

# aquaMeasure Sensors

Equipment that works, data where you need it, that's aquaMeasure.

aquaMeasure is a family of compact, submersible environmental sensors with underwater and in-air wireless communications. aquaMeasure was designed with a focus on what matters most, your data. By combining underwater communications with cloud-sync technology, aquaMeasure delivers a user experience that is intuitive and unique, enabling mass amounts of data to be gathered from underwater environments and sent seamlessly to the cloud. All aquaMeasure sensors measure temperature and tilt along with a range of different sensor configurations including Dissolved Oxygen (DO), Salinity (SAL), DO/Depth (DOD), Chlorophyll (CHLA), Turbidity, BG Algae and CDOM/FDOM. Sensors are easy to install, built for the roughest of open ocean conditions and are field-ready, factory-calibrated. Users can now perform single and two point calibrations on the DO sensor.



## Key Features

- » Underwater Communications
- » Easy to Deploy
- » Cloud Sync Technology
- » Mobile Configuration
- » Bluetooth Connectivity

# aquaMeasure DOT (D)

## Wireless Sensor/Data Logger

DO measurements are crucially important in optimizing feeding and maintaining healthy fish. Ongoing low dissolved oxygen levels on a farm can significantly affect fish behavior and lead to mortality. Conversely, supersaturated water can be highly dangerous for fish, leading to similar behaviors. Not every farm is the same. DO levels can be affected by numerous variables; size of fish, net fouling, water temperature, salinity and atmospheric pressure. Levels continuously vary throughout a day, so it is crucial that aquaculture farmers measure DO in real-time.

### PRODUCT SPECIFICATIONS

The aquaMeasure DO is a compact, wireless underwater sensor that measures dissolved oxygen (DO), temperature and tilt in real-time.



#### **Dissolved Oxygen (Optical Based Measurement)**

Operational Range (0-150%)  
Resolution (logged data): 0.1%  
Resolution (transmitted data): 0.55% - 1%  
Accuracy  $\pm 5\%$ , up to 120%,  
from 5°C to 25°C

#### **Temperature**

Operational Range -5°C to +35°C (water must not freeze)  
Resolution (logged data): 0.01°C  
Resolution (transmitted data): 0.1°C  
Accuracy  $\pm 0.2^\circ\text{C}$

#### **Tilt**

3D Accelerometer (0° to 180°)  
Resolution (logged data): 0.1°  
Resolution (transmitted data): 1°

#### **Depth (optional sensor)**

0 - 100 m (+/- 1.5m)  
Resolution (logged data): 0.1 m  
Resolution (transmitted data): 0.5 m

#### **Battery Life** 6-12 months

#### **Configuration/Offload**

Via aquaMeasure App (IOS/Android)

#### **Real-time Mode**

Yes (Underwater Communications)

#### **Logger Mode** Yes (Internal Memory)

**Memory** 64Mb Flash (1,000,000+ Records)

**Operating Depth Range** Up to 100m

**Sensor Dimensions** 50 x 274mm

**Weight Collar** 70 x 80mm

**Weight (Air/Water)** 526g / 154g

**Weight Collar (Air/Water)** 907g / 816g

# aquaMeasure SAL

## Wireless Sensor/Data Logger

Salinity is an important measure of water quality as many species of fish survive in different ranges of salinity. In aquaculture, abrupt changes in salinity can cause high levels of stress and can even lead to mortality. Although changes in salinity are uncommon, greater fluctuations are found in areas affected by tidal forces or near a freshwater source. It is recommended that salinity is measured in realtime to capture changeover events and to utilize preventative measures. Salinity can also be used to convert DO saturation measurements into mg/L.

### PRODUCT SPECIFICATIONS



The aquaMeasure SAL is a compact, wireless underwater sensor that measures salinity (SAL), temperature and tilt in real-time.

