


STER-L-RAY®

Germicidal Ultraviolet Lamps

ATLANTIC  ULTRAVIOLET
CORPORATION®

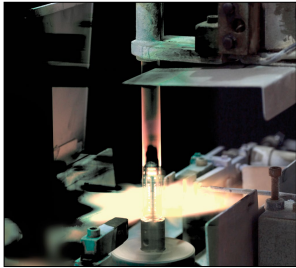
SINCE 1963

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

ultraviolet.com • buyultraviolet.com

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 well-known and respected throughout the world.



Atlantic Ultraviolet's

Application Specialists 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 to fulfill its commitment to provide fast deliveries and responsive customer service.

Continuing research and development maintains Atlantic Ultraviolet Corporation's leadership in applied ultraviolet technology. Exacting procedures and stringent quality control measures ensure products of consistently high quality. Engineering studies of product design and materials are conducted with an eye toward enhancing product usefulness and value. Existing and potential new products are subjected to rigorous test protocols in order to insure the highest standards of performance and reliability.



Production methods and equipment are continually reviewed and, where possible, upgraded to improve productivity and reduce cost. Products include ultraviolet water purifiers, germicidal ultraviolet lamps, ultraviolet product sanitation and disinfection equipment, room air sanitizers, air duct disinfection fixtures

and accessories (for application in HVAC systems), ozone generators and equipment, ultraviolet "blacklight" lamps and equipment (suitable for fluorescent analysis, inspection and display, etc.) and ultraviolet photochemical reactors.



GENERAL INFORMATION

STER-L-RAY® Germicidal Ultraviolet Lamps (also referred to as UVC lamps) are short wave, low pressure tubes that produce ultraviolet wavelengths lethal to microorganisms. Atlantic Ultraviolet Corporation produces a variety of germicidal ultraviolet lamps in the USA. Most lamps are available in either low ozone (254 nanometer) or ozone producing types (185 nanometer). **STER-L-RAY®** Germicidal Ultraviolet Lamps and **Crystal Clear™** Quartz Sleeves are available in both standard and custom sizes. The lamps and quartz sleeves depicted represent the most common ones offered. Atlantic Ultraviolet Corporation also manufactures a wide variety of equivalent replacement lamps for most make and model UV equipment (old and new). Our Ultraviolet Application Specialists can help cross-reference the lamp or lamps you need and with our large inventories, most orders ship from stock.



Wavelength

The nanometer (one billionth of a meter) is a unit of length used to describe ultraviolet wavelengths. 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.



Ozone Producing Lamps

Ozone(O^3) is a highly reactive form of oxygen and is useful in water purification, as a deodorizer and as a cleaning agent. Ultraviolet wavelengths shorter than 200 nanometers are capable of producing ozone from Oxygen(O^2) in the air. **STER-L-RAY®** ozone lamps, in addition to emitting germicidal ultraviolet output at 254 nanometer wavelength, also emit ozone producing rays at 185 nanometer wavelength. Because it is necessary to avoid exposing personnel to high concentrations of ozone, the use of ozone lamps is limited to applications in which ozone

concentration will not exceed .05 parts per million in occupied spaces. **STER-L-RAY®** Ozone Producing lamps are available in Instant Start, Cold Cathode, High Output, High Intensity, Enhanced Output and Preheat types.

INSTANT START GERMICIDAL ULTRAVIOLET LAMPS

STER-L-RAY® Instant Start germicidal lamps utilize a coil filament on each end which operates hot. Lamp life is governed by the life of the electrodes and is affected by the frequency of starting. **STER-L-RAY®** Instant Start germicidal lamps are well-suited to applications requiring high ultraviolet intensity such as water sterilization, air purification in duct systems and conveyorized product disinfection. Available in Low Ozone and Ozone Producing versions.



