

# A.G.A.

## ULTRA SONIC ALGAE CONTROL

A.G.A. Group is the UK distributor for LG Sonic who are leaders in state of the art algae control and water quality monitoring.

**'e-line'**. The advanced solution emitting different ultrasonic parameters to control algae

**'MPC-Buoy'**. Technically advanced solar powered platforms to control algae and continuously monitor water quality.

The complete suite of Chemical-Free Control Solutions for Filamentous algae and Cyanobacteria

- Lakes
- Ponds
- Drinking water reservoirs
- Irrigation reservoirs
- Industrial reservoirs
- Water treatment plants
- Cooling towers
- Cooling basins

*Concept to Completion*



T: 01953 886824



## CONTROL ALGAE WITH THE LG SONIC e-LINE

The LG Sonic e-line provides an environmentally friendly solution to control algae by making use of ultrasound technology which can be applied in: Ponds, Golf course lakes, Cooling towers, Wastewater treatment plants and other applications.

The LG Sonic e-line has 12 ultrasonic programs to effectively control different types of algae.

Each program contains different formats of ultrasonic parameters, such as frequency, amplitude, waveform and signal duration.

LG Sonic technology replaces chemical based herbicides and algaecides. Together with low power consumption, maintenance is reduced to the minimum as the equipment incorporates an automatic Aquawiper™ that will clean the ultrasonic transmitter face plate.



e-line units are effective from 70 to 200m



	L	XL	XXL
Treatment range in meters (feet)	<70 (230)	<120(393)	<200(650)
Ultrasonic transmitter	✓	✓	✓
Control Box	✓	✓	✓

## THE ADVANTAGES OF OUR TECHNOLOGY.

### Effective algae control

Eliminates up to 90% of existing algae and prevents the growth of new algae.

### Effective on larger water surfaces

The LG Sonic products can efficiently control algae up to 200 meter (650 ft.) per device with a power consumption of just 5-40 Watt.

### Safe for the environment

The ultrasound used by LG Sonic is safe for fish, plants, zooplankton, and insects. Our devices make use of low power (5-20 Watts), therefore, no high voltages are transmitted into the water.

### Prevents damage to industrial systems

Mitigates any damage to industrial systems, for example, to filters in treatment plants.

### No release of toxins

The cell wall of the algae remains intact, preventing the release of toxins from the algae into the water.

### Easy to install and maintain

The LG Sonic devices are being placed in the water body itself, emitting sound waves through your water reservoir.



## LG SONIC e-LINE FEATURES.

### Weatherproof control box

Weatherproof aluminum design to protect against outdoor conditions.

It is possible to install up to 4 ultrasonic transmitters on one control box for the treatment of multiple tanks or water surfaces with curves.

### Remote control monitoring to prevent frequent site visits

GSM/GPRS control allows for the monitoring of the operating system by receiving status updates and alerts during power outages.

### Advanced ultrasonic transmitter

Unique Chameleon Technology™ is used to adapt the ultrasonic program to water conditions, type of algae and type of applications

### Integrated Aquawiper™ for minimal maintenance

The LG Sonic e-line is equipped with an automatic cleaning system, the Aquawiper™, to prevent damage to the ultrasonic transmitter for minimal maintenance.



## LG SONIC MPC-BUOY.

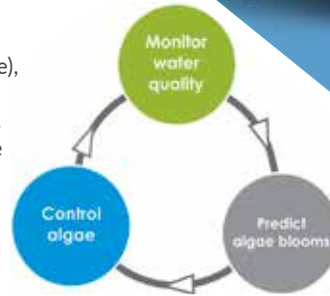
### Monitor, Predict and Control Algal Blooms

The MPC-Buoy is a floating, solar powered, platform that provides continuous online water quality monitoring to control algae by using ultrasound technology. A complete algae control solution designed specifically for the treatment of large water surfaces such as: Drinking water reservoirs, Wastewater lagoons, Raw water reservoirs, power station reservoirs, Irrigation reservoirs and Recreational lakes

The MPC-Buoy provides a complete overview of the water quality by collecting these parameters every 10 minutes: Chlorophyll  $\alpha$  (green algae), Phycocyanin (blue-green algae), pH, Turbidity, Dissolved Oxygen and Temperature.

The collected data is delivered in real time via radio, GPRS, or 3G to web-based software. Founded on our developed algorithm we are able to modify the ultrasonic program to the specific water conditions and predict an algal bloom a few days ahead.

Based on the received information, the ultrasonic program can be activated according to the water conditions and type of algae present. This way, it is possible to eliminate existing algae and prevent the growth of new algae.



