

ULTRAAQUA · UV DISINFECTION FOR VERY LOW-UVT LIQUIDS

ULTRALOW ULU Series

Thin-film UV reactors for liquids with very low UV transmittance, such as liquid sugar, wine and salt brines.



Overview

Standard UV systems lose their effect when a liquid lets very little UV light through. The ULTRALOW ULU series is designed for fluids with a UV transmittance of only 2–15%, such as liquid sugar, wine and salt brines.

The gap between the reactor wall and the quartz sleeve is kept very small, so the liquid passes as a thin layer, is evenly exposed to UV light and receives an even dose at low energy input. The design is modular: reactors are connected in groups, from 2 up to 20, to suit the duty.

Ozone UV Solutions supplies ULTRALOW ULU systems as an authorised ULTRAAQUA reseller and supports them locally: from sizing and installation through commissioning, servicing, lamps and spare parts.

Key features

- Designed for fluids with very low UV transmittance (2–15%)
- Narrow-gap reactor geometry for even UV exposure at low energy input
- Modular design, with reactors connected in groups to suit the flow
- Electropolished SS316L reactor with DN50 tri-clamp (DIN 32676) connections, design pressure 10 bar [16 bar]
- ULTRATHERM 220 W or 350 W low-pressure high-output amalgam lamps with a rated life of 16,000 hours
- PLC with 7" ULTRATOUCH touchscreen and ULTRADOSE dose pacing on models with three or more lamps

Design and operation

Reactor

Each reactor is made from SS316L, electropolished inside and out, with ultra-thin wall technology and DN50 tri-clamp connections to DIN 32676. Reactors install horizontally in modular groups, free-standing or on an optional skid.

Lamps and dose

ULTRATHERM amalgam lamps have a rated life of 16,000 hours. On PLC models, ULTRADOSE pacing reduces lamp power while holding a stable dose.

Controls

Single-lamp STD units have status LEDs and an hour counter; ADV units add a microprocessor with LCD, UV intensity monitoring, variable power and Modbus RTU. From three lamps upward a PLC with 7" ULTRATOUCH HMI provides dose pacing, full data logging and Modbus TCP/IP or PROFINET.

Maintenance

Single-ended lamp access and interlocking plug-and-play lamp connectors make lamp changes quick and safe, without special tools.



Typical applications

- Food and beverage: liquid sugar and syrups, wine, other beverages and salt brines
- Pharmaceutical, and microelectronics and semiconductor production
- Horticulture

Supplied and supported by Ozone UV Solutions

System selection and UV dose sizing · Installation and commissioning · PLC/SCADA integration · Planned servicing and lamp changes · Spare parts and consumables · 24/7 technical support line **+61 422 081 913**

Model selection

The right model depends on flow rate, UV transmittance (UVT) of the liquid and the dose required for the target organisms. Send us these figures and we will confirm the number of reactors and the configuration.

220 W lamp models

Model	UV lamps	Power	Reactor dry weight	Reactor volume	Drain port	Controller
MR1-220SS STD ULU	1	0.2 kW	5 kg	3 L	¼"	STD – status LEDs
MR1-220SS ADV ULU	1	0.2 kW	5 kg	3 L	¼"	ADV – microprocessor, LCD
MR3-220SS ULU	3	0.7 kW	15 kg	9 L	None	PLC – ULTRATOUCH
MR4-220SS ULU	4	1.0 kW	20 kg	12 L	None	PLC – ULTRATOUCH
MR6-220SS ULU	6	1.4 kW	30 kg	18 L	None	PLC – ULTRATOUCH
MR8-220SS ULU	8	1.9 kW	40 kg	24 L	None	PLC – ULTRATOUCH

350 W lamp models

Model	UV lamps	Power	Reactor dry weight	Reactor volume	Drain port	Controller
MR1-350SS STD ULU	1	0.4 kW	7 kg	4 L	¼"	STD – status LEDs
MR1-350SS ADV ULU	1	0.4 kW	7 kg	4 L	¼"	ADV – microprocessor, LCD
MR3-350SS ULU	3	1.1 kW	12 kg	12 L	None	PLC – ULTRATOUCH
MR4-350SS ULU	4	1.5 kW	16 kg	16 L	None	PLC – ULTRATOUCH
MR6-350SS ULU	6	2.3 kW	24 kg	24 L	None	PLC – ULTRATOUCH
MR8-350SS ULU	8	3.0 kW	32 kg	32 L	None	PLC – ULTRATOUCH
MR12-350SS ULU	12	4.5 kW	48 kg	48 L	None	PLC – ULTRATOUCH
MR16-350SS ULU	16	6.0 kW	64 kg	64 L	None	PLC – ULTRATOUCH
MR18-350SS ULU	18	6.8 kW	72 kg	72 L	None	PLC – ULTRATOUCH
MR20-350SS ULU	20	7.5 kW	80 kg	80 L	None	PLC – ULTRATOUCH

STD / ADV: single-lamp models with standard or advanced controller; PLC: models with three or more lamps (see common specifications). Options are shown in [square brackets].

Common specifications

UV LAMPS & MONITORING	
Lamp type	ULTRATHERM low-pressure high-output (LPHO) amalgam, 220 W or 350 W
Rated lamp life	16,000 hours
UV monitoring	UV intensity sensor, ÖNORM M5873 certified, SS316L (all models except single-lamp STD)
Power control	ADV: variable power 50–100% · PLC models: ULTRADOSE automatic dose pacing 50–100%
Approvals	CE [UL / cUL]
UV CHAMBER	
Chamber material	SS316L / 1.4404, electropolished inside and out
Connections	Tri-clamp DN50 (2"), DIN 32676
Design pressure	10 bar [16 bar]
Quartz sleeves	High-purity fused quartz, transmittance > 95%
Cleaning	No automatic wiper
Access / installation	Single-ended lamp access · modular, horizontal installation · free-standing [skid mount]
Other	PT100 temperature probe · IP65 · minor wetted parts FDA-approved PTFE, PVDF, Viton
CONTROL CABINET	
Control logic / HMI	STD: status LED indicators and hour counter · ADV: microprocessor with 4-line LCD · PLC models: PLC with 7" ULTRATOUCH touchscreen
Communication	ADV: Modbus RTU · PLC models: Modbus TCP/IP, PROFINET [I-Device]
Analogue I/O (4–20 mA)	ADV: flow input, UV irradiance output · PLC models: flow input, UV dose output, UV intensity output [UVT input] (MR16 to MR20-350SS: flow input, UV dose output [UVT input])
Logging and alarms	ADV: alarm log, UV intensity pre-alarm and alarm · PLC models: alarm, event and data log (UV dose, UV intensity, flow), actual and target UV dose on HMI, UV dose pre-alarm and alarm
External wiring	ADV and PLC models: remote ON/OFF, safety ON/OFF, system status, alarm
Cabinet	SS304 [GFRP / SS316] · wall-mounted, ambient 0–40 °C · single-lamp models: IP65, passive cooling [fan / AC / heat exchanger] · PLC models: IP54 [IP65], fan with filter [AC / heat exchanger]
Power supply	1 × 230 VAC ±10% +N+PE 50/60 Hz · MR8-350SS ULU and above: 3 × 400 VAC ±10% +N+PE 50/60 Hz
Cable length	4 m standard [up to 30 m]

Request sizing or a quote

Send us the liquid to be treated, flow rate, UV transmittance if known, and the target organisms or required dose. We will recommend the number of reactors and configuration and quote supply, installation and ongoing service.

+61 422 081 913 · jonathan.andry@ozoneuv.com.au · ozoneuv.com.au

Specifications subject to change without notice.