#### Salinity

Conductivity Based Measurement  
(0 - 40PSU ( $\pm 0.5$ PSU))

#### Temperature

Operational Range  $-5^{\circ}\text{C}$  to  $+35^{\circ}\text{C}$   
(water must not freeze)

Resolution (logged data):  $0.01^{\circ}\text{C}$

Resolution (transmitted data):  $0.1^{\circ}\text{C}$

Accuracy  $\pm 0.2^{\circ}\text{C}$

#### Tilt Sensor

3D Accelerometer (0 -  $180^{\circ}$ )

#### Battery Life

6 - 12 months

#### Configuration/Offload

Via aquaMeasure App (IOS/  
Android)

#### Real-time Mode

Yes (Underwater Communications)

#### Logger Mode

Yes (Internal Memory)

#### Memory

64Mb Flash (1,000,000+ Records)

#### Depth

Up to 100m

#### Dimensions

64 x 386mm

#### Weight (Air/Water)

820g / 300g (no weight collar)\*

† Weight Collar Specs: 70 x 80mm / 907g (air) / 816g (water)

# aquaMeasure BGA (Freshwater)

## Wireless Sensor/Data Logger

Blue-Green Algae (BG Algae) are a bacterium that grows in both fresh and marine water ecosystems. In aquaculture environments, signs of BG Algae are not always visible and blooms can have an almost instantaneously disastrous effect on farm biomass. Negative effects can include low dissolved oxygen and the production of toxins, which can lead to extremely high levels of mortality. In areas known for potential algae blooms, or high levels of BG Algae, realtime monitoring is extremely important.

### PRODUCT SPECIFICATIONS

The aquaMeasure BGA is a compact, wireless underwater sensor that measures BG Algae, temperature and tilt in realtime. The freshwater sensor is configured to measure BG Algae in freshwater environments.



#### **BG Algae Freshwater (Phycocyanin)**

Optical Fluorescence Based  
Measurement (0 – 4500ppb)  
Resolution (logged data): 1.0 ppb  
Resolution (transmitted data): 30.0 ppb

#### **Temperature**

Operational Range -2°C to +35°C (water must not freeze)  
Resolution (logged data): 0.01°C  
Resolution (transmitted data): 0.1°C  
Accuracy  $\pm 0.2$  °C

#### **Tilt**

3D Accelerometer (0° to 180°)  
Resolution (logged data): 0.1°  
Resolution (transmitted data): 1°

#### **Battery Life**

4-6 months  
Configuration/Offload  
Via aquaMeasure App (IOS/Android)

#### **Real-time Mode**

Yes (Underwater Communications)

#### **Logger Mode**

Yes (Internal Memory)

#### **Memory**

64Mb Flash (1,000,000+ Records)

#### **Operating Depth Range**

Up to 100m

#### **Sensor Dimensions**

64 x 574mm

#### **Weight Collar**

99 x 106mm

#### **Weight (Air/Water)**

1300g / 265g

#### **Weight Collar (Air/Water)**

2360g / 2170g

# aquaMeasure BGA (Marine)

## Wireless Sensor/Data Logger

Blue-Green Algae (BG Algae) are a bacterium that grows in both fresh and marine water ecosystems. In aquaculture environments, signs of BG Algae are not always visible and blooms can have an almost instantaneously disastrous effect on farm biomass. Negative effects can include low dissolved oxygen and the production of toxins, which can lead to extremely high levels of mortality. In areas known for potential algae blooms, or high levels of BG Algae, realtime monitoring is extremely important.

### PRODUCT SPECIFICATIONS

The aquaMeasure BGA is a compact, wireless underwater sensor that measures BG Algae, temperature and tilt in realtime. The marine sensor is configured to measure BG Algae in saltwater environments.