## MPC-BUOY LITE.

The MPC-Buoy Lite solar powered floating platform provides 3600 state-of-the-art treatment against algae and cyanobacteria in lakes and dams but is without water quality monitoring telemetry.

Each MPC-Buoy device can control up to 90% of existing algae and eliminates and prevents the growth of new algae in areas up to 500m/1600ft in diameter.

Multiple buoys can be installed for large water surfaces and operate autonomously on solar energy and has an integrated Aquawiper to prevent frequent maintenance visits.

MPC-Buoy Lite benefits from low operational costs.



## MPC-BUOY FEATURES.

### 4 ultrasonic transmitters for complete 3600 sound coverage

Treatment range of 500m/1600ft in diameter

Integrated Aquawiper automatic cleansing system for the transmitters

Chameleon technology adjusts the ultrasonic program to the specific water conditions

### UV-resistant buoy construction

Aluminum powder coated frame with corrosion resistant construction

Unsinkable floats

### Floating solar system

3x 195 Wp high quality solar pane providing, year-round power.

1x 24 Volt, 40 AMP lithium battery.

### Intelligent power management

Turns off the ultrasonic transmitters during low battery charge

Switches to energy-saving program during periods of low sun irradiation

Overcharge and deep charge regulation to protect equipment

### Complete sensor package to measure water quality

In-situ sensors to provide real-time data

Monitors DO, turbidity, pH, chlorophyll  $\alpha$ , phycocyanin, redox, and temperature

Automatic antifouling wiper ensures optimal readings

### Construction allows for easy installation and low maintenance

Can be deployed quickly and easily without the need for a crane

Easily accessible for maintenance while deployed

Remotely managed and monitored

Includes bird spikes and bird net

### Smart communication system

GSM/GPRS Telemetry Quadband (850/900/1800/1900 MHz)

CDMA (optional) - Radio (UHF/VHF) (optional) - GPS (optional) - Iridium Satellite (optional)

### Reliable data acquisition system

3-way communication between ultrasonic transmitters, water quality sensors and the web-based server (mpc-view)

Universal input to customise monitored data

Integrated alarm functions



# CHAMELEON TECHNOLOGY™.

The LG Sonic devices have 12 ultrasonic programs to effectively control different types of algae. Each program contains different types of ultrasonic parameters, such as frequency, amplitude, waveform, and signal duration. Chameleon Technology™ makes it possible to change the ultrasonic program according to the water conditions, type of algae, and type of application, thereby providing the most effective solution for each specific situation.

## Lack of light

Most types of algae will die from the ultrasonic pressure generated in the top layer of the water. This sound barrier prevents algae from rising up to the surface, keeping them from being exposed to sunlight, and the algae will die due to a lack of light.

## Collapse of gas vesicles

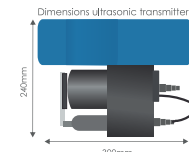
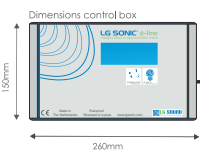
Blue-green and some green algae are capable of traveling vertically through water due to their gas vesicles. Ultrasonic sound waves rupture these gas vesicles preventing the algae from rising to the surface thus absorbing light for photosynthesis.



## TECHNICAL SPECIFICATIONS ULTRASONIC UNITS.

Component	Includes
Ultrasonic transmitter	<ul style="list-style-type: none"> <li>- Unique Chameleon Technology™</li> <li>- 12 pre-installed ultrasonic programs</li> <li>- Max freq./program, 80</li> <li>- Ultrasonic generator integrated in the ultrasonic transmitter</li> <li>- Transmitter cable, 20m/65 ft (extension possible)</li> <li>- Float</li> </ul>
Control box	<ul style="list-style-type: none"> <li>- Choose between 1, 2, or 4 ultrasonic transmitter outputs to one control box</li> <li>- LCD display with control buttons</li> <li>- Remote control monitoring, GSM/GPRS</li> <li>- AC input voltage, 100-240V AC, 50/60hz</li> <li>- DC input voltage, 24V DC</li> <li>- Energy consumption, 5-40 Watt</li> <li>- Weatherproof design, Aluminum</li> <li>- Ingress protection, IP67</li> </ul>
Aquawiper™	<ul style="list-style-type: none"> <li>- IP69 underwater housing</li> <li>- 360° turning angle</li> <li>- Industrial-designed brush</li> </ul>
Solar power system*	<ul style="list-style-type: none"> <li>- 195 WP solar panel</li> <li>- 2x 12 Volt, 60Ah batteries</li> <li>- Solar regulator</li> <li>- Panel mounts or poles are optional</li> </ul>
e-line tester™	<ul style="list-style-type: none"> <li>- Check whether the LG Sonic device is working, sending the correct program and if the ultrasound is spread throughout the whole water body</li> <li>- Including adjustable receiver stick, 100 to 200 cm (3-6 ft)</li> </ul>
Flexi-arm™ *	<ul style="list-style-type: none"> <li>- 1 meter arm for easy installation</li> <li>- The flexi-arm can be extended up to 3 meters</li> </ul>
Installation bracket™	<ul style="list-style-type: none"> <li>- Install ultrasonic transmitter without float</li> <li>- Easily remove ultrasonic transmitter for maintenance checks</li> <li>- Coated stainless steel</li> <li>- Length of 40 cm</li> </ul>

