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SCIENCETECH
Making Light Work Better

XLH-S Lamp Housings

XLH-E Lamp Housings

Applications

- Coatings Durability Testing
- Photobiology
- Photochemistry
- Spectroscopy

Features

- Vertical or horizontal housing operation
- Xenon arc lamps from 500W to 1600W, lamp included
- Multiple collimated or focused output optics in various sizes, materials, and coatings
- User-friendly design
- Numerous available accessories
- Standard safety interlocks

Research Grade Xenon Arc Lamp Light Source High Power XLH– Series 500W - 1600 W

MADE IN CANADA
FABRIQUÉ AU CANADA

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Research Grade Xe Arc Lamp 500 - 1600 W

OVERVIEW

1. Overview

Sciencetech offers a selection of arc lamp sources for research applications. Short arc lamps are high-pressure discharge lamps. These lamps are especially suitable for optical applications because of their high radiance and luminance. Light is generated by a discharge arc burning freely between two electrodes. The length of the arc is determined by the distance between the two electrodes, which is usually only a few millimeters. This makes arc lamps an ideal point source of light.

This brochure focuses on Sciencetech's xenon arc lamp sources, with the lamp envelope filled with high-pressure xenon gas, providing a wide range of wavelengths of illumination.

These lamp houses are designed to operate in a vertical or horizontal mode, and come with base plates for both orientations included. In the configuration section below, choose the housing based on the reflector type (spherical for collimated output, elliptical for focused beam) with the xenon arc lamp included, and add the compatible power supply and lamp. Finally, add optics appropriate to your application. For some pre-configured packages, see the brochure.

2. Configuration—Housing

Configuration Process in 3 steps

1. A SELECT YOUR LAMP HOUSE SERIES

1. B SELECT THE OPTICAL COLLECTION

1. C SELECT LAMP POWER

Step (1) Select Lamp House

Lamp House Series	Optical Collection	Lamp Type	Model
XLH	-S	-1600X	XLH-S-1600X
		-1000X	XLH-S-1000X
		-500X	XLH-S-500X
	-E	-1600X	XLH-E-1600X
		-1000X	XLH-E-1000X
		-500X	XLH-E-500X

2. Configuration—Housing

Bulb Wattage

500X

Bulb Type,

X - Xe Arc Lamp

LH-E-500X Focused Beam Lamp Housing

-S Spherical reflector and lens collection

-E Elliptical reflector collection, F/2.5

-Talk to one of Sciencetech's technical representatives to help decide what is the best option for your application!

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OVERVIEW

2. Configuration—Output Optics

Step (2) Select Output Optics

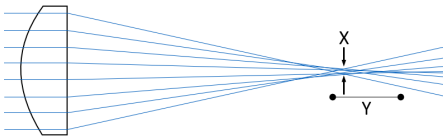
A variety of optical coupling options are available with Sciencetech's line of collimating (COL) and imaging (IO) optics assemblies[1]. The tables below provide information on the lens assembly configurations and the lens materials used. COL/IO optics come mounted in a lens tubes.

Line of Optical Assemblies Options			
Optic Family/ Diameter	F/#	Lens Configuration	Material
COL#	Varies	A (Single planoconvex spherical lens)	FS (250 to 2700 nm)
IO#		B (Two lens system (minimizes spherical aberration)	BK7 (350 to 2800 nm)
		C (Aspheric system for maximum throughput and minimal spherical aberration with a 1 lens system)	UVFS (175 to 2400 nm)
		D (Three lens system, best compensation of spherical aberration. Recommended for high quality collimation)	CAF2 (180 to 9000 nm)

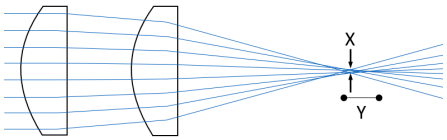
First select collimating (COL) or imaging (IO) optics and the lens diameter (#) (i.e. COL1 is 1" diameter lens). Next, select the F/# of the optics (i.e. 1). Next, select the lens configuration (A, B, C, or D, see the explanation below). Next, select the material, fused silica (FS), BK7, UVFS, or CaF2.

Example: COL1-1.0-B-FS (collimating optics, 1" lens diameter, F/1, two lens system, fused silica (230 to 2500 nm).

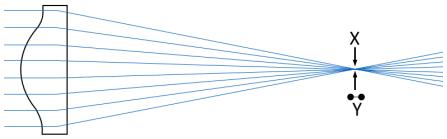
Model A



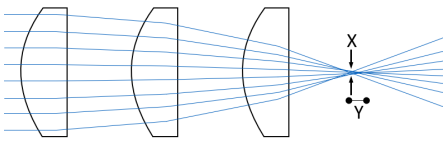
Model B



Model C



Model D



X = Circle of Least Confusion (Spot Size)

Y = Longitudinal Spherical Aberration

Model A - Single Plano-Convex Spherical Lens:

The simplest and least costly option, but with the largest spot size when focused and the poorest quality collimation when collimated.

Model B - Two Lens System:

An intermediate option, with a smaller spot size than Model A when focused and better collimation when collimated.