#### **BG Algae Marine (Phycoerythrin)**

Optical Fluorescence Based  
Measurement (0 – 700ppb)  
Resolution (logged data): 0.1ppb  
Resolution (transmitted data): 5.0 ppb

#### **Temperature**

Operational Range -2°C to +35°C (water must not freeze)  
Resolution (logged data): 0.01°C  
Resolution (transmitted data): 0.1°C  
Accuracy  $\pm 0.2$  °C

#### **Tilt**

3D Accelerometer (0° to 180°)  
Resolution (logged data): 0.1°  
Resolution (transmitted data): 1°

#### **Battery Life**

4-6 months  
Configuration/Offload  
Via aquaMeasure App (IOS/Android)

#### **Real-time Mode**

Yes (Underwater Communications)

#### **Logger Mode**

Yes (Internal Memory)

#### **Memory**

64Mb Flash (1,000,000+ Records)

#### **Operating Depth Range**

Up to 100m

#### **Sensor Dimensions**

64 x 574mm

#### **Weight Collar**

99 x 106mm

#### **Weight (Air/Water)**

1300g / 265g

#### **Weight Collar (Air/Water)**

2360g / 2170g

# aquaMeasure TURB

## Wireless Sensor/Data Logger

Turbidity is most often a result of suspended particles of solid matter in marine environments; if water is turbid it appears 'cloudy'. Turbidity is an important measure of water quality because increased levels of turbidity raise water temperatures, which can be harmful to biomass and affect fish feeding behavior and welfare. Sudden changes in turbidity can also be an indication that a new pollutant source is under development, or entered the water. Real-time monitoring of turbidity helps ensure that nothing goes unnoticed and can provide greater insights for other parameters.

### PRODUCT SPECIFICATIONS



The aquaMeasure Turbidity is a compact, wireless underwater sensor that measures turbidity, temperature and tilt in real-time.

#### **Turbidity**

Optical Back-Scatter Based  
Measurement (0 – 200 NTU)  
Resolution (logged data): 0.01  
NTU  
Resolution (transmitted data): 2.0  
NTU

#### **Temperature**

Operational Range -2°C to +35°C  
(water must not freeze)  
Resolution (logged data): 0.01°C  
Resolution (transmitted data):  
0.1°C  
Accuracy  $\pm 0.2$  °C

#### **Tilt**

3D Accelerometer (0° to 180°)  
Resolution (logged data): 0.1°  
Resolution (transmitted data): 1°

#### **Battery Life**

4-6 months

#### **Configuration/Offload**

Via aquaMeasure App (IOS/  
Android)

#### **Real-time Mode**

Yes (Underwater Communications)

#### **Logger Mode**

Yes (Internal Memory)

#### **Memory**

64Mb Flash (1,000,000+ Records)

#### **Operating Depth Range**

Up to 100m

#### **Sensor Dimensions**

64 x 574mm

#### **Weight Collar**

99 x 106mm

#### **Weight (Air/Water)**

1300g / 265g

#### **Weight Collar (Air/Water)**

2360g / 2170g



# aquaMeasure CHL

## Wireless Sensor/Data Logger

Measuring chlorophyll in water is important in order to estimate levels of phytoplankton; if a high level of chlorophyll is detected, it is an indication that a high level of phytoplankton is present in the water. In aquaculture, the size of the biomass and possible pollutants entering the water can have a major impact on macronutrients and phytoplankton biomass. In order to gain a clear vision for sustainable use of aquaculture and marine habitats, assessment of water quality depending on phytoplankton is important.

### PRODUCT SPECIFICATIONS



The aquaMeasure CHLA is a compact, wireless underwater sensor that measures chlorophyll, temperature and tilt in real-time.