Lamp Description		Length (mm) Base Face to Face	Lamps (Watts) (1)	Approx. Lamp Current (mA)	UV Output Total Watts (2)	UV Output Microwatts at 1 Meter (3)	Ozone Output (if applicable) (4)	Rated Lamp Life (Hours)
Low Ozone	Ozone Producing							
G12T5L**	G12T5VH	233	11	425	3.1	32	0.8	10,000
G10T51/2L	G10T51/2VH	357	17	425	5.7	57	1.4	10,000
G18T5L**	G18T5VH	386	18.4	425	5.8	59	1.6	10,000
G24T5L**	G24T5VH	538	25.6	425	8.5	82	2.3	10,000
G30T5L**	G30T5VH	691	32	425	11	95	3.0	10,000
GSL692T5L	N/A	692	32	425	11	95	N/A	10,000
G36T5L*	G36T5VH*	843	41	425	15	130	3.7	10,000
G37T5L	G37T5VH	868	42	425	15.4	133	3.8	10,000
G48T5L**	G48T5VH	1148	55	425	21	170	5.2	10,000
G64T5L*	G64T5VH*	1554	75	425	33	220	7.2	10,000

* Also available in 2-, 3- and 4-pin single ended configurations. **Available in 3 and 4 pin single ended configurations. Other sizes are readily available. Custom lamp lengths can also be supplied. Please contact us for help with your needs. Please note that ozone output is subject to considerable variation due to conditions under which the lamp is used; under many conditions, the ozone output may be only a fraction of the specified figure.

U-SHAPED INSTANT START GERMICIDAL ULTRAVIOLET LAMPS

U-Shaped lamps are the ideal choice for applications that require more intense ultraviolet radiation in a limited space.

STER-L-RAY® Instant Start lamps are available in U-Shaped configuration in Low Ozone and Ozone Producing versions.



Lamp Description		Length (mm) Base Face to Outside of Bend	Lamps (Watts) (1)	Approx. Lamp Current (mA)	UV Output Total Watts (2)	UV Output Microwatts at 1 Meter (3)	Ozone Output (4)	Rated Lamp Life (Hours)
Low Ozone	Ozone Producing							
G18T5L/U	G18T5VH/U	201	18.4	425	5.8	59	1.6	10,000
G24T5L/U	G24T5VH/U	287	25.6	425	8.5	82	2.3	10,000
G30T5L/U	G30T5VH/U	353	32	425	11	95	3.0	10,000
G36T5L/U	G36T5VH/U	429	41	425	15	130	3.7	10,000
G48T5L/U	G48T5VH/U	582	55	425	21	170	5.2	10,000

Other sizes are readily available. Custom lamp lengths can also be supplied. Please contact us for help with your needs. Please note that ozone output is subject to considerable variation due to conditions under which the lamp is used; under many conditions, the ozone output may be only a fraction of the specified figure.

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

(2) Ultraviolet output at 254 nanometers at 100 hours and 80°F (approximate).

(3) Microwatts per square centimeter at one meter from lamp.

(4) Approximate ozone output in grams per hour under favorable conditions. Figures apply only to ozone producing types.

COLD CATHODE GERMICIDAL ULTRAVIOLET LAMPS

STER-L-RAY® Cold Cathode germicidal lamps are instant starting and utilize a large cylindrical cathode instead of a tungsten filament. Due to this construction, the lamp is not adversely affected by frequent starting and the life is considerably in excess of other lamp types. Cold cathode germicidal lamps have favorable operating characteristics at reduced temperatures. They are, therefore, widely used in walk-in refrigerators and holding rooms. **STER-L-RAY®** Cold Cathode germicidal lamps are well-suited for disinfection of air and surfaces due to their long life and low depreciation. Cold Cathode germicidal lamps are also employed in applications where frequent starting is a requirement. Available in Low Ozone and Ozone Producing versions.



Lamp Description		Length (mm) Base Face to Face	Lamps (Watts) (1)	Approx. Lamp Current (mA)	UV Output Total Watts (2)	UV Output Microwatts at 1 Meter (3)	Ozone Output (4)	Rated Lamp Life (Hours)
Low Ozone	Ozone Producing							
CC12T5L	CC12T5VH	230	15	90	2.8	22	0.4	20,000
782L10	782VH10	357	20	90	2.9	29	0.8	20,000
CC18T5L	CC18T5VH	381	21	90	3.2	32	0.8	20,000
CC24T5L	CC24T5VH	538	23	90	5.0	47	1.3	20,000
782L20	782VH20	611	24	90	5.8	55	1.5	20,000
CC36T5L	CC36T5VH	843	28	90	8.5	75	2.3	20,000
782L30	782VH30	865	29	90	8.7	77	2.3	20,000
CC48T5L	CC48T5VH	1148	34	90	11.2	98	3.0	20,000

Other sizes are readily available. Custom lamp lengths can also be supplied. Please contact us for help with your needs. Please note that ozone output is subject to considerable variation due to conditions under which the lamp is used; under many conditions, the ozone output may be only a fraction of the specified figure.

