Monitor Water Quality and Algae with LG Sonic Monitoring Buoy

- Cost-effective solution
- Online access to real-time water quality data
- Requires minimum effort and little maintenance

LG SONIC
Leading in ultrasonic algae control

Real-time Water Quality Monitoring Solution

Water quality data embody essential evidence to support decision-making in the management of water resources. This objective information is used to verify compliance with regulations and policies; to alert managers to current and emerging problems and to define new regulations to better protect human health and the environment.

Monitoring Buoy

Monitoring Buoy is a unique combination of real-time water quality monitoring and user-friendly cloud software that stores, and analyses received water quality data. The system represents cost-effective monitoring and early warning solution for lakes and water reservoirs.

Advantages LG Sonic Monitoring Buoy

- **Easily deployable**
- **Upgradable to LG Sonic ultrasound algae treament**
- **Requires little maintenance**
- **Cost-effective**

The system is easily deployable with the use of pontoons and anchored in the reservoir on unsinkable floats. It uses solar panels that provide power, all year round in any country. Water quality sensors are equipped with a wiper mechanism for automatic cleaning of the sensors after each reading, keeping the maintenance to a minimum and the readings accurate.

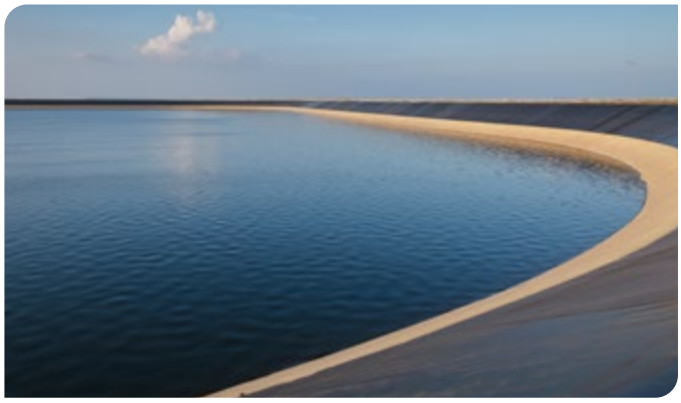
Monitor water quality at lower cost, with minimum maintenance

Applicable to any Water Surface

Monitoring system that helps informed decision-making for every water manager.

Drinking Water Reservoirs

Irrigation Reservoirs



Lakes

Cooling Reservoirs

Wastewater Lagoons

Early Warning System for Detecting Algal Blooms

By making use of Artificial Intelligence (AI), the Monitoring Buoy predicts algal blooms based on water quality data automatically. An early warning enables to implement management strategies prior to the bloom occurrence, ensuring the protection of human health.

1. Monitor Water Quality

The Monitoring Buoy provides a complete overview of the water quality by collecting the following parameters every 10 minutes:

- Chlorophyll α (green algae),
- Phycocyanin (blue-green algae),
- pH,
- Turbidity,
- Dissolved Oxygen,
- and Temperature
  (additional sensors can be purchased)

