



Acoustic  
Underwater  
Localization  
System

# User Manual



# CONTENTS

INTRODUCTION	02
DESCRIPTION	03
INSTALLATION	05
OPERATING	08
MAINTENANCE	12
PACKAGE CONTENTS	13

# INTRODUCTION

---

**AULoS** is the innovative system for underwater localization based on acoustic communication. It's compact and easy to carry and put into operation. Is suitable for environments where a non-invasive operation is needed (archaeological sites or marine protected areas).

**AULoS** guarantees the diver an accurate localization inside the immersion area, working within a radius of 100 meters

The underwater localization system consist of a **Base Transmitter** that can be anchored in middle water and **3 support Receivers**, mounted outside the tablets used for underwater explorations.

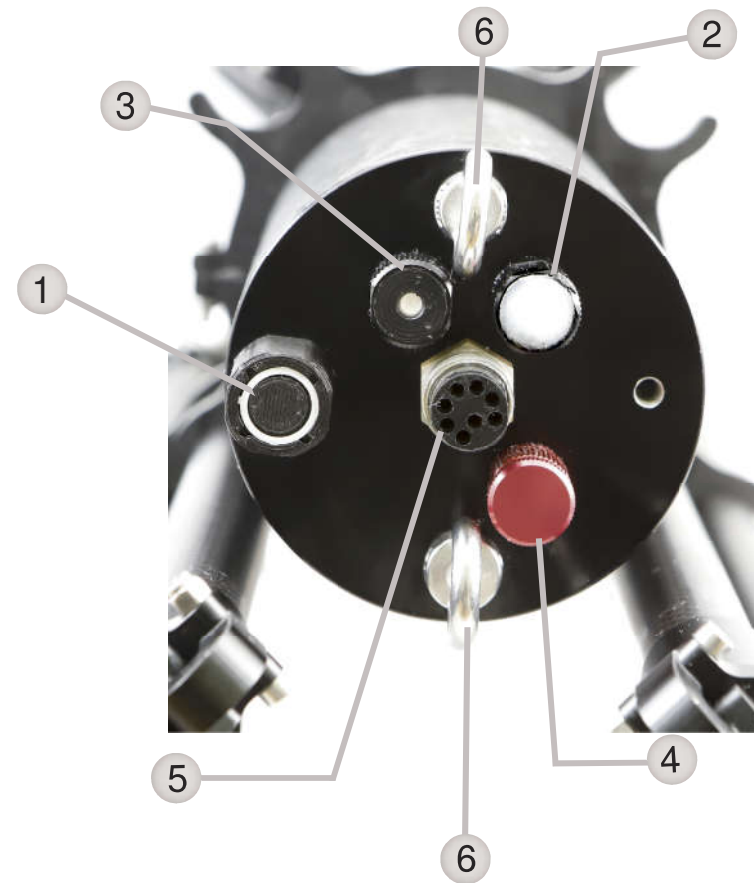


## Base Transmitter

The Base Transmitter is equipped with 4 functional folding arms, with an acoustic transducers at the end of each arm.

The Base is equipped with:

1. Power Button
2. Signalling LED
3. Depth Sensor
4. Vacuum Control Valve
5. 8 Pin Waterproof Connector for recharging
6. 4 Anchor Rings (2 on each side)



## Receivers

The Support Receivers shall be mounted behind each tablet. Each receiver provides an *acoustic reception transducer* and a *modern trilateration-based localization system* that communicates in real time with the Tablet, providing the diver his current position

Each Receiver is equipped with:

1. Power Button
2. Signalling LED
3. Depth Sensor
4. Vacuum Control Valve
5. 8 Pin Waterproof Connector for recharging



# INSTALLATION

The Support Receivers are mounted behind the tablets' watertight case using the 4 hexagonal screws supplied, by directing the transducer upwards. Each Receiver has an identification number (1,2,3) and provides a wireless access point to connect the Tablet with the same number. The name of the network (SSID) and the static addresses of the receivers are related to them.