U-SHAPED COLD CATHODE GERMICIDAL ULTRAVIOLET LAMPS

U-Shaped lamps are the ideal choice for applications that require more intense ultraviolet radiation in a limited space.

STER-L-RAY® Cold Cathode lamps are available in U-Shaped configuration in Low Ozone and Ozone Producing versions.



Lamp Description		Length (mm) Base Face to Outside of Bend	Lamps (Watts) (1)	Approx. Lamp Current (mA)	UV Output Total Watts (2)	UV Output Microwatts at 1 Meter (3)	Ozone Output (4)	Rated Lamp Life (Hours)
Low Ozone	Ozone Producing							
CC18T5L/U	CC18T5VH/U	201	21	90	3.2	32	0.8	20,000
CC24T5L/U	CC24T5VH/U	287	23	90	5.0	47	1.3	20,000
688A45	N/A	370	26	90	7.0	66	N/A	20,000
CC36T5L/U	CC36T5VH/U	429	28	90	8.5	75	2.3	20,000
CC48T5L/U	CC48T5VH/U	582	34	90	11.2	98	3.0	20,000

Other sizes are readily available. Custom lamp lengths can also be supplied. Please contact us for help with your needs. Please note that ozone output is subject to considerable variation due to conditions under which the lamp is used; under many conditions, the ozone output may be only a fraction of the specified figure.

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

(2) Ultraviolet output at 254 nanometers at 100 hours and 80°F (approximate).

(3) Microwatts per square centimeter at one meter from lamp.

(4) Approximate ozone output in grams per hour under favorable conditions. Figures apply only to ozone producing types.

HIGH OUTPUT GERMICIDAL ULTRAVIOLET LAMPS

STER-L-RAY® High Output (HO) germicidal UV lamps are similar in size and shape to conventional germicidal UV lamps but are capable of operating at higher UV output. **STER-L-RAY®** HO germicidal lamps are widely used in forced air duct systems and water disinfection applications. High Output (HO) Ozone producing lamps are often found in odor control and photochemical applications. Available in Low Ozone and Ozone Producing versions.



Lamp Description	Length (mm) Base Face to Face	Arc Length	Lamps (Watts) (1)	Approx. Lamp Current (mA)	UV Output at 254nm		Rated Lamp Life (Hours)
					Watts (2)	μW/cm2 (3)	
GPH436T5L/HO/4PSE	436	360	48	800	13	120	13,000
GPH436T5VH/HO/4PSE	436	360	48	800	13	120	13,000
GHO36T5L/4PSE	843	755	87	800	28	260	13,000
GHO36T5VH/4PSE	843	755	87	800	28	260	13,000
GPH893T5L/HO/4PSE	893	815	95	800	30	270	13,000
GPH893T5VH/HO/4PSE	893	815	95	800	30	270	13,000
GHO64T5L/4PSE	1554	1421	155	800	54	380	13,000
GHO64T5VH/4PSE	1554	1421	155	800	54	380	13,000

Other sizes are readily available. Custom lamp lengths can also be supplied. Please contact us for help with your needs. Those considering the use of HO lamps in a new application are advised to consult one of Atlantic Ultraviolet's Application Engineers for specific recommendations.

ENHANCED OUTPUT (AMALGAM) GERMICIDAL ULTRAVIOLET LAMPS

STER-L-RAY® Enhanced Output (Amalgam) lamps provide germicidal ultraviolet output three or more times that of conventional germicidal lamps of similar length without sacrificing efficiency or lamp life. **STER-L-RAY®** Enhanced Output lamps are the highest expression of ultraviolet lamp technology and as such are the subject of ongoing technical development and improvement. Custom and proprietary designs are available to satisfy specialized needs. Available in Low Ozone and Ozone Producing versions.



