

# ULTRALOW ULU SERIES

UV DISINFECTION • EFFICIENT AND CHEMICAL-FREE WATER TREATMENT



**ULTRAQUA**  
UV DISINFECTION SYSTEMS

WE PROTECT YOUR MOST VALUABLE RESOURCE

## ULTRALOW ULU SERIES

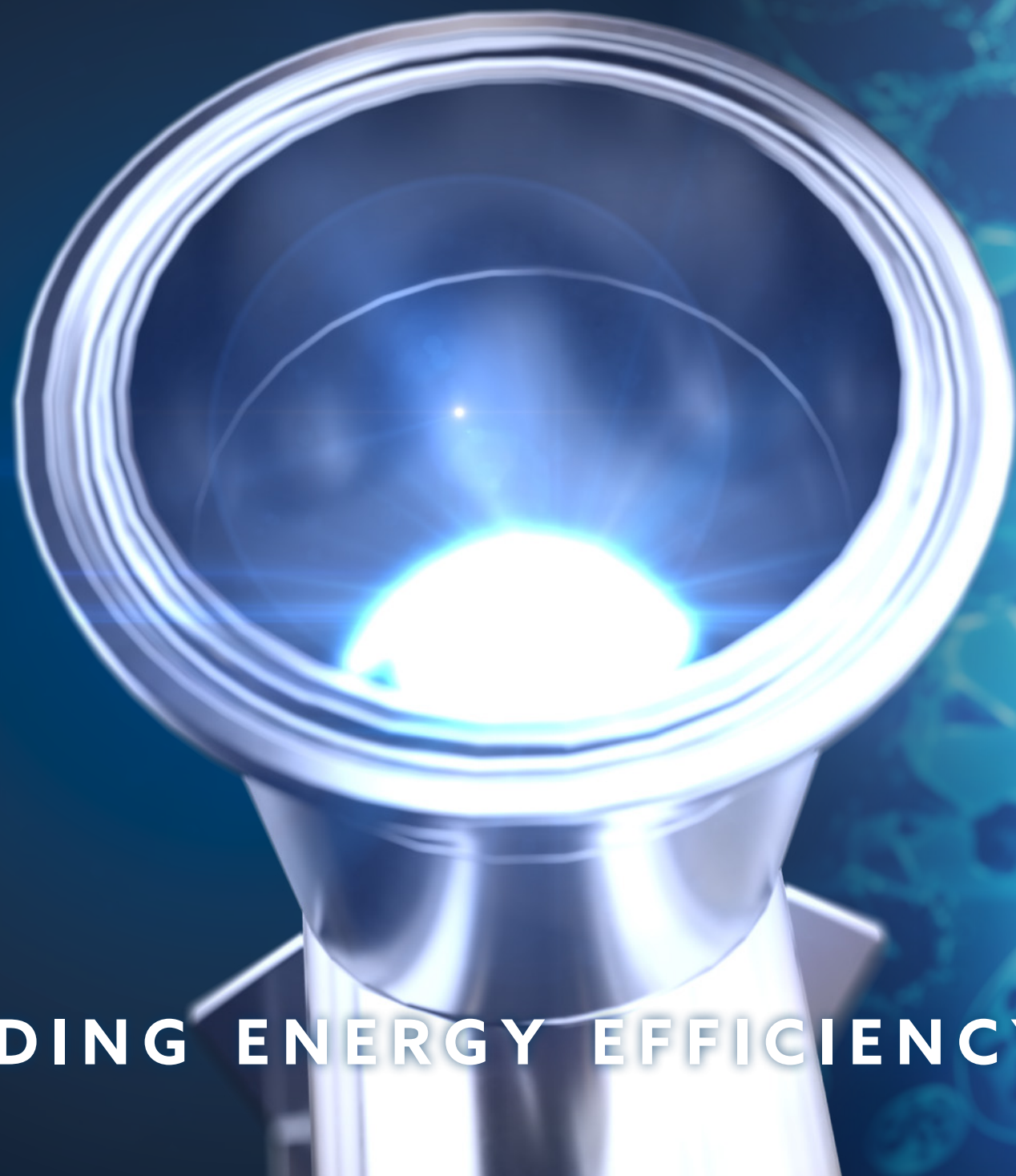
THE ULTRALOW UVT SERIES IS DEVELOPED SPECIFICALLY FOR APPLICATIONS WITH EXTREMELY LOW UV TRANSMISSION (UVT) FROM 2%.

