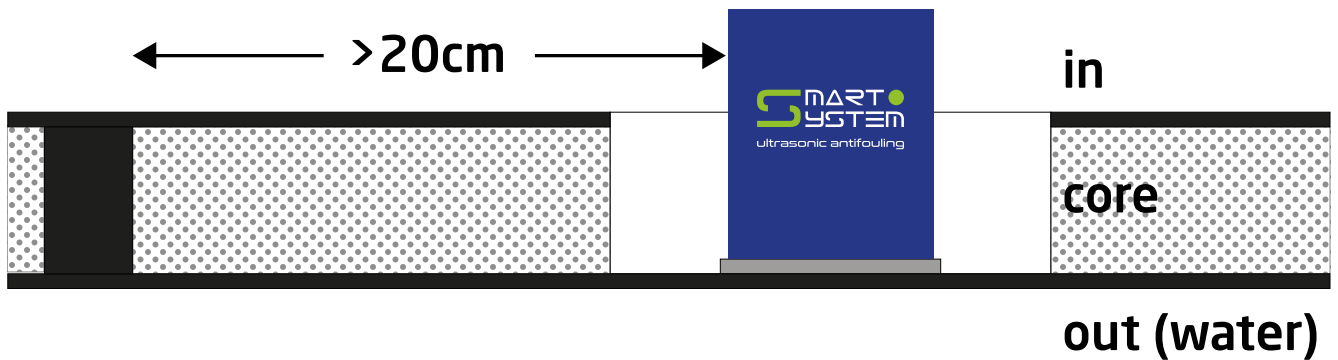
Location of the Main Box and Transducers

At the beginning it is necessary to find a suitable place for the **MAIN BOX** location. It is best suited somewhere in the middle of the boat or in the engine room and in a dry place. 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 main 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 on the inner (dry) side of the hull, according to the type of boat and in the areas where fouling is stronger.

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).



Installation of transducer to the hull.

Warning! The device will work properly only if the transducer/adapter and the surface of the hull fuse perfectly.

The transducer mounting location should be a flat surface to get perfect contact with transducer/adapter. Grind the transducer location well with the sand paper in the package or use electrical grinder. **There should be no paint remains on the area where transducer is attached!** Wipe the grinded area with alcohol wipe to degrease it and remove the dust. Wipe transducer/adapter too. Wait for 5 minutes to dry.



Important. Use the supplied Epoxy 2K adhesive. Read the instructions on the adhesive! From each tube squeeze the **same** amount. Mix well for about 1 minute. The transducer/adapter 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 adhesive tape (recommended). **Leave it to dry for 1h!**

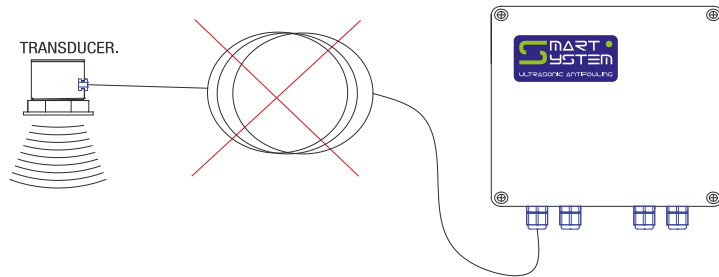




Apply a thin layer of contact grease OKS11 to the the transducer. The pot contains enough grease for 6 transducers. Screw the transducer onto the adapter. Fasten it tight to remove any air bubbles. Connect the cable to the transducer.



Do not wind the cable because of the coil effect!



For the laying of the transducer cable we recommend to 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 16m.



Main Box installation

The best position for the main box is near the battery you attempt to plug into. The main box location depends on transducers and generator cables lengths.