Lamp Description	Tube Diameter (mm)	Length (mm) Base Face to Face	Arc Length	Lamps (Watts)(1)	Lamp Current	UV Output Total Watts (2)	UV Output Microwatts at 1 Meter (3)	Rated Lamp Life (Hours)
GPHA843T5L	15	843	764	105	1.2	35	320	13,000
GPHA1554T5L	15	1554	1475	190	1.2	68	500	13,000
GPHA843T6L	19	843	764	127	1.8	43	400	13,000
GPHA1554T6L	19	1554	1475	240	1.8	87	630	13,000
GPHHA843T6L	19	843	764	172	2.1	54	490	13,000
GPHHA1554T6L	19	1554	1475	320	2.1	105	750	13,000

Other sizes are readily available. Custom lamp lengths can also be supplied. Please contact us for help with your needs. Please note that ozone output is subject to considerable variation due to conditions under which the lamp is used; under many conditions, the ozone output may be only a fraction of the specified figure.

- (1) Wattage is lamp watts only and does not include ballast loss.
- (2) Ultraviolet output at 254 nanometers at 100 hours and 80°F (approximate).
- (3) Microwatts per square centimeter at one meter from lamp.

HIGH INTENSITY GERMICIDAL ULTRAVIOLET LAMPS

STER-L-RAY® High Intensity germicidal lamps are manufactured with a unique structure and large diameter quartz envelope which translates to more than twice the amount of ultraviolet output when compared to standard germicidal lamps of the same length. Available in Low Ozone and Ozone Producing versions.



Lamp Description		Length (mm) Base Face to Face	Lamps (Watts) (1)	Approx. Lamp Current (mA)	UV Output Total Watts (2)	UV Output Microwatts at 1 Meter (3)	Rated Lamp Life (Hours)
Low Ozone	Ozone Producing						
GX48L	GX48VZ	1146	110	1500	48	420	10,000
GX48L/4	GX48VZ/4	1146	110	1500	48	420	10,000

Other sizes are readily available. Custom lamp lengths can also be supplied. Please contact us for help with your needs.

PREHEAT GERMICIDAL ULTRAVIOLET LAMPS

STER-L-RAY® Preheat germicidal lamps are operated by a preheat start circuit that employs a relatively compact and economical ballast. The preheat circuit requires four electrical connections per lamp and a slight to moderate delay is needed to start the lamp. Some modern electronic ballasts are capable of instant starting a Preheat lamp. Available in Low Ozone and Ozone Producing versions.



Lamp Description		Length (mm) Base Face to Face	Lamps (Watts) (1)	Approx. Lamp Current (mA)	UV Output Total Watts (2)	UV Output Microwatts at 1 Meter (3)	Ozone Output (4)	Rated Lamp Life (Hours)
Low Ozone	Ozone Producing							
GPH212T5L*	GPH212T5VH*	212	10	425	2.7	26	0.6	10,000
GPH238T5L/4	GPH238T5VH/4	238	11	425	3.0	30	0.65	10,000
GPH250T5L/4	GPH250T5VH/4	250	12	425	3.2	32	0.7	10,000
GPH254T5L*	GPH254T5VH*	254	12	425	3.3	33	0.71	10,000
GPH275T5L/4	GPH275T5VH/4	275	13	425	3.5	35	0.76	10,000
GPH287T5L*	GPH287T5VH*	287	14	425	4	40	0.9	10,000
GPH303T5L/4	GPH303T5VH/4	303	15	425	4.3	43	0.94	10,000
GPH330T5L/4	GPH330T5VH/4	330	16	425	4.6	46	1.0	10,000
GPH357T5L*	GPH357T5VH*	357	17	425	5.7	58	1.25	10,000
GPH436T5L*	GPH436T5VH*	436	21	425	7.3	72	1.6	10,000
GPH450T5L/4	GPH450T5VH/4	450	22	425	7.5	75	1.6	10,000
GPH463T5L*	GPH463T5VH*	463	23	425	8.0	78	1.7	10,000
GPH620T5L/4	GPH620T5VH/4	620	30	425	10.4	104	2.2	10,000
GPH650T5L/4	GPH650T5VH/4	650	34	425	11.0	109	2.4	10,000
GPH793T5L*	GPH793T5VH*	793	38	425	13.5	125	2.9	10,000
GPH810T5L/4	GPH810T5VH/4	810	39	425	13.8	130	3.0	10,000
GPH843T5L*	GPH843T5VH*	843	41	425	15	136	3.3	10,000

*Also available in 4-pin single ended configurations.

Other sizes are readily available. Custom lamp lengths can also be supplied. Please contact us for help with your needs.