THE SMALL DISTANCE BETWEEN THE REACTOR WALLS AND THE QUARTZ SLEEVE ENSURES AN EVENLY DISTRIBUTED UV LIGHT EXPOSURE FOR HYDRAULIC OPTIMIZATION. THIS MAKES THE ULU UV SERIES EXCELLENT FOR DISINFECTION OF FLUIDS SUCH AS LIQUID SUGAR, WINE, AND SALT BRINES.

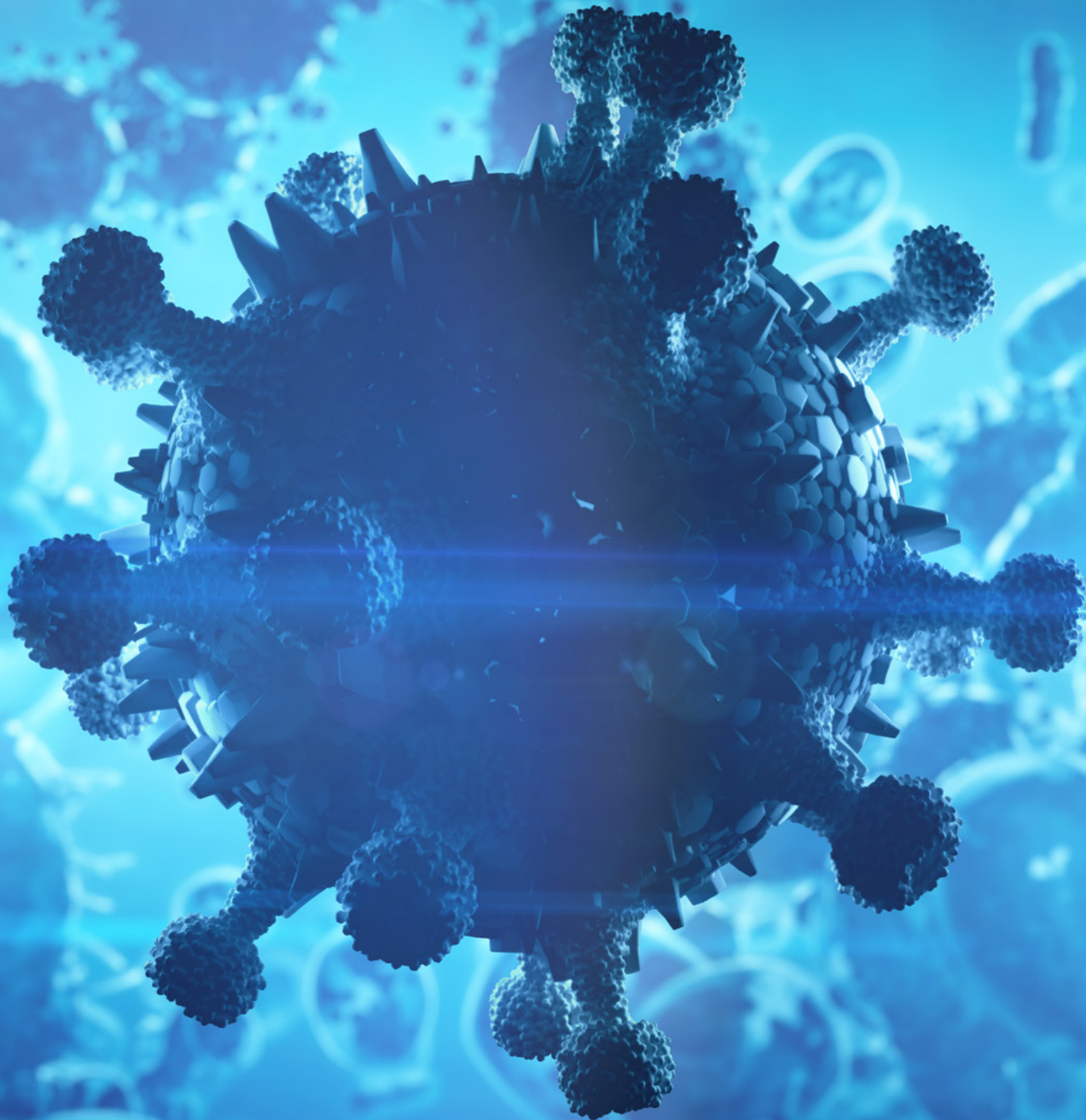
## KEY HIGHLIGHTS

- Guaranteed 16.000-hour ULTRATHERM™ lamp lifetime
- Optimized for maximum efficiency
- Easy maintenance and installation
- Easily integrated in complex environments
- Complete control with ULTRATOUCH™ control cabinets
- Automated ULTRAWIPER™ quartz cleaning with tailored brush heads
- An extended 5 year guaranteed warranty