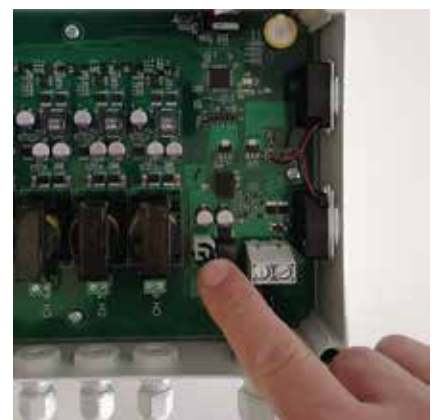
Open the generator cover and carefully disconnect LCD cable strip.



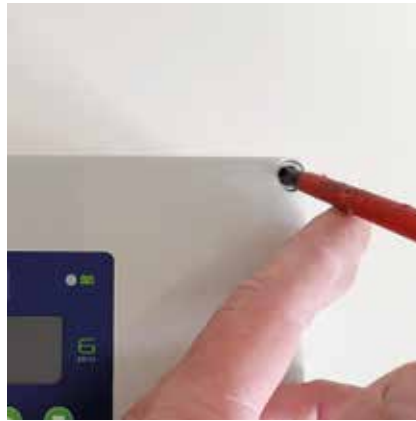
Fasten the generator with screws on the wall or any other convenient place. We suggest you place the generator in a room with other electrical devices. Pull out the DC connector.



Run the transducer cable through the cable thread and connect it to the terminal blocks. Polarity is not important. Connect 12/24V supply voltage and push the DC connector back in. **Polarity (+/-) is important!** Use 4mm² (AWG12). For lengths greater than 10m (30Ft) use a larger cross section.



Connect LCD cable strip and close the cover. Press ■ button to turn the device ON and continue with the device settings.



Warnings

When battery voltage drops below 11V (12V DC system) or 22V (24V DC system) Smart 6 Pro switches to minimum settings. Alarm warnings on main box beeping and/or LCD backlite blinking.

When voltage drops below 10,5V (12V DC system) or 21V (24V DC system) Smart 6 Pro switches OFF.

When battery is charged Smart 6 Pro switches back to normal (as set).

If for some reason battery voltage drops below 6V (12V DC system) or 12V (24V DC system) you will have to turn the device back on by pressing ■ button when the battery is charged.

Maintenance

Devices Smart Pro 6 do 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 • sales@smart-antifouling.com • www.smart-antifouling.com

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

ULTRASONIC ANTIFOULING SMART PRO 6 SETTINGS

Use ▲/▼ button to move / change values, ► to select, ■ to confirm and ◀ to go back.



Use ■ button to turn the device ON. Press and hold for 3 seconds to power the device OFF.

```

-MAIN-
*STATUS
SETTINGS
SWITCH OFF
    
```

Main window.

```

-STATUS-
Trans.: 1 2 3 4 5 6
        1 1 1 1 1 1
11.7V 0.33A T:31C
    
```

Use ► button to go to device status window.

Transducer status 1 ON, 0 OFF.
Battery voltage (V), average current (A), board temperature (°C)

```

-STATUS-
13:09.34
ENTER = Ipeak reset
I= 0.33 Ipeak= 1.45A
    
```

Use ▼ button to go to next window.

Average current and peak current display. Press ■ to reset.

```

-STATUS-
TR1:P7 tb600 tp200
TR2:P7 tb600 tp200
TR3:P7 tb600 tp200
TR4:P7 tb600 tp200
TR5:P7 tb600 tp200
TR6:P7 tb600 tp200
    
```

Transducer status window.
P power
tb burst time
tp pause time between bursts

```

-MAIN-
STATUS
*SETTINGS
SWITCH OFF
    
```

Use ◀ button to go back to main window.

Use ▼ button to move to settings.

```

-SETTINGS-
*TR SETUP
BACKLIGHT
LANGUAGE
CLOCK
ALARM WARNINGS
SERVICE LOCK
TRANSD. OFF
SERVICE
    
```

Use ► button to enter settings.

Settings window.