Please note that ozone output is subject to considerable variation due to conditions under which the lamp is used; under many conditions, the ozone output may be only a fraction of the specified figure.

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

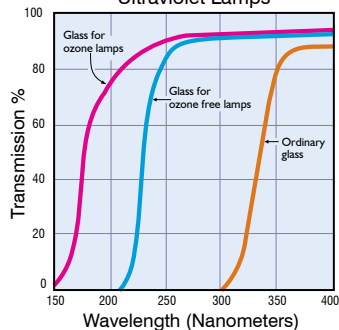
(2) Ultraviolet output at 254 nanometers at 100 hours and 80°F (approximate).

(3) Microwatts per square centimeter at one meter from lamp.

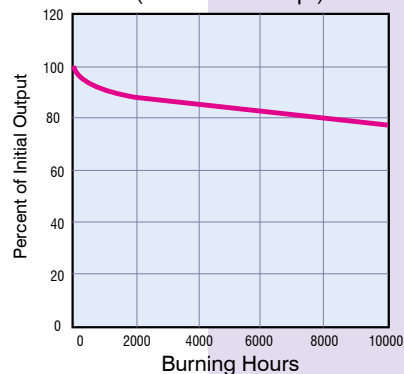
(4) Approximate ozone output in grams per hour under favorable conditions. Figures apply only to ozone producing types.

OPERATING CHARACTERISTICS

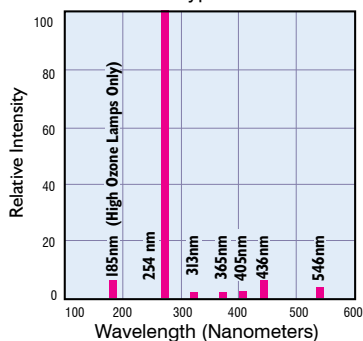
Transmission Curves for High Silica Glass Used in **STER-L-RAY** Germicidal Ultraviolet Lamps



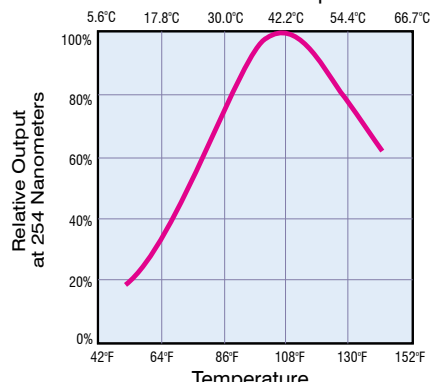
Average Ultraviolet Maintenance at 254nm (conventional lamps)



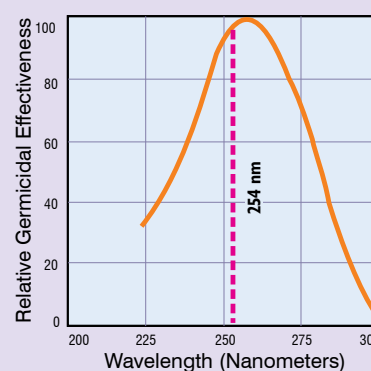
Relative Spectral Energy Distribution Typical



Lamp Output at Various Bulb Wall Temperatures



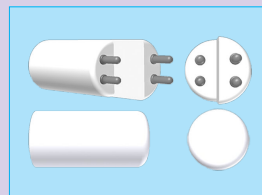
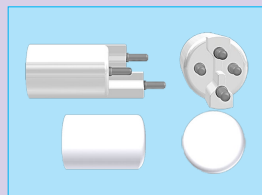
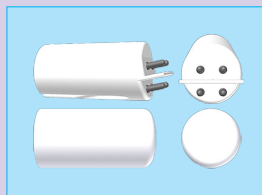
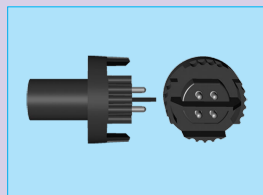
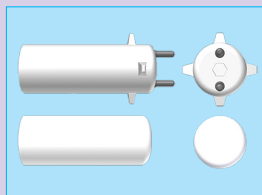
Germicidal Effectiveness as Related to Wavelength



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: www.lamprecycle.org.

Atlantic Ultraviolet Corporation also manufactures a wide variety of equivalent replacement lamps for most make and model UV equipment (old and new). Our Ultraviolet Application Specialists can help cross-reference the lamp or lamps you need and with our large inventories, most orders ship from stock.



