

MEGATRON[®]

ULTRAVIOLET WATER DISINFECTION SYSTEM



Model M250

SINCE 1963
ATLANTIC **A** **U** **ULTRAVIOLET**
CORPORATION[®]

ABOUT US

Since 1963, Atlantic Ultraviolet Corporation® has pioneered the discovery and development of beneficial uses of ultraviolet energy. Over the years these efforts have led to the development of valuable, cost effective and environmentally sound techniques and products now known and respected throughout the world.



The UV Application Specialists at Atlantic Ultraviolet Corporation® assist customers in the selection of germicidal lamps and equipment. Their specialized knowledge is a valuable resource in formulating effective and cost-conscious ultraviolet solutions. Extensive inventories and a dedicated staff enable Atlantic Ultraviolet Corporation® to fulfill its commitment to provide fast deliveries and responsive customer service.



Model M250

GERMICIDAL ULTRAVIOLET

Ultraviolet Disinfection is a unique and rapid method of disinfection without the use of heat or chemicals.

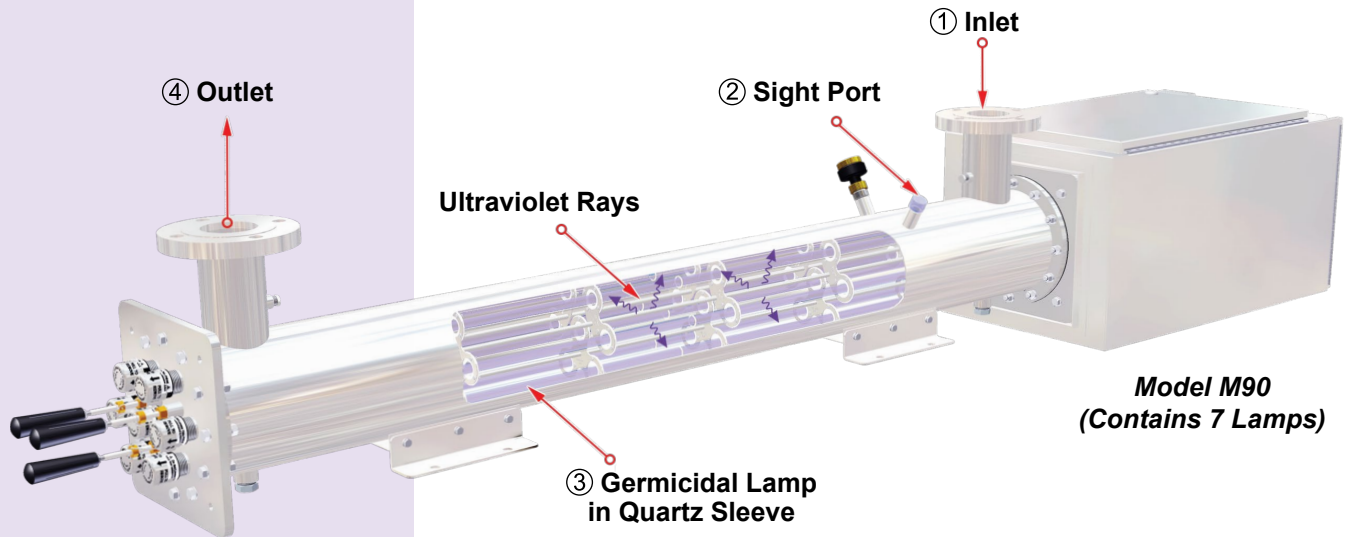
MEGATRON® Ultraviolet Water Disinfection Systems utilize germicidal ultraviolet lamps that produce short-wave radiation that is lethal to bacteria, viruses and other microorganisms present in water.

Economical and safe, **MEGATRON®** Ultraviolet Water Disinfection Systems offer rapid disinfection without the use of heat or dangerous chemicals – often for the lowest cost available by any means.