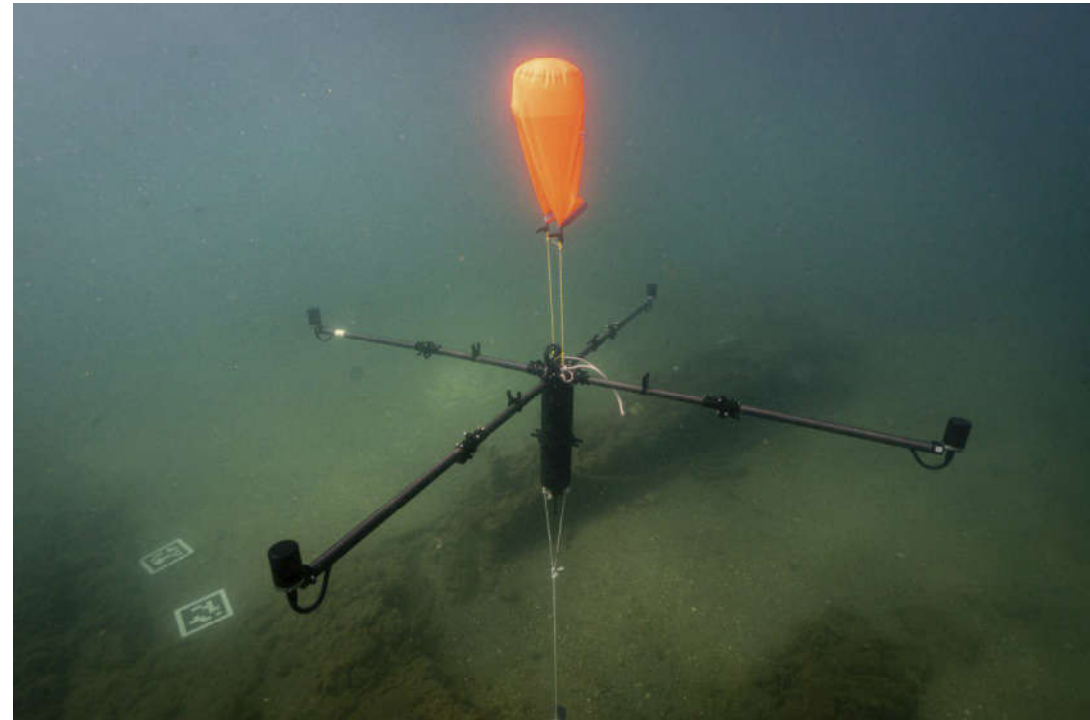
RECEIVER ID	SSID	STATIC IP
1	TAB1_AP	192.168.0.101
2	TAB2_AP	192.168.0.102
3	TAB3_AP	192.168.0.103



## Base Transmitter Installation

The Base is equipped with 2 anchoring rings on the bottom to fix the device on ground and 2 upper rings to attach an hydrostatic balloon for positioning it in middle water.


The 4 arms can be opened directly into the water by unhooking them from the clips and using the special closing levers placed on the joints.