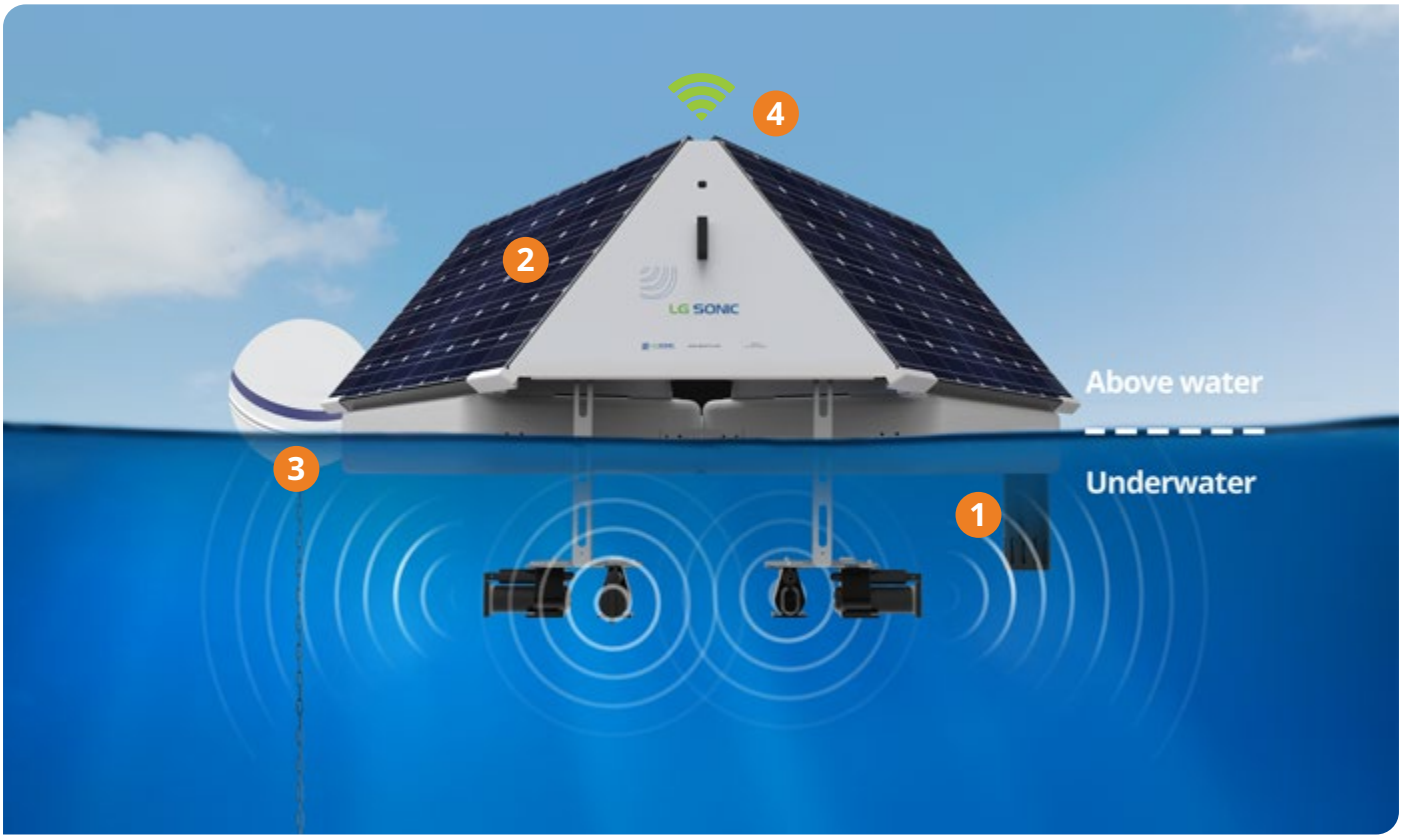
2. Predict Algal Blooms

The collected data is delivered in real-time via 3G to an algae management software called MPC-View.

Based on the algorithm developed in cooperation with research institutes, the system can automatically predict algal blooms between three and 10 days in advance.

The Monitoring Buoy will warn you about upcoming algal blooms 3-10 days ahead

Monitoring Buoy Features



1 In-situ water quality sensors

- Monitors chlorophyll α, phycocyanin, DO, turbidity, temperature pH, and redox
- Automatic antifouling wiper ensures optimal readings
- Optional sensors are available according to your needs and preferences

2 Solar panels as power supply

- 3x 200 Wp high-quality solar panels that provide power, all year round in any country
- Switches to energy-saving program during periods of low sun radiation
- 1x 24 Volt, 40 AMP lithium battery

3 Anchored floating construction

- Aluminium powder-coated frame
- UV and corrosion resistant construction
- Unsinkable floats

4 Smart communication system

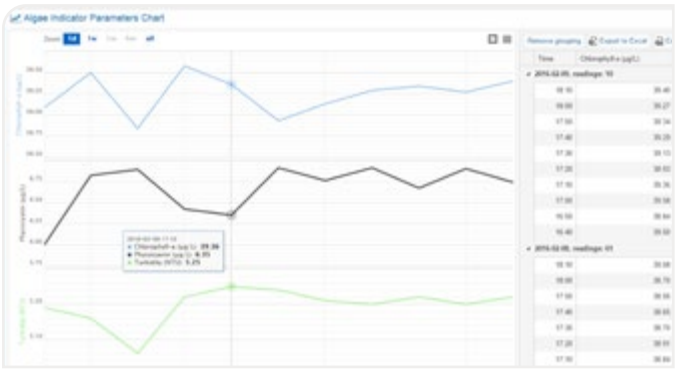
- 3G (CDMA, Radio, GPS and Iridium Satellite optional)
- Real-time water quality data with the MPC-View software
- Integrated alarm functions

Real-time Water Quality Monitoring Software

MPC-View is an advanced web-based software. The software allows to generate a complete overview of the water quality of one or multiple water bodies.

