

Pen-Ray® UV Light Sources

Pen-Ray light sources are low pressure, cold cathode mercury UV lamps made of double bore quartz tubing. The lamps are individually created by master craftsmen to ensure quality and reliability. The lamps provide a high degree of stable, isolated spectral line accuracy and long life (3000+ hours).

- A variety of lighted lengths and ultraviolet wavelength configurations are available
- Lamp uses include:
 - sterilization
 - fluorescent inspections
 - photochemical reactions
 - interferometry ■ chromatography
 - photometric and fluorometric instruments
 - spectroscopic wavelength calibration
 - monochromatic sources for optical systems and reference studies

Several standard models listed; call for additional models or custom designs



Pen-Ray Lamps ozone-producing, double-bore quartz (ozone free also available).

Optional filter shields direct or modify the emission output for model 11SC-1:

- Shield A provides a 0.04 in. ID hole
- Shield B has 0.31 x 0.63 in. window
- Shield C has a 0.19 x 1.5 in. window

Ordering Information and Specifications	
11SC-1 254nm UV Lighted Length/Dia: Volts: Start/Operate: Power Supply:	90-0012-01 2.12/0.256 in. (53.8/6.5mm) 800V/270V 99-0055-01 (115V/60Hz) 99-0055-02 (220V/50Hz)
Open Circ. Voltage: Max. Pri./Lamp Current:	2300 VAC 400 ma/18 ma (avg)
11SC-1L 365nm UV Lighted Length/Dia: Volts: Start/Operate: Power Supply:	90-0019-01 2.25/0.375 in. (57.2/9.5mm) 800V/270V 99-0055-01 (115V/60Hz) 99-0055-02 (220V/50Hz)
Open Circ. Voltage: Max. Pri./Lamp Current:	2300 VAC 400 ma/18 ma (avg)
11SC-2 254nm UV Lighted Length/Dia: Volts: Start/Operate: Power Supply:	90-0020-01 0.75/0.256 in. (19.1/6.5mm) 800V/270V 99-0055-01 (115V/60Hz) 99-0055-02 (220V/50Hz)
Open Circ. Voltage: Max. Pri./Lamp Current:	2300 VAC 400 ma/18 ma (avg)
3SC-9 254nm UV Lighted Length/Dia: Volts: Start/Operate: Power Supply:	90-0004-01 9.0/0.375 in. (228.6/9.5mm) 640V/560V 99-0004-01 (115V/60Hz) 99-0004-02 (220V/50Hz)
Open Circ. Voltage: Max. Pri./Lamp Current:	2800 VAC 1000 ma/26 ma (avg)

Cord length: 16 in. (406mm) with standard connector; different cable lengths and connectors available. Power supplies: for optimum starting and operation of the lamps, use the recommended power supplies shown with each lamp.

Rare Gas Lamps

Rare gas lamps incorporate the Pen-Ray 11SC-1 body but replace the Mercury for other reactive ingredients. Ask about gas combinations and custom designs.



Rare Gas Lamp are available with Argon, Krypton, Neon or Xenon fills.

Ordering Information	
Argon Fill	90-0013-01
Krypton Fill	90-0014-01
Neon Fill	90-0015-01
Power Supply	99-0057-01 (115V) 99-0057-02 (230V)
Neon-Mercury	90-0016-01
Power Supply	99-0055-01 (115V) 99-0055-02 (230V)
Xenon Fill	90-0017-01
Power Supply	99-0056-01 (115V) 99-0056-02 (230V)



Zinc and Cadmium Lamps

Zinc and cadmium lamps are designed for use with UV absorption cells and detectors and are often used in air pollution monitoring devices. Zinc lamps can substitute for deuterium lamps due to the zinc lamps' superior thermal stability, long life and prominent 214nm energy peak. Electrical leads are available in either side/radial or end/axial configurations. Power supply: 99-0033-01 115V, 99-0033-02 230V

Dimensions:

Zinc Lamp: 20mm lighted length, 4.33 in. (110mm) total length, 0.67 in. (17mm) quartz dia.

Cadmium Lamp: 24mm lighted length, 4.33 in. (110mm) total length, 0.67 in. (17mm) quartz dia.