Use ► button to enter transducer settings.


```

-TRANS SELECT-
*TR1
TR2
TR3
TR4
TR5
TR6
MODE      ALL AT ONCE

```

Transducer select window.

Use ▼ / ▲ button to move, ► to select the transducer.

```

-TR1-
*OP.MODE  NIGHT MODE
TIMER
CYCLE TIMES
POWER      10
FREQ      AUTO
TR. TYPE   2-BAND
SET BURST
RENAME

```

```

-TR1-
ON
OFF
TIMER
*NIGHT MODE

```

Use ► to enter transducer operation mode window.
Use ▼ / ▲ to move, ■ to select the operation mode.

```

-TR1-
OP.MODE  NIGHT MODE
*TIMER
CYCLE TIMES
POWER      10
FREQ      AUTO
TR. TYPE   2-BAND
SET BURST
RENAME

```

```

-TR1-
*PROG1 |07:00|20:00
PROG2 |00:00|00:00
PROG3 |00:00|00:00
PROG4 |00:00|00:00
PROG5 |00:00|00:00
PROG6 |00:00|00:00

```

Use ▼ button to move, ► to enter timer settings.
Use ► to enter program. Use ◀ / ▶ to move, ▼ / ▲ to change and ■ to confirm start and end time.

Use ◀ button to go back to transducer settings.

```

-TR1-
OP.MODE  NIGHT MODE
TIMER
*CYCLE TIMES
POWER      10
FREQ      AUTO
TR. TYPE   2-BAND
SET BURST
RENAME

```

```

-TR1-
*WORK      05s
PAUSE      1s

```

Use ▼ button to move, ► to enter cycle times settings.
Use ► to enter work/pause time, ▼ / ▲ to change and ■ to confirm.

Use ◀ button to go back to transducer settings.

```

-TR1-
OP.MODE  NIGHT MODE
TIMER
CYCLE TIMES
*POWER      10
FREQ      AUTO
TR. TYPE   2-BAND
SET BURST
RENAME

```

```

-TR1-
*POWER      070

```

Use ▼ button to move, ► to enter power settings.
Use ▼ / ▲ to change and ■ to confirm power.

Use ◀ button to go back to transducer settings.

```

-TR1-
OP.MODE  NIGHT MODE
TIMER
CYCLE TIMES
POWER      10
*FREQ      AUTO
TR. TYPE   2-BAND
SET BURST
RENAME

```

```

-TR1-
*AUTO
SWEEP
PREVENTION
CLEANING

```

Use ▼ button to move, ► to enter frequency settings.
Use ▼ / ▲ to move and ■ to confirm frequency.
Auto: random
Sweep: from 20 to 55 kHz by steps
Prevention: 45 kHz
Cleaning: 25 kHz

```

-TR1-
OP.MODE NIGHT MODE
TIMER
CYCLE TIMES
-----
POWER          10
FREQ           AUTO
*TR.TYPE       2-BAND
SET BURST
RENAME

```

```

-TR1-
40kHz
*2-BAND

```

Use ▼ button to move, ► to enter transducer type.
Use ▼ / ▲ to move and ■ to confirm transducer type.

```

-TR1-
OP.MODE NIGHT MODE
TIMER
CYCLE TIMES
-----
POWER          10
FREQ           AUTO
TR.TYPE        2-BAND
*SET BURST
RENAME

```

```

-TR1-
*T BURST       0600ms
PAUSE BURST    200ms

```

Use ▼ button to move, ► to enter burst settings.
Use ◀ / ▶ to move, ▼ / ▲ to change and ■ to confirm burst / pause between bursts time.

Use ◀ button to go back to transducer settings.

```

-TR1-
OP.MODE NIGHT MODE
TIMER
CYCLE TIMES
-----
POWER          10
FREQ           AUTO
TR.TYPE        2-BAND
SET BURST
*RENAME

```

```

-RENAME TRANSDUCER-
)TR1 (

```

Use ▼ button to move, ► to enter transducer rename.
Use ◀ / ▶ to move, ▼ / ▲ to change and ■ to confirm transducer name.