An ever-growing range of industries and consumer applications have found ultraviolet to be the ideal solution for their water treatment requirements.

Awareness of the environmental impact of chemical disinfectants and evolving discharge regulations have made ultraviolet purification a technology of choice in water recycling and disinfection of processed wastewater discharges.

PRINCIPLE OF OPERATION



ADVANTAGES

Effective

Virtually all microorganisms are susceptible to **MEGATRON**® ultraviolet disinfection

Economical

Hundreds of gallons are purified for each penny of operating cost

Safe

No danger of overdosing, no addition of chemicals

Fast

Water is ready for use as soon as it leaves the purifier – no further contact time required

Easy

Installation and maintenance are less complicated than other methods

Automatic

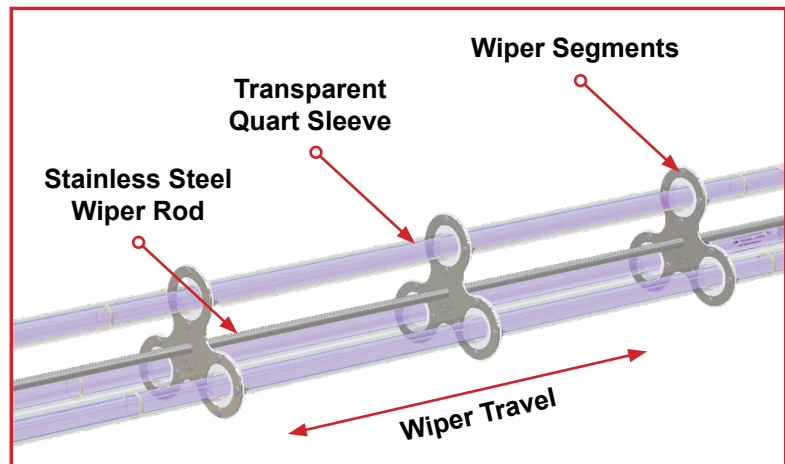
Provides continuous disinfection without special attention or measurement

Chemical Free

No chlorine taste or corrosion problems

Versatile

Capacities available from seventy to thousands of gallons per minute (GPM)



- ① The water enters the stainless steel disinfection chamber and flows into the space between the quartz sleeves and chamber wall where suspended microscopic organisms are exposed to intense shortwave germicidal ultraviolet radiation.
- ② Translucent sight port and front panel indicator lights (not shown) provide positive indication of germicidal lamp operation.
- ③ Manual or automatic wiper system facilitates routine cleaning of quartz sleeves without disassembly or shutdown of disinfection systems.
- ④ Water leaving the purifier is instantly ready for use.

SPECIAL FEATURES

Modular Design

Each **MEGATRON**[®] is a completely self-contained disinfection system. The electrical enclosure and disinfection chamber form an independent model simplifying installation; simply secure, plumb and supply suitable single-phase power. Multiple models can be interconnected to comply with nearly any flow requirement.

All internal electronic modules can be removed and replaced, simplifying troubleshooting, and reducing any possible down time.

Surelite[™] Electronic Ballasts

State-of-the-art electronic ballast specifically developed for the operation of ultraviolet lamps. Versatile ballast provides high lamp output; is lightweight, efficient, and operates cool for longer life.

Manual Wiper System

Permits mechanical cleaning of the quartz sleeves without service interruption, or disassembly of the system.

Automatic Wiper System (Optional)

Once programmed, permits unattended mechanical cleaning of the quartz sleeves.

Sight Port

Translucent plug mounts to the disinfection chamber and provides positive indication of germicidal lamp operation.

CRYSTAL CLEAR[™] Quartz Sleeve

Fused, high quality quartz, protects and insulates the ultraviolet lamps to ensure high output over a range of operating temperatures.

Remote Outputs

12v DC: Provides an output corresponding to the **MEGATRON**[®] **STATUS** and power for a low-voltage audio alarm, 50mA max.

