UV DISINFECTION SYSTEMS

Elektravägen 53
SE-126 30 Hägersten, Sweden
+46 10 252 30 00
www.mellifiq.com

Saniray Zeeron D-Series

The Zeeron D-series UV disinfection systems is an industrial grade reactor that has been developed to meet stringent requirements for the production of drinking water. Whether disinfecting raw water or serving in pre-treatment processes, they excel in reducing the need for oxidizing biocidal agents, showcasing their versatility and efficiency.

The Zeeron D-series can also be used in pre-treatment to either reduce the use of oxidizing biocidal agents. The industrial grade reactors are designed to treat and purify water in a wide range of applications including, drinking water as well as in food & beverage facilities.

The state-of-the-art UV disinfection system, engineered for high performance and ease of maintenance. Equipped with advanced features like sampling valves, amalgam low-pressure lamps, and dedicated electronic ballasts, it ensures reliable operation. This series allows for flexible connection configurations and is optimal for both vertical and horizontal installations.

Benefits

- Reduces chemical handling
- Industrial grade, high-performance water treatment
- Effective disinfection: UV treatment targets resistant parasites
- Cost-efficient: Economical investment and operation
- Suitable for diverse water application

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Zeeron D-series UV System

UV System	D1	D2	D3
Reactor			
Finishing	Sand Blasted	Sand Blasted	Sand Blasted
A) Full length (mm)	1149	1149	1341
B) Width (mm)	314	300	368
C) Fixation spacing (mm)	901	901	993
D) Service spacing (mm)	850	850	1050
E) Depth (mm)	306	347	415
Type of connection	Flanges	Flanges	Flanges
Connection	DN100	DN100	DN200
Position I/O	L	L	U
Cabinet			
F) Height (mm)	515	600	847
G) Width (mm)	270	600	636
H) Depth (mm)	121	300	300

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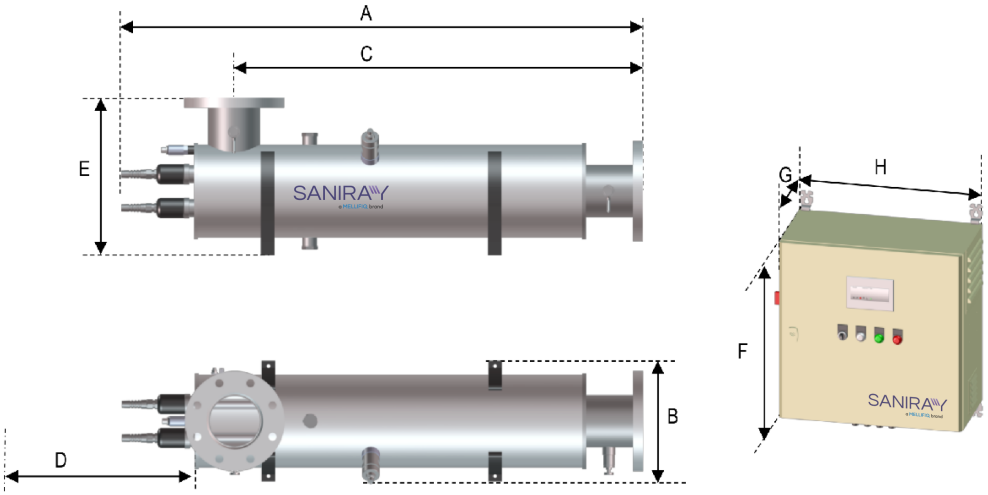
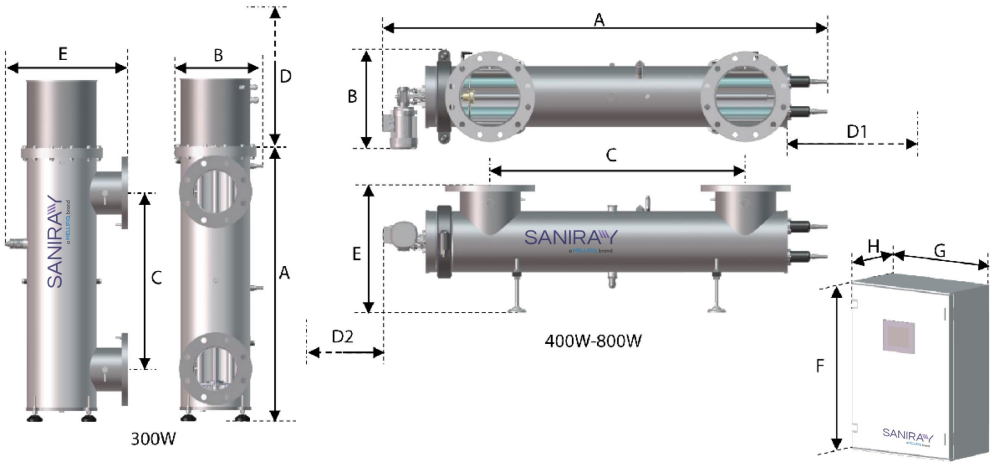
Dimension drawing of Zeeron D1/D2 models