Zinc Lamps	
Radial lead 8 in. (203mm)	90-0069-05
Axial lead 8 in. (203mm)	90-0069-06
Radial lead 12 in. (305mm)	90-0069-07
Cadmium Lamps	
Radial lead 8 in. (203mm)	90-0071-03
Axial lead 8 in. (203mm)	90-0071-06
Radial lead 12 in. (305mm)	90-0071-07

Pen-Ray Field Packs

Pen-Ray Field Packs combine a Pen-Ray UV light source and a DC power supply (with 9V battery) in a compact, portable package.



Pen-Ray Field Packs provides a portable UV light source for field use.

Power supply dimensions:
3.75L x 2.38W x 1H in. (95.25 x 60.45 x 25.4mm)

- Lightweight and small enough to fit in a pocket or to be carried by the belt clip
- Field packs are available in three standard styles; custom options available
- Field Pack FP-LS provides two interchangeable light sources (365nm and 254nm)

Ordering Information

Lighted Length:	1.75 in. (44.5mm)
Total Length:	4.25 in. (108mm)
Quartz/Handle Dia:	0.375 in. (9.5mm)
FP-L 365nm phosphor/jacket	95-0256-01
FP-S 254nm	95-0256-02
FP-LS 365nm phosphor jacket, 254nm	95-0256-03

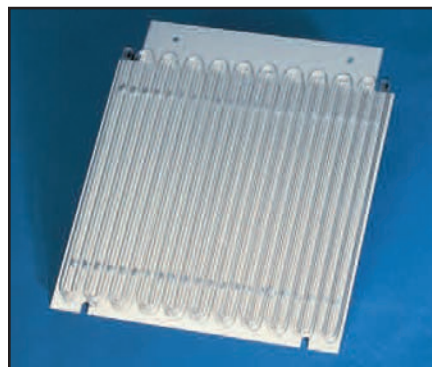
Grid Lamps

Grid Lamps provide stable, low noise operation; life is rated at 2000_ hours. Standard or ozone-free grid lamps available in sizes 2 x 6 to 12 x 12 in.

- Custom reflectors and configurations available
- Grid lamps provide excellent uniform ultraviolet illumination over the entire grid area
- Intensity at 254nm wavelength is from 14 to 20+ milliwatts/cm² at 1 inch
- Grids available for flat panel display uses

Grid Lamps for uniform UV illumination.

Call UVP for recommended power supplies for grid lamps.



Ordering Information

Grid Lamp Dimensions W x L	Standard 90° Bend	Straight Electrodes	Ozone Free 90° Bend	Ozone Free Straight
2 x 6 in. (51 x 152mm)	32-0008-02	32-0007-01	32-0007-02	32-0008-01
3 x 6 in. (76 x 152mm)	32-0047-02	32-0074-02	32-0047-01	32-0074-01
4 x 8 in. (102 x 203mm)	32-0048-02	32-0041-02	32-0048-01	32-0041-01
5 x 8 in. (127 x 203mm)	32-0046-02	32-0049-02	32-0046-01	32-0049-01
8 x 8 in. (203 x 203mm)	32-0050-02	32-0051-02	32-0050-01	32-0051-01
10 x 10 in. (254 x 254mm)	32-0017-01	32-0017-04	32-0017-03	32-0017-02
12 x 12 in. (305 x 305mm)	32-0059-02	32-0060-02	32-0059-01	32-0060-01

Stable Ozone Generators

Stable Ozone Generators (SOG) use the photochemical reaction of oxygen and shortwave (185nm) UV to produce a continuous flow of ozone.

- SOG models use a removable Pen-Ray lamp inserted into the generator box
- The power supply included with the lamp feeds reliable and stable power to the lamps for uniform ozone generation
- Stable source for water purification and air pollution studies, instrument development and oxidant testing of material

Ordering Information and Specifications

SOG-1 Single light source Ozone Production: Lighted Length:	97-0066-01 (115V) 97-0066-02 (220V) 0.8 ppm @ 0.5 L/min. 2.12 in. (53.8mm)
SOG-2 Pair of light sources Ozone Production: Lighted Length:	97-0067-01 (115V) 97-0067-02 (220V) 3.0 ppm @ 1.0 L/min. 9 in. (228.6mm)

Housing dimensions:
11L x 3.75W x 1.8H in. (279 x 95.25 x 45.7mm)

Stable Ozone Generators designed for calibration of ozone analyzers.



hi-Tech lamps

800-229-6509