# MARKET LEADING ENERGY EFFICIENCY







## CORE BENEFITS OF UV

**ENSURING PROPER DRINKING WATER IS A VITAL STEP TO PROTECT THE PUBLIC HEALTH FROM DANGEROUS MICROORGANISMS.**

The demand for cost-efficient solutions to provide clean drinking water are at an all-time high and will only increase in the future. UV disinfection solves this safety challenge, being able to meet the strictest requirements regarding bacteria and virus protection.

Heavily chlorinated drinking water has proven to lead to several health complications such as respiratory diseases. While chlorine has proven to be ineffective against Cryptosporidium and Giardia, UV is able to inactivate these pathogens easily with very low doses. This means that UV treatment is capable of inactivating all bacteria, viruses, molds, and spores that may be present in the drinking water.

Operational efficiency is one of the core drivers within the drinking water market. Many facilities and organizations now invest on new assets that yields return on investment based on their operational savings. This has led to manufacturing having to detail their whole life costs over 20 years. Choosing UV as the disinfection method ensures optimal CAPEX and OPEX compared to its alternatives, making UV the best solution for a wide range of installations.

ULTRAQUA UV disinfection systems are easy to install, maintain and thoroughly cost-optimized. The third-party approvals for performance and quality ensures complete peace of mind, employing the best available solution for complete biosecurity.

**ULTRAQUA**  
UV DISINFECTION SYSTEMS

### COMPLETE CONTROL WITH ULTRATOUCH™ CONTROL CABINETS

The market leading ULTRATOUCH™ PLC is the very latest in control and touch-screen HMI technology. Full data logging provides complete control to the operator, on site or remotely.

The PLC controls are easily integrated into SCADA layouts, and can be modified by our in-house software engineers. Multiple PLC options combined with various communication protocols makes the ULTRATOUCH highly versatile.

### AUTOMATIC DOSE PACING

The automatic dose pacing ensures optimized efficiency by reducing power consumption while ensuring a stable dose under operation. The ability to control the power increments ensures that issues related to overdosing and temperature issues are well mitigated.

### HIGH GRADE 316L STAINLESS STEEL

The internal reflection of the electropolished system provides efficiency improvements of up to 30% at high UVT's.





### EASY MAINTENANCE AND INSTALLATION

With a design that allows for easy maintenance and single sided access, the system is easily installable and can be serviced using no special tools.

The unique interlocking electrical and mechanical lamp connectors make servicing of the system safe, quick, and fool proof.

### EXCEPTIONAL LAMP LIFETIME

The integrated ULTRATHERM™ lamps offers the very latest low pressure Amalgam UV lamp technology, being optimized for energy efficiency and robustness. The substantial 16,000 hours of lamp lifetime offers market leading lamp efficiency in UV-C output density.



### EXCELLENT VERSATILITY

The ULU UV series offers a high level of customization through its modular design, making it possible to connect as many ULU UV reactors as required, from 2 to 20

### OPTIMIZED FOR MAXIMUM EFFICIENCY

In very low UVT environments, standard UV systems are no longer able to eliminate pathogenic microorganisms due to the low transmission of UV light. The placement of the reactor walls and the quartz sleeve in the ULU UV series ensures that the fluids are exposed evenly to the UV light, enabling an optimized dose distribution.

## THE ULTRALOW ULU SERIES MATCHES MOST INSTALLATION REQUIREMENTS





## CUSTOMIZED SOLUTIONS

**ULTRAAQUA EMPLOYS AN ENTIRE DEPARTMENT OF ENGINEERS WHO ARE SPECIALIZED IN THE DESIGN AND CONSTRUCTION OF UV SYSTEMS.**

Multiple years of experience within relevant applications, makes it possible to alter and adjust any standard UV system to accommodate the specific requirements.

The customization requirements can vary from adjustments such as reactor shape or flange size, to adding new advanced features. This makes the ULTRAAQUA design department function as a consulting agency, working towards an optimized customized solution. This means that we can ensure on site validation to various standards, fitting your exact requirements.