Dimension drawing of Zeeron D3 model



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UV System	D1	D2	D3
Certifications / Approvals	CE, Önorm, ACS	CE, Önorm, ACS	CE, ACS, WRAS
Version			
Without manual cleaning	Yes		-
With manual cleaning	Yes		-
Environment of use			
Place	Indoor conditions	Indoor conditions	Indoor conditions
Minimum ambient temperature (°C)	+5	+5	+5
Maximum ambient temperature (°C)	+40	+40	+40
Maximum relative humidity	80% non condensating	80% non condensating	80% non condensating
Water quality			
Water temperature (°C)	+10 to +35		+5 to +60
Transmittance range (%)	> 80%	> 80%	> 80%
Reactor			
Material	SS316L	SS316L	SS316L
Weight (kg)	27	30	83
Drain in high point	Yes		1/4" (cap)
Drain in low point	Yes		1/4" (cap)
Sampling valves	Upstream downstream	Upstream downstream	Upstream downstream
Inlet/Outlet chemical cleaning	Upstream downstream		1"
Max service pressure (bar)	10	10	10
Standard mounting	Horizontal vertical		Vertical

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UV System	D1	D2	D3
Cabinet			
Material	Painted steel		Polyester
Cabinet/Reactor cable length (m)	10		5
Weight (kg)	8	30	35
Cabinet ventilating	Yes		No
Power supply (V)	220-240	220-240	220-240
Frequency (Hz)	50/60	50/60	50/60
Amperage (A)	1.22-1.12	2.34-2.15	5,18-4,75
Cable type/gauge (mm^2)	3G1,5	3G1,5	-
Total input power (W)	267	505	1095
Differential protection	No	30mA	30mA
Protection (A)	Fuse 4	10	10
Ingress protection	IP54		IP65
UV Lamps			
Number of lamps	2	4	4
Lamp power at ballast (W)	120		270
Type of lamp	Amalgam	Amalgam	Amalgam
Technology	Low pressure 254 nm	Low pressure 254 nm	Low pressure 254 nm
UV lamp power (W)	37		85
Total UV power (W)	74	148	340
Lifetime (h)	16 000		13 000

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Monitoring D1/D2

Interface	Millenium III
Voltage indicator	White indicator of voltage presence in the control cabinet (no indicator for units 1 and 2 lamps)
Lamp indicator	Green light indicating that the lamp is working (Orange indicator for units 1 and 2 lamps)
Main alarm indicator	Red LED indicating a device fault
ON/OFF Switch	Switch to turn the unit on and off
Remote (ON/OFF lamps)	Allows remote control of the device with a potential free switch
Screens	Radiation UVC in W / m^2, Reactor temperature in ° C (Optional), System hour meter, System start counter, Power regulation level, System status (On-Off, Pre-alarm, Alarm)
Önorm UV sensor with measurement window	Reads the UVC radiation of the device
4-20mA Output UV irradiance	4-20mA output signal copying the UV sensor, 0 W / m^2 = 4mA, Sensor Caliber = 20mA
Main-alarm dry contact	Potential-free alarm contact combining the UV alarm and overheating reactor (Option). The contact opens when the UV level is too low or the reactor overheats (Option)
Pre-alarm dry contact UV irradiance	Pre-alarm UV contact free of potential. The contact opens in case of low UV level
Lamp alarm dry contact	Contact defect lamp (s) free of potential. The contact opens when the lamp is stopped during operation
Pump dry contact	Contact allowing the circulation of water when the necessary UV dose is reached
Data outputs contact	150Vdc, 250Vac, 5A
Auto regulation on UV (Option)	Adapts the power of the lamps according to the UV radiation read by the sensor
Auto Flow/UV Dimming (Option)	Adapts the power of the lamps according to the UV radiation read by the sensor correlate to the flow rate given by the flow meter of the customer (except models DW1114 55W and DW1150 120W)