4-20mA

Provides an output corresponding to the **ULTRAVIOLET INTENSITY**. Output must be displayed by a PLC, computer, or 4-20mA meter, which can interpret the signal.

Dry Contacts

Provides SPDT output corresponding to **UV NORMAL** or **FAULT** status of the monitor. Contacts are rated at 50v 100mA max.

Lamp Operation Indicators

Provide positive indication of each germicidal lamp's operation.

Digital GUARDIAN[™] Ultraviolet Monitor

Displays the intensity of germicidal ultraviolet energy within the disinfection chamber. Signals are provided by the Ultraviolet Sensor Probe.



Elapsed Time Indicator

Non-resettable display of accumulated operating hours.

Ultraviolet Sensor Probe

Mounts to the disinfection chamber, senses the intensity of germicidal ultraviolet energy that penetrates the quartz sleeve and water within the disinfection chamber.

Sampling Ports

Located on the inlet/outlet and allow inline sample gathering, monitoring or other user specific requirement.

Chamber Head Plates

Made from stainless steel type 316, passivated and electropolished, and are removable allowing access into the chamber.

Disinfection Chamber

Made from stainless steel type 316, all internal and external surfaces are passivated, exterior is also electropolished. Integral drain fittings allow for in-place drainage.

STER-L-RAY® Instant Start Germicidal Ultraviolet Lamps

Specially designed lamps are instant starting and provide the utmost in quality, sustained output and longevity. (Not Shown - Inside Chamber).

Electrical Enclosure

A NEMA style enclosure, fabricated from stainless steel type 304. All electronics are accessible through either of the access doors. System status is viewed through the status display window of the front access door.



ULTRAVIOLET DOSAGE

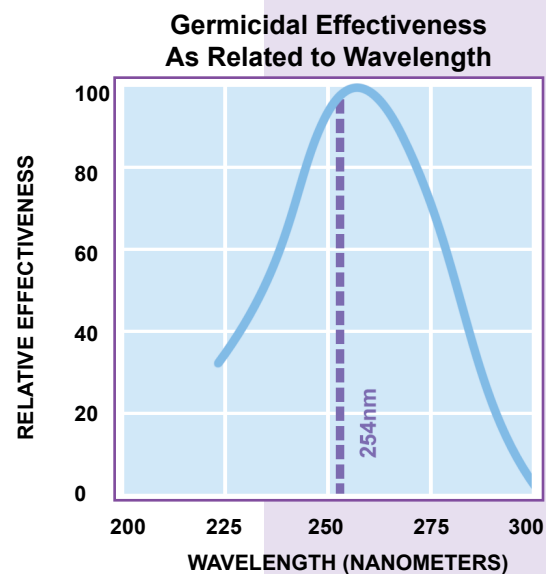
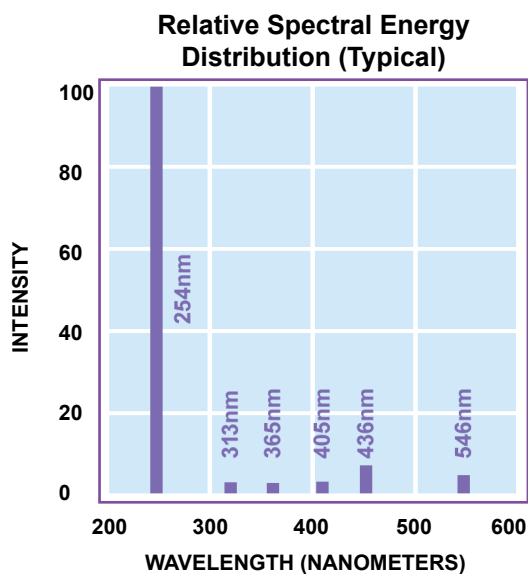
Germicidal lamps provide effective protection against microorganisms. A small cross-section is shown below.