SURELITE™ BALLASTS

Atlantic Ultraviolet's **Surelite™** ballasts have been extensively tested with **STER-L-RAY®** lamps and are strongly recommended to achieve the best performance and longest lamp life. A complete range of **Surelite™** high-efficiency electronic ballasts are available to provide superior and reliable performance of **STER-L-RAY®** ultraviolet lamps.



10-0024B-R 120v, 50/60Hz



10-0035C 220v, 50/60Hz



10-0091 120v, 50/60Hz



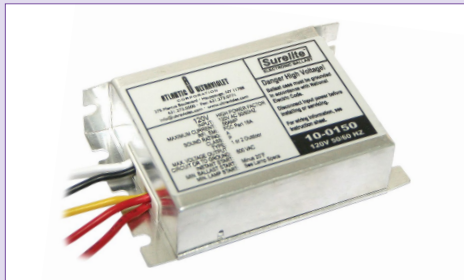
10-0116 220/240v, 50/60Hz



10-0127 230v, 50/60Hz



10-0136 230v, 50/60Hz



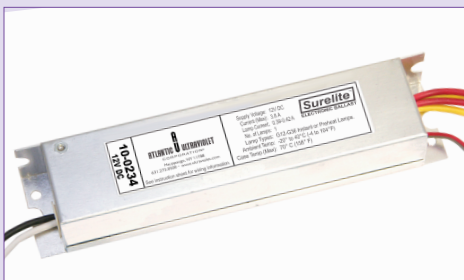
10-0150 120v, 50/60Hz



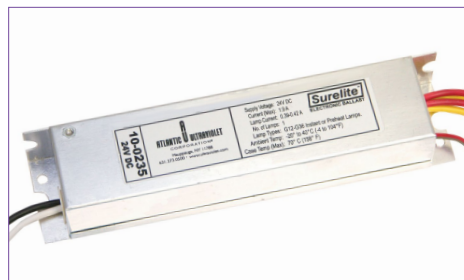
10-0162 120v, 50/60Hz



10-0201 120v, 50/60Hz



10-0234 12VDC



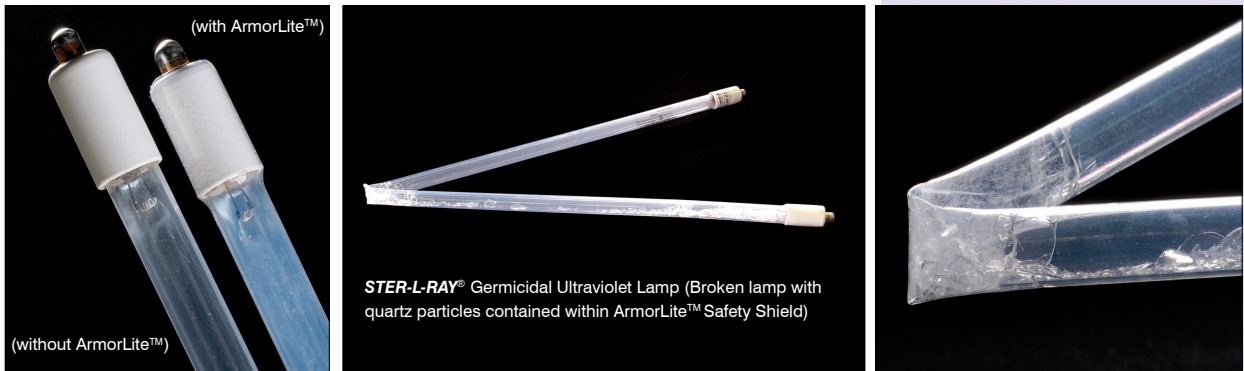
10-0235 24VDC



10-1327 120v, 230v, 50/60Hz

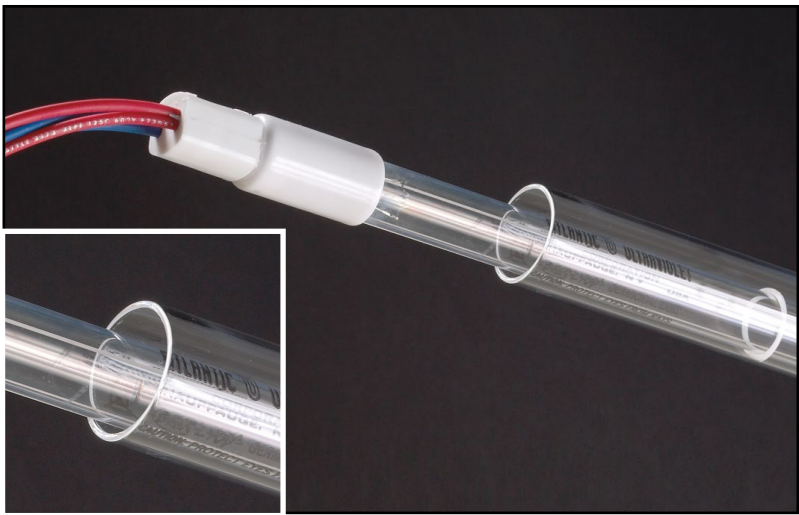
Contact our Ultraviolet Application Specialists for assistance in selecting a ballast. Other ballasts not shown here are readily available.

ARMORLITE™ SAFETY SHIELD AND CRYSTAL CLEAR QUARTZ SLEEVES



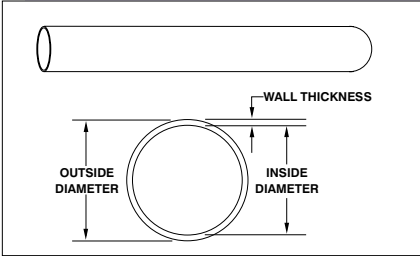
ArmorLite™ Safety Shield is available for use with most **STER-L-RAY®** Germicidal Ultraviolet Lamps. The **ArmorLite™** Safety Shield is a protective envelope that can be applied to most germicidal lamps (linear lamps up to 64-inches long) purchased from and manufactured by Atlantic Ultraviolet Corporation. The **ArmorLite™** Safety Shield provides increased security for employees, products and work environments by eliminating the dangers associated with fragments of broken quartz. **ArmorLite™** protected lamps are available for use with any new or existing ultraviolet installation. Contact our Ultraviolet Application Specialists to discuss the advantages of using germicidal lamps protected by the **ArmorLite™** Safety Shield in your installation.