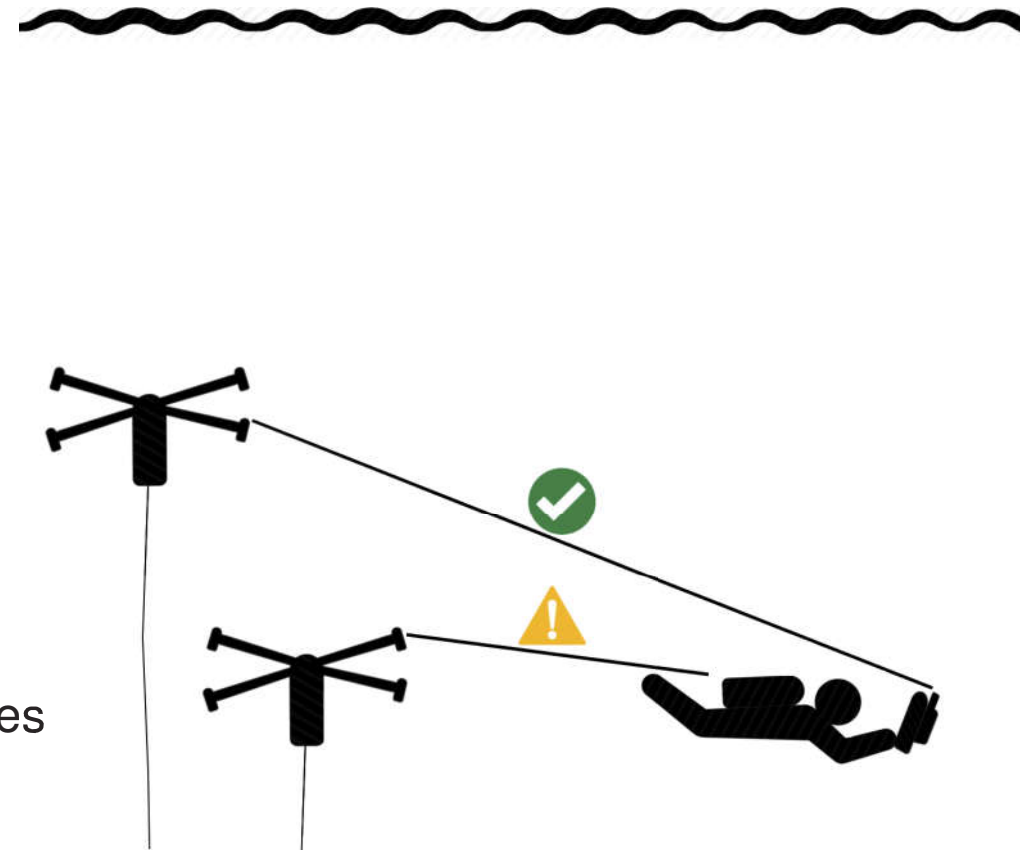


# INSTALLATION

Base and Receivers communicate mainly on a straight line. For this reason is better to place the Base in a point where the line of sight with the Receivers remains as free as possible during the explorations.

It is advisable to position it a few meters higher or lower than the floor where the exploration takes place, avoiding areas with depressions or reliefs in the middle.

 The Base must not be mounted near sources of electromagnetic field interference (electrical cables, pipes or large metal objects, etc.)



## Power on

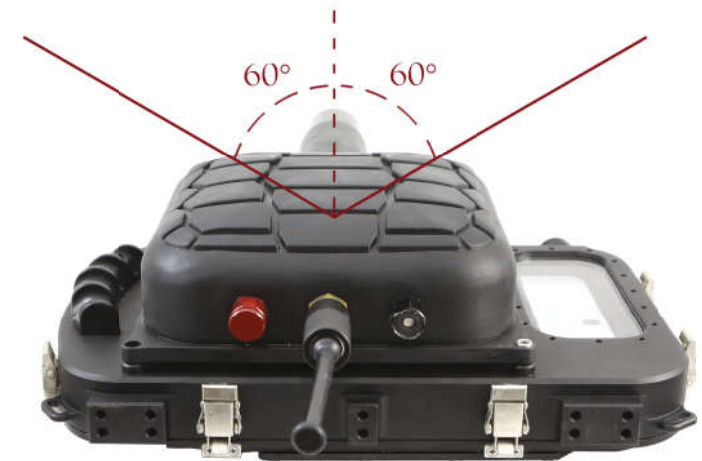
All devices must be switched on while they are on the surface and you have to wait for GPS clock synchronization before beginning the dive.

When the power button is pressed, the signalling LED turns **blue** and the configuration phase begins, which lasts about 40 seconds.