ORGANISM	ALTERNATE NAME	TYPE	DISEASE	DOSE*
<i>Bacillus subtilis</i> spores	<i>B. subtilis</i>	Bacteria	————	22,000
Bacteriophage	Phage	Virus	————	6,600
Coxsackie virus	————	Virus	Intestinal infection	6,300
<i>Shigella</i> spores	————	Bacteria	Bacterial Dysentery	4,200
<i>Escherichia coli</i>	<i>E. coli</i>	Bacteria	Food poisoning	6,600
Fecal coliform	————	Bacteria	Intestinal infection	6,600
Hepatitis A virus	Infectious Hepatitis virus	Virus	Hepatitis of the liver	8,000
Influenza virus	Flu virus	Virus	Influenza	6,600
<i>Legionella pneumophila</i>	————	Bacteria	Legionnaires' Disease	12,300
<i>Salmonella typhi</i>	————	Bacteria	Typhoid Fever	7,000
<i>Staphylococcus aureus</i>	Staph	Bacteria	Food poisoning, Toxic Shock Syndrome, etc.	6,600
<i>Streptococcus</i> spores	Strep	Bacteria	Strep throat	3,800

When used as directed to disinfect clear water, MEGATRON® Water Purifiers provide an ultraviolet dosage in excess of 30,000 microwatt seconds per square centimeter ($\mu\text{WSec}/\text{cm}^2$).

* Nominal Ultraviolet dosage ($\mu\text{WSec}/\text{cm}^2$) necessary to inactivate better than 99% of specific microorganism. Consult factory for more complete listing.

OPERATING CHARACTERISTICS



GENUINE **STER-L-RAY**® GERMICIDAL ULTRAVIOLET LAMPS

STER-L-RAY® Germicidal Ultraviolet Lamps are shortwave, low pressure tubes that produce ultraviolet wavelengths lethal to microorganisms.

Approximately 95% of the ultraviolet energy emitted from **STER-L-RAY**® germicidal lamps is at 254 nanometers, the region of germicidal effectiveness most destructive to bacteria, mold and virus.

STER-L-RAY® and the **STER-L-RAY**® logo are trademarks of Atlantic Ultraviolet Corporation®.

CAUTION: Exposure to direct or reflected germicidal ultraviolet rays will cause painful eye irritation and reddening of the skin. Personnel subject to such exposure must wear suitable faceshield, gloves and protective clothing.

Hg - LAMP CONTAINS MERCURY, manage in accord with disposal laws, see: LampRecycle.org.



STER-L-RAY®
Germicidal UV Lamp
Part Number 05-1313A-R

GERMICIDAL LAMP DATA

Lamp Number	Purifier Model No.	Nominal Lamp Length	Power Consumption ①	Ultraviolet Output ②	Rated Effective Life
05-1313A-R	M50, M90, M150, M250	1554mm	75 Watts	33 Watts	10,000 Hrs

① Wattage is lamp watts only and does not include ballast loss (approximate).

② Maximum rated output at 254 nanometers.

The lamp listed above has been specially developed and is the only lamp recommended for use with **MEGATRON**® Disinfection Systems.

All **STER-L-RAY**® lamps used in **MEGATRON**® Disinfection Systems are low pressure type which afford the maximum efficiency in producing the required germicidal rays. In addition has advantage of high efficiency and low power requirements.

WATER QUALITY RECOMMENDATIONS

FOR CLEAR, FRESH WATER APPLICATIONS

Turbidity:

5 Nephelometric turbidity units (N.T.U.)

Total Suspended Solids:

10 milligrams per liter (mg/L) - maximum

pH: 6.5 - 9.5

Color: None

Hardness:

6 grains per gallon (g.p.g.) or 102 parts per million (p.p.m.)

