



UV Units for  
drinking water



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# The best in UV for over 30 years

## Aquionics – the pioneers and innovators in UV disinfection and advanced oxidation

### Introducing Aquionics;

Founded in 1985 by Halma, the company has over 30 years' experience in UV technology. Aquionics introduced the products of Berson, European pioneer in application of UV in municipal applications on the US market. The InLine introduced in 1995, has become the standard for medium pressure UV applications for drinking water worldwide.

Together with sister companies Berson in the Netherlands and Hanovia in the UK, Aquionics is a global leader in UV for water treatment.

### UV applications;

Aquionics offers a wide range of UV systems for drinking water, wastewater and water reuse validated by USEPA and NWRI. These validations ensure end-users and authorities can be confident that the performance of the UV system is appropriate for the application. Aquionics also offers systems for treating injection water in oil and gas field recovery.

Aquionics water applications range from disinfection to advanced oxidation for the removal of organic (micro) contaminants.

### Innovation;

With a strong focus on innovation through cooperation with internationally renowned institutes such as Imperial College London, UNESCO-IHE, KWR and Wetsus, as well as key suppliers, Aquionics continues to improve the disinfection performance, system efficiency and user/maintenance friendliness of its systems. This ensures customers have the most effective systems with a low total cost of ownership.

The company is dedicated to ensuring safe drinking water, safe bathing/recreational water, safe shell fishery water and water security all over the globe. Its systems can be installed centrally at a treatment works, locally for satellite disinfection in the distribution network, or at the point-of-entry, providing bacterial reliability right to the consumer's tap.

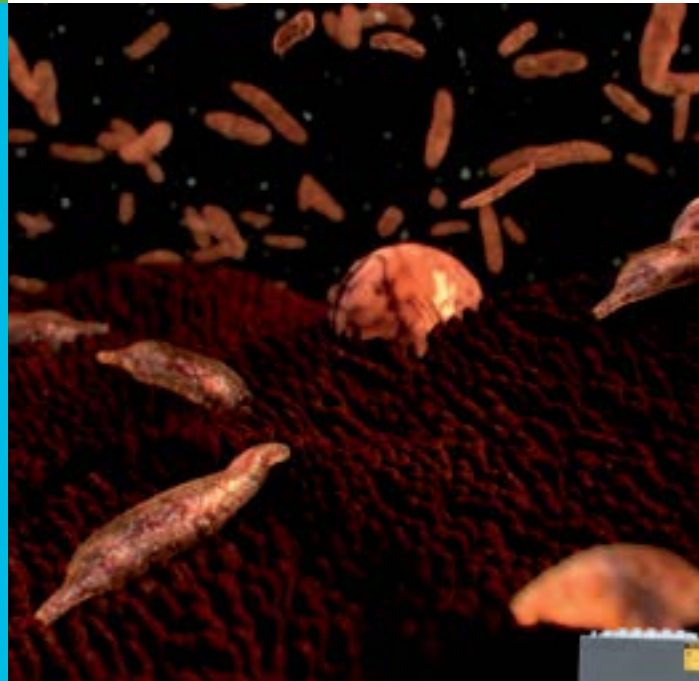
### Nationwide network;

A nationwide sales and service network, trained by Aquionics, provides customers with the right products and outstanding service, ensuring the long-lasting performance of their UV systems.



# UV and drinking water safety

- Effective, reliable and efficient
- No disinfection by-products
- Used worldwide



## Inactivation by UV-light;

UV light inactivates microorganisms (bacteria and viruses) by altering their DNA, preventing replication or infection.

## Effective against chlorine-resistant pathogens;

Even at low doses, UV provides a 4-log inactivation of chlorine-resistant pathogens such as Cryptosporidium and Giardia. UV is therefore used for drinking water treatment worldwide as an additional Cryptosporidium barrier.

## UV is cost-effective in multi-barrier systems;

In areas where chlorine is required to provide safe drinking water at the consumer's tap, UV provides an additional level of safety and allows lower chlorine consumption. The cost of UV in multi-barrier systems is significantly lower than ozone or membrane filtration.

## No disinfection by-products;

UV does not produce the harmful disinfection by-products (DBP's) commonly associated with chlorine (THMs) or ozone (bromate) and does not alter the taste or odour of the water.

## Photolysis & Advanced oxidation using UV and hydrogen peroxide;

Hydrogen peroxide forms hydroxyl radicals under UV irradiation. These radicals readily oxidize the organic compounds that cause taste and odour issues, as well as residuals from pesticides, herbicides and pharmaceuticals.

## Used worldwide;

Since the introduction of UV for drinking water treatment in Europe, it has spread to the USA and the rest of the world. UV is not only used by municipal water supply companies but also by major bottled water and soft drinks brands and pharmaceutical manufacturers.

UV is also widely applied to disinfect wastewater before discharge, protecting recreational bathing water and fisheries as well as potential sources for drinking water.

In addition, UV plays an important role in water reuse, safeguarding users from infection and preserving valuable drinking water resources.



# Properties and key benefits of the Aquionics UV systems

- InLine®: the most copied design in UV
- AmaLine®: the most efficient UV system
- All major validations
- Tailor-made solutions

## Properties and key benefits

### InLine® compact and flexible design reduces capital costs;

The Aquionics InLine® has an extremely small footprint, requiring very little extra floor space in a treatment building. UV units can be mounted horizontally and vertically in virtually any existing installation without many changes to piping. This reduces investment costs in both new and retrofit installations.

