

“PONDTEC” DIGITAL ULTRASONIC ALGAE CONTROL

Ultrasonics is now a well established and environmentally friendly method to control algae in ponds and lakes and which is **harmless** to fish and wildlife. Many products on the market use analogue technology to generate the ultrasound – not so the with the new PondTec range from **Hughes Sonic Systems Ltd.**

Why are the PondTec products special?

- State of the art technology
- Re-programmable to cope with all algal species
- Transducer emits a multi-layered ultrasonic pattern of up to 25 frequencies
- Ultrasound generated in asymmetrical pulses for optimal efficiency
- Transducers designed specifically for each model
- Frequency range of 20-50 KHz depending on programming
- Available in either 240v AC or 12V DC models
- Low power consumption of only 8 to 40 watts max – dependent on model
- Solar/wind power options available for DC models
- **PoolTec** models available for swimming pools



How does ultrasound work?

In basic most terms, the algae get shaken to bits – just like the opera singer smashing a wine glass with that perfect note!

The control box contains a microchip which is programmed to digitally generate a range of ultrasound frequencies which the transducer then emits as a series of pulses, five times per second. When these pulses strike the algal cells, the cells begin to resonate. If algae, such as the blue/greens, have a gas vacuole (buoyancy), then the vacuole also starts to resonate - to such an extent that it continues to increase in size. There then comes a point when the vacuole becomes unstable and collapses, making the algae sink to the bottom of the pond.

Algal species which don't have gas vacuoles react differently. The vibrations from the ultrasound cause the inner cell wall of the algal cell (plasmalemma) to become detached from the outer cell wall – this means that water, gases and nutrients can neither be absorbed or expelled and as a result the algae dies.

Different algae are susceptible to different frequencies, so unlike other ultrasound systems on the market, the PondTec models can be re-programmed by the distributor to emit frequencies that will work on the most stubborn algae.

Asymmetrical Ultrasound Production

If the ultrasound is generated in regular pulses, it will be reflected back by pond edges or other obstructions like islands. As a result, the outgoing and returning waves 'cancel' each other out creating 'quiet' areas. With **PondTec** products, the ultrasound is generated at irregular intervals to guarantee maximum effectiveness.

Biofilm Removal

Not only will the ultrasound kill off the algae, but it also eliminates 'biofilm' – this is the 'slime' that can be found growing on submerged surfaces. Initially bacterial growth only, biofilms provide a substrate onto which algae can attach and grow.

The ultrasound is also proven to work with many water borne pathogens such as E.coli and Legionella bacteria and so can also be used for water treatment, thereby reducing the need for chemical treatments.

The PondTec Ultrasonic Range



PONDTEC 05

Range max 4-5 m
 AC version: 100-240 Volts, 47-63 Hz
 DC version: 12-32 Volts ~ 1.5 Amps
 Power consumption max. 8-12 Watts



PONDTEC 10

Range max. 12 m
 AC version: 100-240 Volts, 47-63 Hz
 DC version: 12-32 Volts ~ 1.5 Amps
 Power consumption max. 10-15 Watts



PONDTEC 20

Range max. 25 m
 AC version: 100-240 Volts, 47-63 Hz
 DC version: 12-32 Volts, 1.5 Amps
 Power consumption max. 15-22 Watts

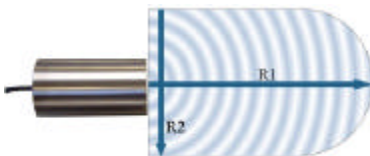


PONDTEC 50

Range up to 150 m
 AC version: 100-240 Volts, 47-63 Hz
 DC version: 12-32 Volts ~ 2 Amps
 Power consumption max. 25-40 Watts

The control boxes are waterproof with a rating of IP68
 Cables and connectors RS rated waterproof to a depth of 10metres

Ultrasonic range for the differentm models



<u>Model</u>	<u>R1</u>	<u>R2</u>
Pond-Tec 05	5 m	2.5 m
Pond-Tec 10	10 m	5 m
Pond-Tec 20	25 m	12.5 m
Pond-Tec 50	150 m	75 m

The transducer emits the ultrasound waves at 180° from the transducer face. The range is determined by the model selected. The measurements given here are based on averages and may be influenced by local conditions such as water quality, turbulence, topography and plant growth.

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