- **Real-time insight in the water quality**
- **Data transfer through 3G**
- **User-friendly software**

Insights into the Water Quality



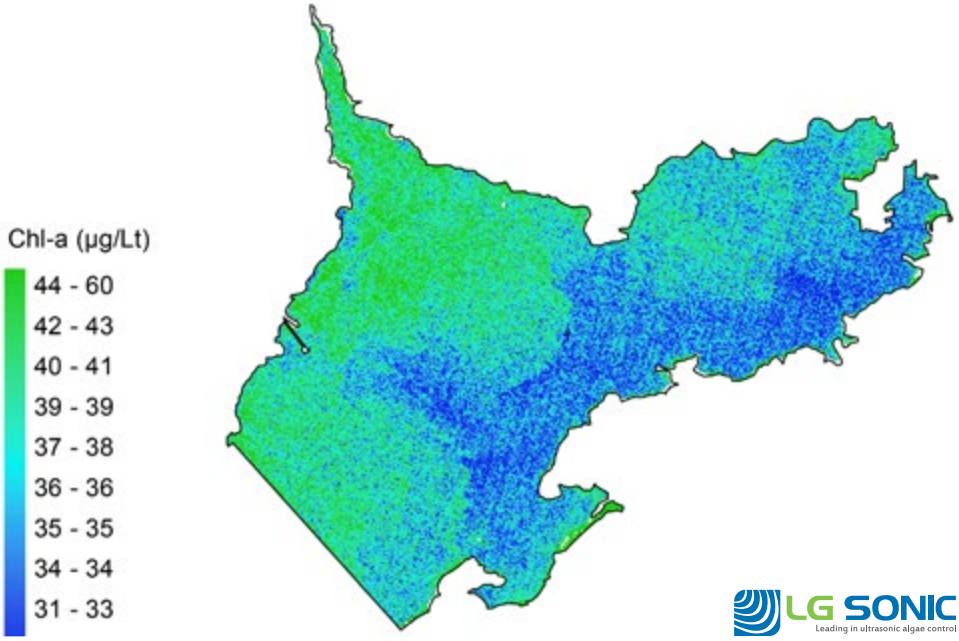
- The software receives, summarizes, and publishes data into charts, tables, and spreadsheets on your personal webpage
- Allows users to follow the progress of the algae treatment and the status of the units
- Based on the data, ecologists, biologists and technicians from LG Sonic modify the ultrasonic program for effective treatment
- Set alarms for changing water conditions and maintenance activities

User-friendly software to real-time monitor the water quality

Map Algae Concentrations with Remote Sensing

LG Sonic has integrated a technology based on remote sensing to accurately map the spatial and temporal distribution of the water quality parameters to generate a complete overview of the algae distribution in large water bodies.

- **Generate a complete overview of the water quality of a large water surface**
- **Optimize algae treatment by detecting algal hotspots**



Remote sensing imagery showing the chlorophyll levels of a water body

Combining Remote Sensing with Water Quality Monitoring

Remote sensing in combination with in-situ water quality data allows for the detection and monitoring of the quality of large water surfaces at higher spatial and temporal coverages. LG Sonic can supply monthly, quarterly or yearly remote sensing reports based on our customers' needs.

The maps can be integrated with the in-situ water quality reports to have a complete overview of the water quality. With remote sensing technology LG Sonic offers many parameters such as Chlorophyll-a and BOD (Biological Oxygen Demand).