Use ◀ button to go back to transducer select window.

```

-TRANS SELECT-
TR1
TR2
TR3
-----
TR4
TR5
TR6
*MODE ALL AT ONCE

```

```

-MODE-
SEQUENTIAL
RANDOM
*ALL AT ONCE

```

Use ▼ button to move, ► to enter transducer mode settings.
Use ▼ / ▲ to move and ■ to confirm transducer mode.
Sequential: 1-2-3-4-5-6-1-2-3-4-5-6-1-2-3...
Random: random
All at once: all transducers working

Use ◀ button to go back to settings window.

```

-SETTINGS-
TR SETUP
*BACKLIGHT
LANGUAGE
-----
CLOCK
ALARM WARNINGS
SERVICE LOCK
TRANSD. OFF
SERVICE

```

```

-BACKLIGHT-
*MODE ON
*LEVEL 3

```

Use ▼ button to move, ► to enter backlit settings.
Use ◀ / ▶ to move, ▼ / ▲ to change and ■ to confirm backlit settings.

Use ◀ button to go back to settings window.

```

-SETTINGS-
TR SETUP
BACKLIGHT
*LANGUAGE
-----
CLOCK
ALARM WARNINGS
SERVICE LOCK
TRANSD. OFF
SERVICE

```

```

-LANGUAGE-
SLO
*ENG
ESP
-----
CRO
DE
FR
IT

```

Use ▼ button to move, ► to enter language settings.
Use ▼ / ▲ to move and ■ to confirm language.

```

-SETTINGS-
TR SETUP
BACKLIGHT
LANGUAGE
-----
*CLOCK
ALARM WARNINGS
SERVICE LOCK
TRANSD. OFF
SERVICE

```

```

-CLOCK-
14:02.21
*SET CLOCK

```

Use ▼ button to move, ► to enter clock settings.
Use ◀ / ▶ to move, ▼ / ▲ to change and ■ to confirm clock.

```

-CLOCK-
14:02.21
14:02.21

```

Use ◀ button to go back to settings window.

```

-SETTINGS-
TR SETUP
BACKLIGHT
LANGUAGE
-----
CLOCK
*ALARM WARNINGS
SERVICE LOCK
TRANSD. OFF
SERVICE

```

```

-ALARM WARNINGS-
*ALARM SOUND      ON
BACKL. BLINK      ON

```

Use ▼ button to move, ► to enter alarm warnings.
Use ◀ / ▶ to move, ▼ / ▲ to change and ■ to confirm alarm warnings.

Use ◀ button to go back to settings window.

```

-SETTINGS-
TR SETUP
BACKLIGHT
LANGUAGE
-----
CLOCK
ALARM WARNINGS
*SERVICE LOCK
TRANSD. OFF
SERVICE

```

```

-SERVICE LOCK-
ON
*OFF

```

Use ▼ button to move, ► to enter service lock.
Use ▼ / ▲ to move and ■ to confirm service lock.

```

-SETTINGS-
TR SETUP
BACKLIGHT
LANGUAGE
-----
CLOCK
ALARM WARNINGS
SERVICE LOCK
*TRANSD. OFF
SERVICE

```

```

-TRANSD. OFF-
*NO
YES

```

Use ▼ button to move, ► to enter transducer off.
Use ▼ / ▲ to move and ■ to confirm transducer off.

Use ◀ button to go back to main window.

```

-MAIN-
STATUS
SETTINGS
*SWITCH OFF

```

```

* SMART SYSTEM *
ULTRASONIC
ANTIFOULING
SMART 6 PRO

```

Use ▼ button to move, ► to the system off.
Use any key to switch the system back on.

```

SYSTEM
OFF

```