Monitoring D3

Interface	Touch screen 5.7 inches
Screens	Process, Menu, Settings, System, Ballasts / Lamps, Alarms, Event, Curves
Data	UVC radiation in% or W / m^2 or mJ / cm^2, Cabinet / reactor temperature in ° C, Lamp and system hour meters, System start-up counter, Power regulation level
Önorm UV sensor with measurement window	Reads the UVC radiation of the device
Temperature sensor	Allows reading of the reactor temperature from 0 to 73 ° C
4-20mA Output UV irradiance	4-20mA output signal copying the UV sensor, 0 W / m^2 = 4mA, Sensor Caliber = 20mA
4-20mA Output Temperature	4-20mA output signal copied from the reactor temperature sensor, 0 ° C = 4mA, 73 ° C = 20mA

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Input Flow 4-20mA	Used to retrieve the flow value in the device (Customer Flow Meter)
Output General Alarm contact	Alarm contact grouping all UV alarms, cabinet temperature, reactor temperature, flow controller or flowmeter. The contact opens in the event of an alarm
Output Alarm contact 1	Configurable alarm contact, choice between UV alarm, cabinet temperature, reactor temperature, flow controller or flowmeter. The contact opens in the event of an alarm
Output Alarm contact 2	same as Alarm contact 1
Output Warning contact	Warning contact grouping the UV warning, cabinet temperature and reactor, flow controller and flowmeter. The contact opens in the event of an alarm
Data outputs contact	12-24Vdc, 90-250Vac, 3A
Power dimming	The device adapts-reduces the electric power of the lamps to obtain the necessary dose
Remote (ON/OFF lamps)	Allows remote control of the device with a potential free switch
Alarms, events, data storage	Alarms, events and sensor data are stored on a USB stick
Communication	ModbusTCP communication protocol, allows you to read the data in real time and control the device remotely
Dimming modes	
Manual dimming	Adapts the power of lamps from 50 to 100%
Auto/UV Dimming	Adapts the power of the lamps according to the UV radiation read by the sensor
Auto Flow/UV Dimming	Adapts the power of the lamps according to the UV radiation read by the sensor correlate to the flow rate given by the flow meter of the customer

Possible options D1/D2

UV system	**D1**	**D2**
Monitoring		
Temperature sensor	OPT006202	
Inlet/Outlet chemical cleaning	Serial	
Sampling valves	Serial	
Power dimming	OPT014619	
PN16	OPT014971	OPT014972
Cabinet IP55	To be defined	

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Possible options D3

UV system	D3
Air / air heat exchanger on electrical box and IP55	Not concerned
Feet: horizontal mounting	OPT004160
PN16	OPT008862
Cable lengths	>=5m and =<30m
Accessories	
lamp protection cover	ASM008843
Motor cleaning protection cover	ASM007822
Protection cover for UV sensor, temperature and limit switch	ASM007530

Cleaning system of quartz sleeves D1/D2

Chemical cleaning	
Isolation valves (not supplied) are mandatory at reactor inlet and outlet.	
The chemical cleaning device performs cleaning cycles by using a cleaning solution made of phosphoric or citric acid (effective against ferric deposits).	
The chemical cleaning cycle is started when the UV reactor is stopped and hydraulically isolated.	
It is connected to connections installed on reactor inlet and outlet in order to run the chemical solution in a loop.	
Dry weight (kg)	9
Capacity	11 l
Dimensions (mm)	570x300x560
Piping length (m)	2
Inlet/Outlet diameter (mm)	15x21
Supply voltage (V)	230 (single phase)
Frequency (Hz)	50
Total power rate (W)	120

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Cleaning system of quartz sleeves D3

Cleaning with scraper

The automatic cleaning system is designed to reduce the formation of organic and inorganic deposits on quartz sleeves.
It uses reinforced Teflon rings mounted on a stainless steel trolley to scrape the surface of the quartz sleeves of each lamp.
The automatic system ensures the cleaning at predetermined and configurable intervals by means of a trapezoidal screw driven by an electric motor by performing a round trip all along the quartz sleeves.
Unlike chemical cleaning, scraping operations that do not require lamp shutdown and hydraulic isolation of the UV reactor are carried out during operation of the UV device.

Benefits

The cleaning system minimizes the fouling of the quartz sleeves.
Provides a constant UV dose.
Operates in line while lamps perform disinfection, thus reducing downtime.
Can be set to clean lamp sleeves at adjustable intervals of one hour (Auto only).
Manual cleanings with chemical cleaning agents previously frequent become exceptional.

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