Parameter	Description
Chlorophyll-a	Indicator for all algae types
Phycocyanin	Indicator for blue-green algae types
Turbidity	Clarity of the water
SPM	Suspended Particulate Matter
CDOM	Coloured Dissolved Organic Matter
BOD	Biological Oxygen Demand
COD	Chemical Oxygen Demand
SST	Sea Surface Temperature

Remote sensing technology allows to accurately map the algae distribution in large water bodies

Monitoring Buoy Technical Specifications

Frame 3x aluminum framed polyethylene buoy • Material: Rotationally-moulded UV-stabilized HDPE polyethylene • Filling: Closed-cell polyurethane foam • Buoy frame: Anodized aluminum • Weight: 15 kg • Size: 1200x600x200mm • Buoyancy capacity 95 kg	**Solar panels (3x)** • Solar cell: Monocrystalline cell • Rated Power (Pmax): 200Wp Weight: 16 kg • Connectors IP67 • Size: 1580x808x35mm
Telemetry • GSM/GPRS • CDMA (optional) • Radio (optional) • GPS (optional) • Iridium Satellite (optional)	**Data acquisition system** 4 x analog channel (user-configurable for either 4-20mA) • 1 x RS485 port for instruments • 1 x high frequency pulse counting channel • 1 SDI-12 input • 3X RS232
Battery 1 x 24 volt lithium lifepo4 • Capacity: 40 Ah • Weight: 15kg	**Solar Charge Controller** Overcharge and Deep discharge protection Ip68 Protection

Water Quality Sensor Package

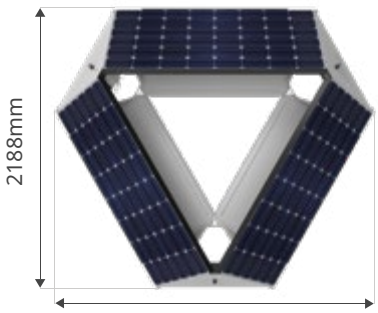
Fluorescence, including anti-fouling wiper: chlorophyll a, phycocyanin, turbidity • 470nm – Chlorophyll a • 610nm – Phycocyanin • 685nm Turbidity	**pH** • Combined electrode • (pH/ref): • special glass, Ag/AgCI ref. • Gelled electrolyte (KCI) • Range 0 – 14 pH • Resolution 0,01 pH • Accuracy +/- 0,1 pH
Dissolved Oxygen • Optical measure by luminescence • Measure ranges: • 0.00 to 20.00 mg/L • 0.00 to 20.00 ppm • 0-200%	**Temperature** • Technology CTN • Range 0.00 °C à + 50.00°C • Resolution 0,01 °C • Accuracy ± 0,5 °C • Response time < 5 s

It is possible to add additional sensors to the water quality sensor package.

Side view

Total weight: 200kg (excl. anchor)

Top view



Our Clients

LG Sonic works together with top-level water and energy utilities

AMERICAN WATER

"Extensive testing conducted during 2014 showed that the buoys had a significant impact on the algae, allowing the plant to reduce chemical consumption by more than 20 percent, and reducing the concentration of undesirable taste and odor causing compounds in the treated water delivered to customers."

Orren Schneider, Manager Water Technology

epm®

"The algae and cyanobacteria control has been an excellent investment. We achieved by means of an environmentally friendly technology to improve the water quality and decrease the treatment costs, furthermore we have today a monitoring and control which is more adjusted to the behaviour of our reservoir."

Santiago Barrera, Professional Business Operations

NIPSCO® A NiSource Company

"We were using both an algaecide (quaternary amine) and a UV-blocker at all our cooling towers. By the end of the season we eliminated using the UV-blocker chemical and we reduced the algaecide by 25%. We intend to reduce more in 2020 [with MPC-Buoy].

You have a quality product [MPC-Buoy] that has potential to help many customers such as ourselves. We enjoy working with quality people."

Brian Snyder, Senior Chemical & Environmental Specialist

SOUTH WEST WATER

"We're working closely with the supplier who is able to fine-tune the sound frequencies to deal with specific outbreaks of algae."

Tim Latcham, Head of Water Supply

Company Profile

Mission

LG Sonic is a highly innovative algae control solutions provider operating in 96 countries across six continents. Since 2011, the company has dedicated itself to development of environmentally friendly solutions to treat algal blooms in lakes and large reservoirs.