The following possibilities are available for all customized UV units:

### **Customized services**

- ⚙ Integrated CFD Analysis
- ⚙ Particle tracing modeling analysis
- ⚙ Determining fluence rate
- ⚙ Physical testing
- ⚙ Onsite validation testing
- ⚙ Advanced UV disinfection support

### **Customized products**

- ⚙ Custom UV systems for advanced applications
- ⚙ Packaged plant equipment
  - ⚙ Including mobile treatment container
  - ⚙ Skid packages

Comprehensive technical knowledge makes the engineers able to assist with installation details such as weir design, water level control devices, and many other project-specific matters.



## R&D CAPACITIES

**SINCE 1996, THE R&D DEPARTMENT HAS BEEN THE BACKBONE OF ULTRAAQUA.**

Employing the brightest industry specialists with great diversity for continuous innovation has been vital to the success of the company.

The ULTRAAQUA R&D department conducts, supports, and pioneers some of the latest developmental work within the water industry. These projects are often done in collaboration with specialists from municipalities, universities, top tier consultancies and international companies. The projects are primarily focused on developing unique and advanced chemical free disinfection solution for some of the worlds most complex water quality problems.

The comprehensive in-house testing area facilitates optimal conditions for research, development, and innovation. With the ability to run full scale pilot trials and a 40 ft research container to support local testing combined with cutting edge engineering, makes us confident that ULTRAAQUA is the right partner for your organization.

This ultimately allows ULTRAAQUA to position itself amongst the industry leaders within UV disinfection, supplying customers with the best available solutions.

**ULTRAAQUA**  
UV DISINFECTION SYSTEMS





UV SYSTEM	MR1-220SS STD ULU	MR1-220SS ADV ULU	MR3-220SS ULU	MR4-220SS ULU	MR6-220SS ULU	MR8-220SS ULU
Approvals	CE (option UL/ cUL)					

UV LAMPS & MONITORING						
Lamp Number	1	1	3	4	6	8
ULTRATHERM™ LPHO Lamp	220W					
Guaranteed Lamp Lifetime	16 000 hours					
UV Monitoring	Not available	UV Intensity sensor ÖNORM M5873 certified SS316L				
Variable Power	Not available	50-100%				

UV CHAMBER	
Connection Size	Tri-clamp DN50 (other optional)
Connection Type	DIN32676
Design Pressure	10 bar (option 16 bar)
Chamber Material	SS316L/ 1.4404 (option Super Duplex)
Internal & External Finish	Electropolished inside/out
Lamp/Wiper Access Single Ended	Yes
Quartz Type	High purity fused quartz transmittance >95%
Mounting	Free standing (option horizontal duplex stand)
ULTRAWIPER™ System	Not available
Temperature Probe	1x PT100
Vent & Drain Ports	½"
Ingress Protection	IP65
Installation	Modular, Horizontal/Vertical
Minor Wetted Parts	FDA approved PTFE, PVDF, VITON

CONTROL CABINET						
Cabinet Material	GFRP (option SS304/SS316)					
Cabinet Sizes	400x300x210mm	400x600x210mm	800x600x300mm	800x600x300mm	800x600x300mm	800x600x300mm
Cable Length	4 meters (max. 20 meters)					
Installation & Ambient	Wallmount 0-40 °C	Wallmount 0-40 °C non-condensing				
Ingress Protection	IP65		IP54 (option IP65/NEMA4X)			
Thermal Control	Passive dissipation (option Fan/AC/Heat exchanger)		Fan with filter (option AC/Heat exchanger)			
Control Logic	Microprocessor		PLC			
Interface/HMI	Status LED indicators & hour counter	4 line LCD with system state indication	7" ULTRATOUCH™			
External Wiring	Remote ON/OFF, Safety ON/OFF, System Status, Alarm					
Power Consumption	0,2 kW	0,2 kW	0,7 kW	1,0 kW	1,4 kW	1,9 kW
Power Supply	230VAC +/- 10% +N+PE 50/60Hz					

ADV. CONTROLLER FEATURES			
SCADA Communication		MODBUS RTU	MODBUS TCP/IP (option PROFINET)
Analogue 4-20mA I/O		Flow input/UV irradiance output	Flow input/UV dose output (option UVT input)
ULTRADOSE™			Automatic UV dose pacing 50-100%
Event Log		Alarms	UV dose, UV intensity, Flow
UV Dose		On Display, UV Intensity	On HMI, actual UV Dose and target UV Dose
UV Dose Alarm		UV Intensity pre-alarm and alarm	Pre-alarm and Alarm