Iron:

0.3 milligrams per liter (mg/L) - maximum

Manganese:

0.05 milligrams per liter (mg/L) - maximum

Ultraviolet Transmission:

80% through one centimeter - minimum

FOR WASTEWATER APPLICATIONS

Biological Oxygen Demand:

30 milligrams per liter (mg/L) - maximum

Total Suspended Solids:

30 milligrams per liter (mg/L) - maximum

Ultraviolet Transmission at 254 nanometers:

65% through one centimeter - minimum

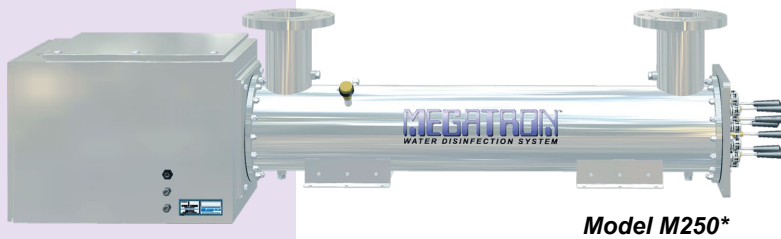
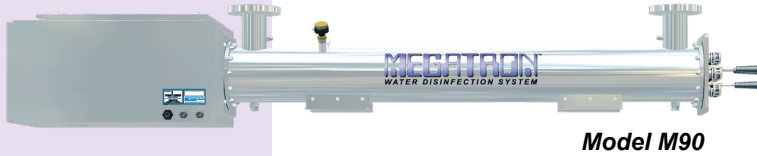
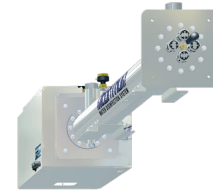
* Other water quality applications may be treated by ultraviolet. Contact one of our ultraviolet specialists with your requirements.



The **MEGATRON**® Model M250 has been verified by The Environmental Technology Verification Program®. To learn more about the Environmental Technology Verification Program® visit: www.epa.gov/etv

Information on the performance characteristics of the Megatron® Model M250 [June 2002] can be found at www.epa.gov/etv, or call Atlantic Ultraviolet Corp. at 631-273-0500 for a copy of the verification report. Use of the ETV Name or Logo does not imply approval or certification of this product nor does it make any explicit or implied warranties or guarantees as to product performance.

SPECIFICATIONS FOR STANDARD MODELS



*Environmental Technology Verification Program® Verified.

Model	Standard Inlet/Outlet	NOMINAL CAPACITIES/ Gallons Per Minute			Number of Lamps	Power Requirements** VOLTS AC and AMPS		Dimensions (Inches)		
		Clear Wastewater	Clear Fresh Water	High Purity Water		120V	230V	Length	Width	Height
M50	2" NPT	70	90	100	4	4	2.5	100	16	14
M90	3" 150# Socket Weld Flange	115	150	190	7	5.5	3	100	16	16
M150	4" 150# Socket Weld Flange	200	270	325	12	8.5	4.5	100	18	18
M250	6" 150# Socket Weld Flange	335	450	560	19	12	6.5	102	21	26

* Larger size inlets and outlets are available for these models. Consult factory with specific power requirements.

** MEGATRON® is available for operation on public power supplied throughout the world.



Model M250 Parallel Arrangement

1005 GPM Clear Wastewater,
1350 GPM Clear Fresh Water,
1680 GPM High Purity Water

APPLICATIONS FOR ULTRAVIOLET WATER PURIFIERS

Institution systems

- laboratories
- hospital
- clinics
- maternity areas
- labor & delivery areas
- pathology labs
- kidney dialysis labs
- nursing homes
- universities
- schools
- veterinary clinics

Transient systems

- resorts, hotels, & motels
- ships, yachts, boats
- campgrounds

- restaurants
- water parks
- amusement parks
- golf course water holes
- lakes and ponds
- fountain water features
- ornamental ponds
- fish ponds
- swimming pool