\* The solar power system, e-line tester, flexi-arm and installation bracket are optional



## TECHNICAL SPECIFICATIONS MPC-BUOY.

<b>Aluminium frame</b> Pre-assembled frame	<b>Water quality sensor package</b> <b>Fluorescence, including anti-fouling Wiper:</b> chlorophyll a, phycocyanin, turbidity 470nm - Chlorophyll a 610nm - Phycocyanin 685nm Turbidity
<b>3x solar panels 195Wp</b> Solar cell: Monocrystalline cell Rated Power (Pmax): 195Wp Weight: 16 kg Connectors IP67 Size: 1580x808x35mm	<b>Redox</b> Combined electrode (Redox/reference) : Platinum tip, Ag/AgCl AgAgCl Gelled reference (KCl) Range - 1000 to + 1000 mV Resolution 0.1 mV Accuracy ± 2 mV
<b>1 x 24 volt lithium lifepo4 battery</b> 24 volt Capacity: 40 Ah Weight: 15kg	<b>pH</b> Combined electrode (pH/ref): special glass, Ag/AgCl ref. Gelled electrolyte (KCl) Range 0 - 14 pH Resolution 0.01 pH Accuracy +/- 0.1 pH
<b>3 x aluminum framed polyethylene buoy</b> 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	<b>Temperature</b> Technology CTN Range 0.00 °C a + 50.00°C Resolution 0.01 °C Accuracy ± 0.5 °C Response time < 5 s
<b>Data acquisition system</b> Configurable time interval (default: 15 min)	<b>Dissolved Oxygen</b> Optical measure by luminescence Measure ranges: 0.00 to 20.00 mg/L 0.00 to 20.00 ppm 0-200%
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	<b>4 x LG Sonic® e-line XXL algae control treatment (360°)</b> Remote selection of ultrasonic program Number of ultrasonic programs: Unlimited Remotely customize ultrasonic program Ultrasonic range: up to 80 frequencies Different programs per transmitter Automatic Aquawiper to clean transducer surface
	<b>Telemetry</b> GPRS Telemetry Quadband (850/ 900 / 1800 / 1900 MHz) / CDMA optional Radio (UHF/VHF)
	<b>Solar Charge Controller</b> Overcharge and Deep discharge protection Ip68 Protection



The A.G.A. Group provide current and detailed Technical Specification and Information Sheets for all product groups. These are available as hard copy on request or can be downloaded directly from our website <http://agagroup.co.uk/home-page/product-and-services-info-sheet-downloads>

This information is subject to change arising from new developments and findings. If you are unable to find the item you are looking for, please do not hesitate to contact us immediately.

The A.G.A. Group contracts division are specialist within the field of aquatic and bioengineering. We operate a policy of 'Best Practice' and are bound by the Code of Conduct of both the Institute of Fisheries Management and the Royal Society of Biology.

The A.G.A. Group will quote for the supply of materials, their installation or for 'turnkey' projects.

**A.G.A. is Quality assured to: ISO9001: 2008, ISO14001: 2004 and 18001: 2007**

A.G.A. Group, MMG, MHP and AGACES are trading styles of A.G.A. Bio-engineering Systems Limited.

Merton Hall Ponds, Merton Thetford, Norfolk. IP25 6QH

T: 01953 886824

E: [info@agagroup.co.uk](mailto:info@agagroup.co.uk)

[www.agagroup.co.uk](http://www.agagroup.co.uk)



Ecology and Land Management Consultants

The information set forth in our literature reflects our best knowledge at the time of issue. This information is subject to change arising from new developments and findings. We do not undertake any liability for the use of our products and information. All trade is subject to our Terms and Conditions of Sale.