UV SYSTEM	MR1-350SS STD ULU	MR1-350SS ADV ULU	MR3-350SS ULU	MR4-350SS ULU	MR6-350SS ULU	MR8-350SS ULU	MR12-350SS ULU
Approvals	CE (option UL/ cUL)						

#### UV LAMPS & MONITORING

Lamp Number	1	1	3	4	6	8	12
ULTRATHERM™ LPHO Lamp	350W						
Guaranteed Lamp Lifetime	16 000 hours						
UV Monitoring	Not available	UV Intensity sensor ÖNORM M5873 certified (option non-corrosive PTFE)					
Variable Power	Not available	50-100%					

#### UV CHAMBER

Connection Size	Tri-clamp DN50 (other optional)		
Connection Type	DIN32676		
Design Pressure	10 bar (option 16 bar)		
Chamber Material	SS316L/ 1.4404 (option Super Duplex)		
Internal & External Finish	Electropolished inside/out		
Lamp/Wiper Access Single Ended	Yes		
Quartz Type	High purity fused quartz transmittance >95%		
Mounting	Free standing (option horizontal SS316 stand)		
ULTRAWIPER™ System	Not available	Optional Automatic mechanical with PTFE/fiber rings (electrical)	
Temperature Probe	PT100		
Vent & Drain Ports	½"		1"
Ingress Protection	IP65		
Installation	Modular, Horizontal/Vertical		
Minor Wetted Parts	FDA approved PTFE, PVDF, VITON		

#### CONTROL CABINET

Cabinet Material	GFRP (option SS304/SS316)						
Cabinet Sizes	400x600x210mm	400x600x210mm	800x600x300mm	800x600x300mm	800x600x300mm	1000x750x320mm	1000x750x320mm
Cable Length	4 meters (max. 30 meters)						
Installation & Ambient	Wallmount 0-40 °C		Wallmount 0-40 °C non-condensing				
Ingress Protection	IP65		IP54 (option IP65/NEMA4X)				
Thermal Control	Passive dissipation (option Fan/AC/Heat exchanger)		Fan with filter (option AC/Heat exchanger)				
Control Logic	Microprocessor		PLC				
Interface/HMI	Status LED indicators	4 line LCD with system state indication	7" ULTRATOUCH™				
External Wiring	Remote ON/OFF, Safety ON/OFF, System Status, Alarm						
Power Consumption	0,4 kW	0,4 kW	1,1 kW	1,5 kW	2,3 kW	3,0 kW	4,5 kW
Power Supply	230VAC +/- 10% +N+PE 50/60Hz					3x400VAC +/- 10% +N+PE 50/60Hz	

#### ADV. CONTROLLER FEATURES

SCADA Communication	MODBUS RTU		MODBUS TCP/IP (option PROFINET)				
Analogue 4-20mA I/O	Flow input/UV irradiance output		Flow input/UV dose output (option UVT input)				
ULTRADOSE™			Automatic UV dose pacing 50-100%				
Event Log	Alarms		UV dose, UV intensity, Flow				
UV Dose	On Display, UV Intensity		On HMI, actual UV Dose and target UV Dose				
UV Dose alarm	UV Intensity pre-alarm and alarm		Pre-alarm and Alarm				



UV SYSTEM	MR16-350SS ULU	MR18-350SS ULU	MR20-350SS ULU
Approvals	CE (option UL/ cUL)		

#### UV LAMPS & MONITORING

Lamp Number	16	18	20
ULTRATHERM™ LPHO Lamp	350W		
Guaranteed Lamp Lifetime	16 000 hours		
UV Monitoring	UV Intensity sensor ÖNORM M5873 certified (option non-corrosive PTFE)		
Variable Power	50-100%		

#### UV CHAMBER

Connection Size	Tri-clamp DN50 (other optional)		
Connection Type	DIN32676		
Design Pressure	10 bar (option 16 bar)		
Chamber Material	SS316L/ 1.4404 (option Super Duplex)		
Internal & External Finish	Electropolished inside/out		
Lamp/Wiper Access Single Ended	Yes		
Quartz Type	High purity fused quartz transmittance >95%		
Mounting	Free standing (option horizontal SS316 stand)		
ULTRAWIPER™ System	Optional Automatic mechanical with PTFE/fiber rings (electrical)		
Temperature Probe	PT100		
Vent & Drain Ports	1"		
Ingress Protection	IP65		
Installation	Modular, Horizontal/Vertical		
Minor Wetted Parts	FDA approved PTFE, PVDF, VITON		