### AmaLine® efficient design reduces energy consumption

Applying the most recent amalgam UV lamp technology and the latest lamp drivers in combination with an optimal hydrodynamic design, the AmaLine® range is the most efficient amongst its peers.

### Ease of maintenance;

All wet parts are easily accessible and regular service can be performed by general maintenance staff trained by Aquionics' commissioning engineers without the need for lifting equipment. Aquionics also offers commissioning and maintenance service worldwide supported locally by trained service partners.



### UltraWipe® for clean sleeves;

The general wiping system maintains clean sleeves and therefore a higher UV dose. In case of excessive hardness or iron content in the water, sleeve fouling may still occur. The UltraWipe® (available on InLine only) offers automatic periodic chemical cleaning, using only chemicals that are effective and safe for drinking water applications.

### Validated performance

Aquionics UV systems are validated to the most stringent third party approvals, including USEPA, NWRI, NSF, DVGW and JWRC. In the case of the most internationally accepted regulations – DVGW and USEPA – our systems are validated under challenging hydraulic conditions (after a 90° pipe bend) using 240nm quartz sleeves to prevent potential nitrate conversion (InLine only). Validations are regularly upgraded to allow the application of the newest lamp and ballast technology.

### Customized solutions;

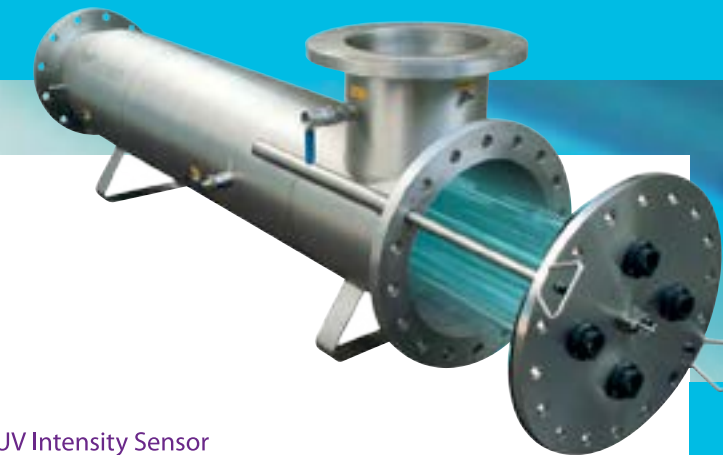
Aquionics has a flexible approach towards adapting standard systems to meet our customers' special needs. UV reactors can be designed to fit any piping size and controls can be adapted to be integrated with all commonly applied process control environments.

### Range of control options

Our ECTronicΩ and UVTronic+ offer a combination of local control interfaced with a central (SCADA) system through Modbus RTU, Ethernet IP or analogue communication. PLC-based control (all major platforms) is also available. Both UVTronic+ and PLC control allow multi-stream operation, saving on investment and operating costs.

# Aquionics® Key components

- Proven
- Innovative
- Reliable



## Key components

### Electronic Lamp Drivers

Highly efficient stepless power control (30-100% InLine, 50-100% AmaLine), reducing energy costs and lamp aging. Maintain disinfection performance under variable conditions (flow, quality). CE and UL approved. Available for retrofit in existing installations!

### Control Panel

ECTronic Ω, UVTronic or PLC monitor and control all UV functions and dosing. Can be set up to trigger valves and to communicate with a customer's SCADA systems (Ethernet, MODBUS). Allows multi-stream control.

### Conventional Ballasts

A solution trusted in InLine systems for over 30 years. Operates in the most challenging environments.

### Medium-Pressure lamps

High output medium pressure lamps allow compact reactor design as less lamps are needed to achieve the required dose. This minimizes maintenance costs and downtime for replacing lamps and sleeves.

### Quartz Sleeves

Long life quartz sleeves selected for high transmittance. Doped sleeves available to avoid nitrite formation

### UV Intensity Sensor

Either field-calibrated relative sensors or controlled absolute sensors monitor UV output to ensure the required UV dose is met. One sensor can monitor a group of lamps or, if required, one sensor per lamp can be used.

### InLine® Reactor

Hydraulically optimized to achieve uniform and optimal UV dose distribution. Validated performance (USEPA, DVGW). Extremely small operational footprint. Allows both horizontal and vertical flow. Easy access for maintenance. Standard stainless steel 316L and chlorine resistant alternatives available. Pressure rated up to 16 bar (230 psi)

### AmaLine® Reactor

Optimized for optimal UV dose distribution and low head loss. Easy access for maintenance through sliding lamp flange, no need for lifting equipment,

### All Reactors

Standard stainless steel 316L and chlorine resistant alternatives available. Pressure rated up to 16 bar (230 psi)

### Amalgam Lamps

The latest generation low pressure high output lamps offer high efficiency and long lamp life..



# AQUIONICS

UV Delivered 



**For more information:**

Aquionics  
4215 Stuart Andrew Blvd  
Suite E  
Charlotte, NC 28217  
USA  
Tel +1 (980) 256-5700  
[sales@aquionics.com](mailto:sales@aquionics.com)  
[www.aquionics.com](http://www.aquionics.com)