## Synchronization

After the configuration phase, the LED starts **blinking yellow** and the synchronization phase begins. During this phase it's recommended to put the Receiver with the tablet screen directed on the ground and keep it outside, in open-air, ensuring that there is an angle of at least 60 degrees from vertical. This is necessary for a correct GPS signal reception. Also the Base has to stay outside in this phase, preferably horizontally.

At the end of this phase the LED became **green**.



## Tablet Configuration

After a Tablet is turned on, connect it to the wireless network of the related Receiver and pair it to the bluetooth keypad of the case. Start the exploration app and connect the supplied powerbank, then place the tablet in its housing through the appropriate supports, ensuring that the camera is positioned on the glass side. Close the tablet case with the 8 hooks present.

Ensure that the seals on the cap are in the right seat and that they are not broken or dirty. In this case gently remove them and proceed with cleaning or replacement.



## Bluetooth KeyPad

### Functioning:

- **Power on:** press the power button and then the red LED starts blinking
- **Pairing:** connect to “DiveShock” bluetooth device from the Tablet.  
Once paired, the green LED lights up
- **Power off:** hold the power button until all the LEDs lights up

### Warnings:

- **Low battery:** yellow LED starts blinking
- **Connectivity problems:** all the LEDs starts blinking

For more informations visit <https://www.easydive.it>

## Diving

The Base Transmitter starts to give off acoustic signals when it's at least 2 meter underwater. During the transmission phase the LED flashes **green** with a frequency of about once per second. When the receiver starts to communicate with the base, underwater, its LED turns **green**, it becomes white when no signals are received from the base.

## Power Off

To turn off the devices, keep the button pressed until the **blue** LED turns off.









## Reset

To reset the devices, press the power button and release as soon as the LED turns **blue**. If the reset is done after the synchronization phase, it will no longer be necessary to hold the Receiver outdoors to receive GPS signals.

## Recharge

On low battery level the signalling LED light up **red**. For recharge the device turn it off and connect it to the special charger supplied with the 8-pin waterproof connector. To remove the safety cap, unscrew the ring and the pull the cap. During the charge, the charger light remains red, when it turns green the device is fully charged.

## Signalling LED Summary

	BLUE:	<b>Switching ON/OFF</b>
	FLASHING YELLOW:	<b>Init synchronization</b>
	GREEN:	<b>Synchronized and ready</b>
	FLASHING GREEN:	<b>Base in transmission</b>
	RED:	<b>Low battery level</b>
	WHITE:	<b>No communication</b>
	VIOLET:	<b>System error</b>
	CYAN:	<b>High electromagnetic field interference</b>

## **Electromagnetic interference**

The Base Transmitter must be positioned away from sources of electromagnetic interference which could distort the terrestrial electromagnetic field (electrical cables, metal pipe, large metal object, etc.). Do not attach magnets or other metal objects to the Base, their presence could change the normal functioning or damage them permanently.

In case of strong electromagnetic interference, the signalling LED on the Base will turn cyan.

## **Watertight seal**

Before each dive, check that the case gasket is in its seat and that it is not damaged or dirty.

In this case gently remove the gasket and clean or replace it. Use silicone grease as a seal lubricant.

Before each dive check that the vacuum control valve is tightly closed. Do not open the valve cap for any reason, excepted to check the watertightness of the devices through a common vacuum pump.

## **Cleaning**

After each dive it is recommended to rinse all the devices with clean water, without using solvents, brushes or other abrasive objects near sensors and connectors.

Do not insert objects in the pressure sensor for any reason to avoid compromise him.

## **Synchronization**

The synchronization phase allows the devices works correctly for a about 2 hours.

If used more, it is recommended to turn off the devices and perform the initialization phase again.

# PACKAGE CONTENTS

---

Each kit contains:

- Base Transmitter (x1)
- Receiver (x3)
- Watertight case with bluetooth keyboard for Tablet (x3)
- Battery charger (x2)
- Samsung Tablet with battery charger (x3)
- Powerbank for Tablet (x3)
- Base case
- Receiver case
- Waterproof bag
- Anchoring rope