#### **Chlorophyll A-Blue**

Optical Fluorescence Based  
Measurement (0 – 100 µg/l)  
Resolution (logged data): 0.01 µg/l  
Resolution (transmitted data): 1.0 µg/l

#### **Chlorophyll A-Red**

Optical Fluorescence Based  
Measurement (0 – 500 µg/l)  
Resolution (logged data): 0.1 µg/l  
Resolution (transmitted data): 5.0 µg/l

#### **Temperature**

Operational Range -2°C to +35°C  
(water must not freeze)  
Resolution (logged data): 0.01°C  
Resolution (transmitted data): 0.1°C  
Accuracy ±0.2 °C

#### **Tilt**

3D Accelerometer (0° to 180°)  
Resolution (logged data): 0.1°  
Resolution (transmitted data): 1°

#### **Battery Life**

4-6 months

#### **Configuration/Offload**

Via aquaMeasure App (IOS/  
Android)

#### **Real-time Mode**

Yes (Underwater Communications)

#### **Logger Mode**

Yes (Internal Memory)

#### **Memory**

64Mb Flash (1,000,000+ Records)

#### **Operating Depth Range**

Up to 100m

#### **Sensor Dimensions** 64 x 574mm

#### **Weight Collar** 99 x 106mm

#### **Weight (Air/Water)** 1300g / 265g

#### **Weight Collar (Air/Water)**

2360g / 2170g

# aquaMeasure CDOM/FDOM

## Wireless Sensor/Data Logger

Coloured or chromophoric dissolved organic matter (CDOM) is a naturally occurring matter that consumes UV light in water. CDOM in part will fluoresce when it absorbs light of a certain spectrum; this called fluorescent dissolved organic matter or FDOM. CDOM/FDOM sensors are used to measure dissolved organic material (DOM) in fresh and marine water ecosystems. Aquaculture sites close to human influences such as logging, agriculture, effluent discharge and wetland drainage can be subject to varying levels of CDOM/FDOM, making it crucial to measure both parameters continuously and in real-time.

### PRODUCT SPECIFICATIONS



The aquaMeasure CDOM/FDOM is a compact, wireless underwater sensor that measures CDOM/FDOM, temperature and tilt in real-time.

#### CDOM/FDOM

Optical Fluorescence Based  
Measurement (0 – 500ppb)  
Resolution (logged data): 0.1 ppb  
Resolution (transmitted data): 5.0 ppb

#### Temperature

Operational Range -2°C to +35°C  
(water must not freeze)  
Resolution (logged data): 0.01°C  
Resolution (transmitted data): 0.1°C  
Accuracy  $\pm 0.2$  °C

#### Tilt

3D Accelerometer (0° to 180°)  
Resolution (logged data): 0.1°  
Resolution (transmitted data): 1°

#### Battery Life

4-6 months

#### Configuration/Offload

Via aquaMeasure App (IOS/  
Android)

#### Real-time Mode

Yes (Underwater Communications)

#### Logger Mode

Yes (Internal Memory)

#### Memory

64Mb Flash (1,000,000+ Records)

#### Operating Depth Range

Up to 100m

#### Sensor Dimensions

64 x 574mm

#### Weight (Air/Water)

99 x 106mm

Weight (Air/Water) 1300g / 265g

Weight Collar (Air/Water)  
2360g / 2170g

## Ready to Get Started?

Learn more at [www.innovasea.com](http://www.innovasea.com)



# aquaHub

Delivering your data seamlessly and securely to the cloud.

aquaHub is the core of the system deployed in the field and can be easily mounted to existing aquaculture infrastructure or feed barges. Utilizing a digital receiver, communications modem and state of the art electronics, the aquaHub can support up to 100 aquaMeasure sensors within a 500m radius. The aquaHub was made with the understanding of the remoteness of aquaculture environments, so it supports many telemetry protocols for cloud communications including Cellular, Wi-Fi and Iridium. It is designed in a rugged, waterproof housing, that stands up to the rough, open water conditions of remote locations. The hub also supports third-party sensors like weather stations, via its auxiliary sensor port and features internal memory for backup purposes.