CRYSTAL CLEAR™ QUARTZ SLEEVES & TUBING



High-quality quartz sleeves are available in a wide range of diameters and wall thicknesses in virtually any length.

Many other sizes available - consult factory. Supplied with open ends or with closed (test tube) end. Firepolishing and custom fabrication are available upon request.



Inside Diameter	Outside Diameter	Wall Thickness
18.0 mm	20.5 mm	1.25 mm
20.0 mm	22.0 mm	1.00 mm
20.0 mm	23.0 mm	1.50 mm
22.0 mm	24.5 mm	1.25 mm
22.0 mm	25.0 mm	1.50 mm
25.0 mm	28.0 mm	1.50 mm
30.0 mm	33.0 mm	1.50 mm
35.0 mm	38.0 mm	1.50 mm
45.0 mm	48.0 mm	1.50 mm

STEADFAST™ LAMPHOLDERS AND SOCKETS



For Single Pin Lamps



Tombstone Telescopic
Stationary & Spring-Loaded Set
Catalog #05-1319



Butt-on
Stationary & Spring-Loaded Set
Catalog #05-1320A-R



Lamp Socket & Lead Wire
Catalog #05-1218A2-R

For Multi-Pin Lamps

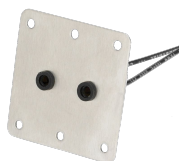


Lamp Socket & Lead Wire
For Miniature Bi-Pin Lamps
Catalog #05-2400A



4-pin Socket
Catalog #35-1103A

3-pin Socket
Catalog #35-1112A



Lampholder
For Instant Start or
Cold Cathode U-Shaped Lamps
Catalog #05-0026A-R



Miniature Bi-Pin
Catalog #05-1322

Atlantic Ultraviolet maintains a complete inventory of lampholders and sockets for all applications. To select the proper lampholder, consult our Application Specialists.

THE STANDARD OF EXCELLENCE IN ULTRAVIOLET



Manufacturers / Engineers / Sales / Service

A SINCE 1963
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The information and recommendations contained in this publication are based upon data collected by the Atlantic Ultraviolet Corporation® and are believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. Specifications and information are subject to change without notice.

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