



The SESA buoy is the most affordable, versatile, and reliable remote aquatic environmental monitoring solution on the market. The platform employs commercial grade sensors and uploads the data to a custom web-based dashboard (ThingsBoard), enabling researchers and operators to receive critical real-time data. The system can be deployed by one person, thereby reducing logistical and maintenance costs. SESA is committed to providing high-quality products at affordable prices with the industry's best support.

WHAT SETS US APART?

Advanced Technology:

A large proportion of the world's communities rely heavily on healthy aquatic ecosystems. Maintaining water quality is vital to ensure the supply of safe drinking water, irrigation for farming, and also supporting the sensitive ecology that lives in and around water bodies.

The SESA Buoy initiative is developing the next generation of aquatic wireless sensor networks to enable near real-time monitoring of our precious lakes, dams, rivers and coastal environments. Our system represents a holistic package for environmental monitoring by measuring:

- pH
- Light
- Salinity
- Temperature
- Dissolved Oxygen
- Turbidity (on request)

These measurements are then transmitted in near real-time to an IT solutions platform called ThingsBoard. This information is crucial for monitoring the effects of environmental change, run-off and pollutants.

Our devices are designed for use by researchers and non-expert end-users such as farmers and similar stakeholders in urban and rural settings. One person can deploy a device, then take out their mobile phone and view the data being collected.

Expense is typically the most significant limiting factor in the number of measurement systems that can be deployed.



Partnering Initiative By:



Australian Government
Australian Research Council

Affordable Solution:

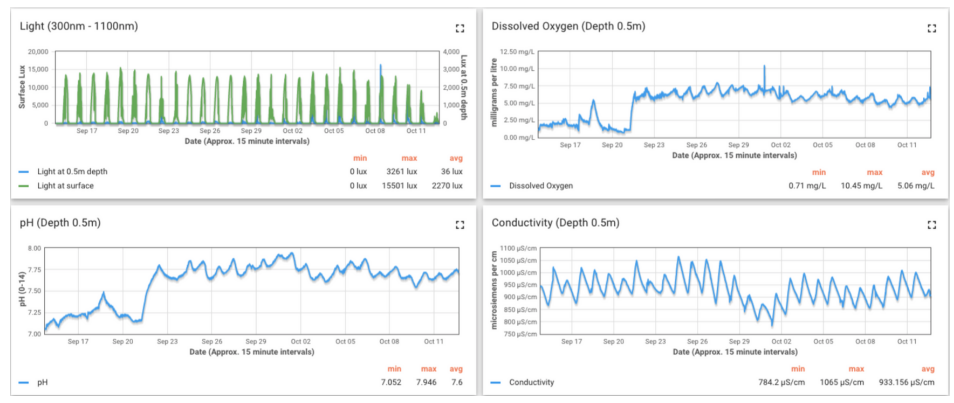
Our cost-effective approach makes it ideal for agriculture and aquaculture applications - particularly in developing countries where cost is a significant limiting factor in uptake. SESA Buoys is fundamentally altering our capacity to manage marine and coastal ecosystems and respond in times of crisis.

Our current monitoring units utilise affordable microcontrollers and networking technologies. The platform can be adapted for use with virtually any type of sensor and can provide multiple options for data storage, telemetry and power management.

The platform has been developed using commercially available, off-the-shelf componentry. This makes the system affordable, easy to maintain, and adaptable to foreseeable new sensors and technologies.

Online Monitoring Software:

Our system offers a powerful web-based dashboard for data visualisation and analytics. We employ ThingsBoard, which is an open-source Internet of Things (IoT) platform for your data collection, processing, visualisation, and device management. The dashboard flexibly presents real-time data allowing you to download reports and set environmental alerts based on changing conditions. The system integrates with artificial intelligence learning techniques and back-end environmental models to provide a comprehensive solution.



Contact Our Sales Team

If you have any questions about our products, please contact our sales team. We pride ourselves on tailoring our solutions to meet your needs and requirements.