## Key Features

- » Underwater Communications
- » Easy to Mount
- » Remote Telemetry
- » Mobile Configuration
- » Bluetooth Connectivity

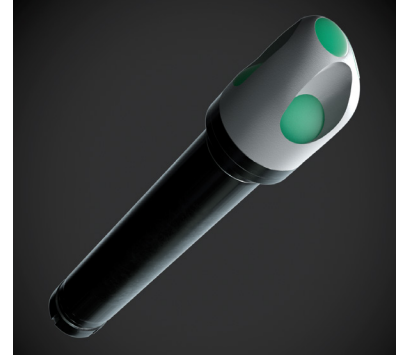
# aquaHub

## Centralized Hub/Cloud Communications

### Pair With

For a complete solution, we recommend pairing with:

- » Airmar 200WX Weather Station
- » aquaDopp Current Profiler
- » Solartech SPM-20 Solar Panel



### PRODUCT SPECIFICATIONS



#### Dimensions

10.0 x 7.9 x 5.9" (254 x 203 x 152mm)

#### Power

DC: 15-25 V AC Converter: 110 – 230V  
(50/60 HZ)

Solar Panel (Optional)

Internal 5 Ah Nanophosphate®  
LiFePO4 battery

**Power Consumption** 14mA x 12V

#### Communications

WLAN: Dual bane IEEE 802.11 a/b/g/n  
(Wi-Fi)

Cellular module (GSM/GPRS/EDGE/  
WCDMA)

Optional Satellite module (Iridium)

Bluetooth Dual-mode Bluetooth v4.0

#### GPS

GPS/GLONASS Receiver

#### Auxiliary Sensors

1 auxiliary sensor port (RS-485  
Port/RS-232)

4 modbus ports (optional)

#### Sensors

Box temperature & tilt

Water temperature, MiniRxm tilt

#### Hydrophone

Optional Multi-channel digital  
hydrophone (Mini-RX)

#### Environmental

NEMA-4X, IP66

#### Operating Temperature Range

-20°C to +70°C (surface box)

-5°C to +50°C (hydrophone)

water must not freeze

## Ready to Get Started?

Learn more at [www.innovasea.com](http://www.innovasea.com)



# aquaCurrent

The complete software solution, designed for the modern aquaculture site.

aquaCurrent is a cloud-based platform that allows you to view and analyze data from all of your aquaculture sites in real-time, no matter where you are. The software provides a set of continuously evolving analytics tools that give you the ability to easily view data how you want, in the format you decide. In addition to viewing and analyzing your data from an intuitive and easy to understand web portal, aquaCurrent can let you know if something is wrong at any time. Notifications and alerts allow you to receive crucial updates in real-time, allowing for a quick passage back to aquaCurrent to view the whole picture. aquaCurrent works to keep your data secure, safe and available to you, whenever you need it. By utilizing advanced cloud architecture, aquaCurrent delivers on its promise to be the future of realtime environmental monitoring software.

## Key Features

- » Cloud Data Management
- » Real-time Updates
- » Responsive Design
- » iOS/Android Applications
- » Configurable Notifications
- » .CSV Downloads
- » Weekly Reports



# aquaCurrent

Cloud-based Software

## PRODUCT SPECIFICATIONS



### Display

Google Play  
iOS

### Browser Support

Google Chrome  
Firefox  
Opera  
Safari  
Microsoft Edge

### Export

.CSV  
FishTalk  
JSON

### Mobile Friendly

Yes

### Supported Hardware

aquaMeasure DO  
aquaMeasure SAL  
aquaMeasure TURB  
aquaMeasure CHLA  
aquaMeasure CDOM/FDOM  
aquaMeasure LIGHT  
aquaMeasure PH  
aquaMeasure TEMP  
aquaHub  
Airmar 200WX Weather Station  
aquaDopp Current Profiler  
Solartech SPM-20 Solar Panel

### Notifications

Email  
Text Message  
IP Based Siren

## Ready to Get Started?

Learn more at [www.innovasea.com](http://www.innovasea.com)

### About Innovasea

Innovasea designs the world's most technologically advanced aquatic solutions for fish tracking and fish farming – and builds them to withstand the toughest conditions. We partner with customers to fully understand their needs and solve their most pressing challenges. It's all driven by a commitment to make our ocean and freshwater ecosystems sustainable for future generations. Today. Tomorrow. For life.