LG Sonic has established a line of water treatment solutions based on ultrasound technology. Combined with a line of smart water quality sensors, and Remote Sensing (satellite imaging) to monitor water quality from space, LG Sonic's solutions work together to recover the ecology of a water body.

Our Solutions

MPC-Buoy
Control and monitor algae in lakes and reservoirs

LG Sonic e-line
Control algae in ponds

LG Sonic Industrial Line
Biofouling prevention in industrial systems

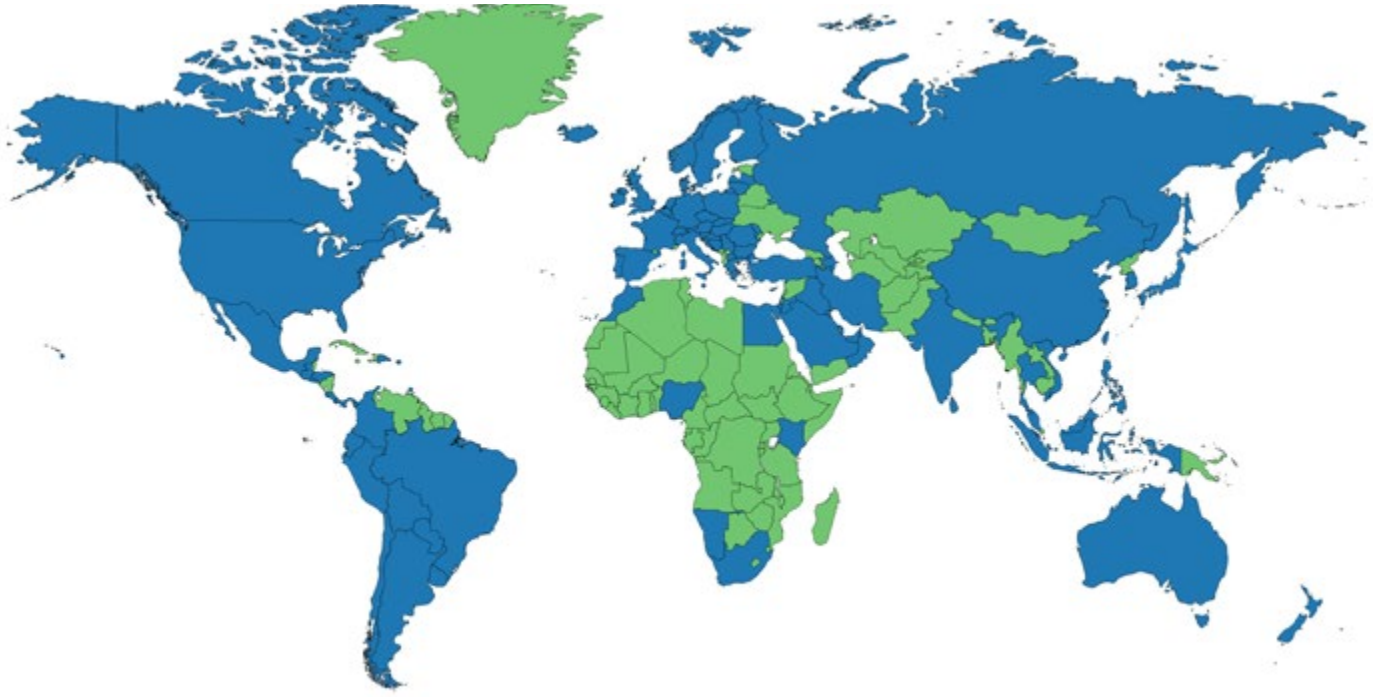
Ecohull
Prevent biofouling and reduce the use of antifouling paint with the Ecohull

Track Record

Coordinator of several European FP7 projects: ClearWater PMPC and Dronic (€3.2 million)

Official Innovation Partner of American Water, U.S. largest water and waste water utility

Winner of several innovation awards: Aquatech Innovation Award (2015), Global TAG excellence award (2015), WssTP Water Innovation Award (2014)



Countries LG Sonic is active

LG Sonic operates in 96 countries across six continents

Visit LG Sonic online

Scan the QR code with your smartphone
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LG SONIC
Leading in ultrasonic algae control

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