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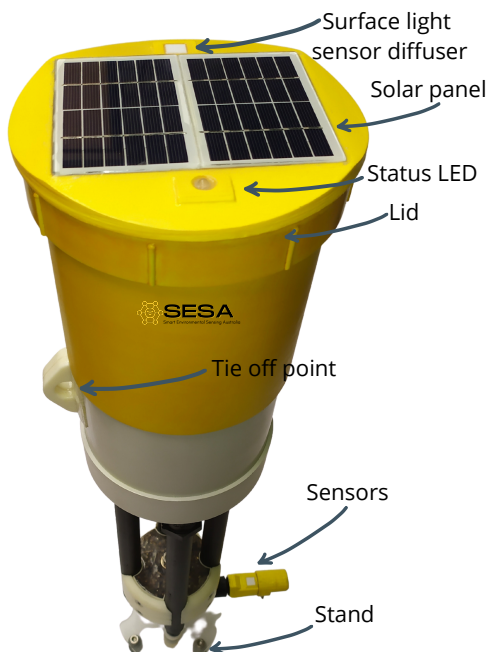


Activation, Deployment, Data Viewing and Maintenance of your SESA Buoy

1. ACTIVATION

1. Unbox your SESA Buoy.
2. Place the buoy upright on its stand.
3. Carefully remove the top lid by unscrewing it counterclockwise and pull the lid upwards, ensuring all cables remain attached.
4. Flip the switch on the top of the circuit board to the "on" position. The green status LED on the lid should illuminate. *If the status LED is any other colour please contact Substation33.*
5. Every 15 minutes the status LED will turn blue for up to 1 minute indicating that the buoy is awake and transmitting.
6. Turn the lid wires counterclockwise 6 times before replacing the lid, ensuring that the silica gel and wires are neatly inside the main canister and are not being pinched by the lid.
7. Tighten the lid firmly to create a waterproof and airtight seal.

All SESA Buoys are shipped with the battery 75% charged. You may choose to place your buoy upright in a sunny area prior to deployment if you wish to charge the battery further.



2. DEPLOYMENT

Prior to deployment:

1. Remove the pH buffer solution container from the pH sensor by holding the cap and gently unscrewing. **The pH sensor must not be allowed to dry out**, so remove this container immediately prior to deployment. (Keep the container and fluid so that you can place it back over the sensor when retrieving the buoy. The fluid can be stored in an airtight container).
2. Remove the 4 rubber feet from the bottom of the stand and store in a safe place (with the pH buffer solution).
3. A SESA Buoy is typically deployed by mooring a surface float to an anchor, then tethering the buoy to the surface float using the tie-off points on the side of the buoy. Add enough length to the tether to account for anticipated rises in the water body to ensure that your buoy does not become submerged.

SESA Buoy Sensors



3. DATA VIEWING

Once your SESA Buoy is activated, it will start transmitting data within 15 minutes and continue to transmit data every 15 minutes.

This data is viewable via our online user dashboard.

The online user dashboard provides status information about the buoy's operation in addition to the sensor data.

You can also download your sensor data from the dashboard.

Please contact Substation33 for the specific URL (i.e., website address) to access your data.

4. MAINTENANCE

Cleaning:

For smooth operation and sensor accuracy it is recommended that you clean your SESA Buoy at least every 2 weeks. Different water bodies foul at different rates so cleaning rates can be adjusted as required.

1. Sensors:

Do not use a brush or abrasive materials to clean any of the sensors.

- a) Gently scrape off any barnacles that are around or on any of the sensors.
- b) Mix 500ml hydrochloric acid (HCl) (320G/L solution) with 5L of water in a standard 9L bucket. **Follow safety directions on label**
- c) Place the buoy on its stand and immerse in the HCl solution for approx. 15 mins, making sure to agitate the buoy in the solution every few minutes.
- d) Check and soak for longer if required.

2. Solar panels and surface light sensor diffuser (on the buoy lid):

Moisten a lint-free cloth with the HCl solution and wipe gently to ensure no debris, dirt, and animal excrement remain.

Calibration:

SESA Buoys are calibrated against known industry standards and scientific instruments prior to deployment.

You do not need to do anything with regard to calibration. However, over time there will be changes in the accuracy of the sensor readings.

We recommend that your SESA Buoy be returned to Substation33 for maintenance and re-calibration every 12-18 months of continuous deployment.

Contact Our Sales Team

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