Community systems

- apartment complexes
- condominium complexes
- trailer parks
- rural water
- villages, towns, cities
- farms & ranches


- animal husbandry
- aquariums
- fish farms
- mollusk hatcheries
- water preserves
- well water

Industry systems

- pharmaceutical mfg.
- electronic production
- cosmetic production
- cooling tower
- power generation
- food industry
- ice makers
- pulp & paper production
- water vending machines

- laundry water
- pure wash water
- bottled water
- beer, wine
- soft drinks
- fruit juices
- bottling facilities
- edible oils
- liquid sugar
- sweeteners
- water based lubricants
- dairy processing
- cistern applications
- TOC Reduction
- Ozone Reduction

COMPARISON OF ATLANTIC ULTRAVIOLET WATER PURIFIERS

FEATURES [S] - Standard [O] - Optional [X] - Yes	Bio-Logic® Pure Water Pack™ 1.5 GPM	MINIPURE® 1 to 9 GPM	Ultimate® 4 to 9 GPM	MIGHTY★PURE® 3 to 20 GPM	SANITRON® 3 to 416 GPM	MEGATRON® 90 to 450 GPM
Chamber Material (Stainless Steel Type)	316	304	304	316	316	316
STER-L-RAY® Germicidal Ultraviolet Lamp with 10,000 Hours Rated Effective Life	S	S	S	S	S	S
Quick Lamp Change with the EASY-OFF™ End Cap	S	S	–	S	S	S
CRYSTAL CLEAR™ Quartz Sleeve	S	S	S	S	S	S
Lamp Out Indicator Light(s)	S	S	–	–	–	S
Sight Port to View Lamp Operation	–	–	S	S	S	S
Drain Fitting	–	–	–	S	S	S
Dual Action Wiper Mechanism	–	–	–	–	Manual	Manual or Automatic
Suggested Mount Installation	Horizontal	Horizontal	Vertical	Horizontal	Horizontal	Horizontal
Removable or Rotatable Heads	S	–	–	–	S	S
Alternate Inlet/Outlet Fittings	–	–	–	–	O	O
Sediment and Carbon Filter	S	–	–	–	–	–
Promate™ Mounting Kit / Bracket	S	S	S	O	O ①	–
GUARDIAN™ Ultraviolet Monitor	–	–	–	O	O	S
SENTRY™ Safety Sensor	O	O	–	O	O	–
Promate™ Audio Alarm	S	S	S	O	O	–
Promate™ Solenoid Valve	–	O	–	O	O	–
SureFLO™ Flow Control Valve	–	O	S	O	O	–
Promate™ Elapsed Time Indicator	O	O	–	O	O	S
Promate™ Time Delay Mechanism	–	O	–	O	O	–
Residential Use	X	X	X	X	X	–
Commercial Use	–	–	–	X	X	X
Industrial Use	–	–	–	–	X	X
 Certified Models	–	–	–	X ②	X ③	–

① **SANITRON®** Model S10,000C through S25,000C come equipped with mounting rack.

② **MIGHTY★PURE®** MP36C and MP49C are available with NSF®/ANSI 55 for Disinfection Performance, Class B.

③ **SANITRON®** Models S37C, S50C, and S2400C are certified to NSF®/ANSI 61 & 372. Model S2400C is used in modular form to build larger models.


• When used as directed to disinfect clear water, Atlantic Ultraviolet Corporation® water purifiers provide an ultraviolet dosage in excess of 30,000 micro-watt seconds per square centimeter ($\mu\text{WSec}/\text{cm}^2$).

• This list depicts options for 120v 50/60Hz operation. Consult factory for options with other power requirements.

The Standard of Excellence In Ultraviolet



Manufacturers / Engineers / Sales / Service – Germicidal Ultraviolet - Equipment & Lamps

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375 Marcus Boulevard • Hauppauge, NY 11788 • 631.273.0500 • Fax: 631.273.0771

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