#### CONTROL CABINET

Cabinet Material	GFRP (option SS304/SS316)		
Cabinet Sizes	1000x1000x320mm	1000x1250x320mm	1000x1250x320mm
Cable Length	4 meters (max. 30 meters)		
Installation & Ambient	Wallmount 0-40 °C non-condensing		
Ingress Protection	IP54 (option IP65/NEMA4X)		
Thermal Control	Fan with filter (option AC/Heat exchanger)		
Control Logic	PLC		
Interface/HMI	7" ULTRATOUCH™		
External Wiring	Remote ON/OFF, Safety ON/OFF, System Status, Alarm		
Power Consumption	6,0 kW	6,8 kW	7,5 kW
Power Supply	3x400VAC +/- 10% N+PE 50/60Hz		

#### ADV. CONTROLLER FEATURES

SCADA Communication	MODBUS TCP/IP (option PROFINET)		
Analogue 4-20mA I/O	Flow input/UV dose output (option UVT input)		
ULTRADOSE™	Automatic UV dose pacing 50-100%		
Event Log	UV dose, UV intensity, Flow		
UV Dose	On HMI, actual UV Dose and target UV Dose		
UV Dose alarm	Pre-alarm and Alarm		

## SERVICE & SUPPORT

**ULTRAAQUA IS A GLOBAL COMPANY OFFERING WORLDWIDE SERVICE AND SUPPORT, WITH ITS HEAD OFFICE BASED IN DENMARK.**

With operations in over 120 countries and an install base of 10.000 systems, ULTRAAQUA is able to offer extensive support regarding installation and maintenance with the extensive network of regional offices.

The technical support team in our head office provides 24-hour remote service upon agreement, ensuring complete protection to avoid potential emergencies.

At ULTRAAQUA, we wish to provide a complete product experience for our customers, from the very start of determining requirements to the ongoing operational maintenance. This means that our responsibility does not stop after the UV system reaches its destination. By establishing a close collaboration with all clients, a streamlined process is effectively ensured throughout all post installation activities.

Our support services include, but are not limited to:

- 🔧 General technical support
- 🔧 Advanced 24-hour support upon agreement
- 🔧 Spare part ordering and shipping services
- 🔧 Commissioning
- 🔧 On-site training
- 🔧 On-site technical support

If needed, qualified engineers are available for on-site training and technical support, being able to assist in setting up the entire system. Extensive information and technical knowledge is always provided, to ensure maximum performance and system reliability.

## COMPANY HISTORY

**ULTRAAQUA IS AN INTERNATIONAL MANUFACTURER OF ADVANCED UV WATER DISINFECTION SYSTEMS FOR A WIDE RANGE OF WATER TREATMENT APPLICATIONS.**

The company was founded in 1996 by two Danish scientists, with the mission of solving the increasing global water safety challenges, by combining extensive research, innovation, and technology. Today, more than 10.000 UV disinfection systems has been supplied worldwide, to help create a more sustainable world.

ULTRAAQUA operates through a carefully selected partner network, with activity in more than 120 countries. The partner network has been key to the success of ULTRAAQUA, making it possible to deliver cutting-edge UV disinfection systems across the globe.

Continuous research and innovation activities have made it possible to maintain the position of delivering cutting-edge solutions to clients with diverse requirements in different applications.

Global experience combined with advanced knowledge of dealing with varying customer requirements, ensures an optimal solution to accommodate every client. Combined with a dedicated support experience, a streamlined operational process is guaranteed.

The validity, experience, and trustworthiness are proven through our wide range of acquired certificates, patents, and trademarks.

**ULTRAAQUA**  
UV DISINFECTION SYSTEMS



## TECHNOLOGY OVERVIEW & VALIDATIONS



The **ETV-EU verification** is a third-party validation of new innovative environmental technologies, ensuring product credibility for the buyer.



The **DVGW certification** assures that critical technical requirements are met regarding hygiene, safety, and general functionality. DVGW is an unbiased technical-scientific association based in Germany, specialized in gas and water industries.

## AMS

The **AMS (Analog Mixed Signal) verification** ensures that the electronic components are compliant with the latest industry-standard, allowing smooth and quick signal transmission among the electrical components used in data tracking and storage.



The **NIPH (Norwegian Institute of Public Health) type approval** ensures that all UV disinfection units meets the requirements for UV dosage. The approval means that ULTRAAQUA is able to distribute selected UV systems in Norway and The Faroe Islands.