Model C - Single Aspherical Lens:

The best option for correction of spherical aberration, with the smallest spot size. (X) when focused and the best quality collimation when collimated. Only available in BK7 or equivalent glass.

Model D - Three Lens System:

A high-quality option, for a tighter spot size when focused or better quality collimation when collimated than Model A or Model B. It is also available in a wider range of materials than Model C.

1). Ensure that if more than one set of optics are quoted that all optics are compatible. (such as ensuring that all optics are the same diameter.

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OVERVIEW

2b. Configuration - Output Optics - Material Selection

Different materials can be selected for transmission in different wavelength ranges. Some of the most common options are in the below table for a quick reference of the most useful ranges for each material. If you don't see the right optics for your application in the table below, please contact us! Many further options are available upon request.

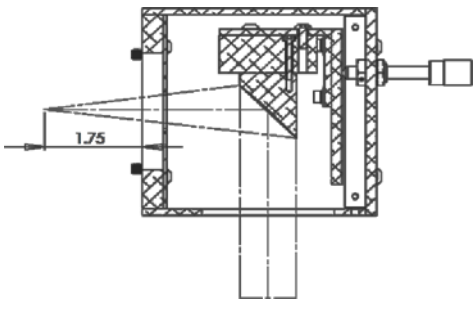
Legend	
No Transmission	
Reduced Efficiency Numbers indicate 80% cutoff point)	550 nm*
Most Efficient	

			Standard Refractive Optics			
Range	Wavelength (nm)	Photon Energy (eV)	UVFS	Fused Quartz/ Silica	CaF2	BK7
UVC	100-280	4.43 - 12.4	175 nm	250 nm	180 nm	
UVB	280-315	3.94 - 4.43				
UVA	315-400	3.10 - 3.94				350 nm
VIS	380-700	1.7 - 3.3				
NIR	700-1400	0.886 - 1.653				
SWIR	1400-3000	0.413 - 0.886	2400 nm	2700 nm		2800 nm
MIR	3000-8000	0.155 - 0.413				
LIR	8000-15000	0.083 - 0.155			8000 nm	
Far-IR	15000-1000000	0.012 - 0.083				

2c. Configuration - Output Optics - Reflective Optics

MR6 Collimating Mirror Options					
Model	Aperture	Clear Aper-	Reflective	Spectral Range	Description
MR64	4	25 mm	Protected Aluminum	400nm - 20µm	25mm diameter F/4 off-axis parabolic mirror with protected aluminum coating on a kinematic adjustable mount.
MR64-G	4	25 mm	Gold	600nm - Far IR	Gold-coated 25mm diameter F/4 off-axis parabolic mirror on a kinematic adjustable mount.
MR62	2	50 mm	Protected Aluminum	400nm - 20µm	50mm diameter F/2 off-axis parabolic mirror with protected aluminum coating on a kinematic adjustable mount.
MR62-G	2	50 mm	Gold	600nm - Far IR	Gold-coated 50mm diameter F/2 off-axis parabolic mirror on a kinematic adjustable mount.

MR64 Collimating Mirror in Housing.



Sciencetech's family of MR6 collimating mirror options are off-axis parabolic mirrors mounted in a housing that can be attached to any XLH series lamp housing with the OAP mounting accessory. The MR6 housing includes a three point adjustable kinematic mount with fine pitch threaded screws to optimize alignment of the output optics with the arc lamp.

Single layer MgF_2 antireflection coating with thickness optimized for 550nm is available as an option.

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POWER SUPPLY

Step (3)

Select

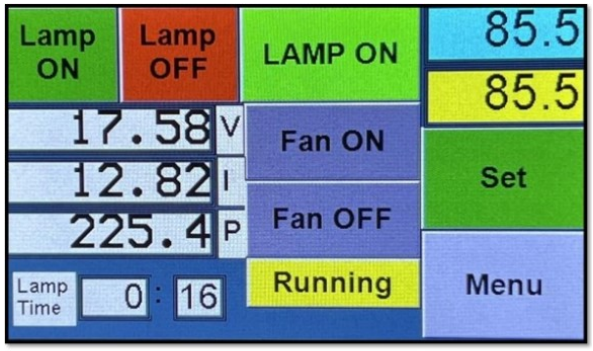
Power Supply

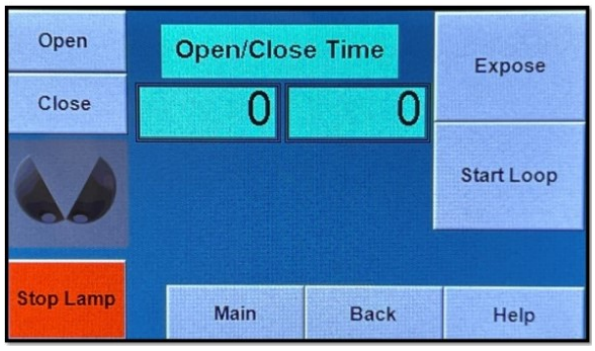
Sciencetech's 611 - series power supplies are the compatible power supplies for use with Sciencetech's LH series lamp houses. For ordering, ensure that your power supply model matches your system's arc lamp wattage.

Bulb Type	Power Supply Model
-1600X →	611-1.6k
-1000X →	611-1k
-500X →	611-500

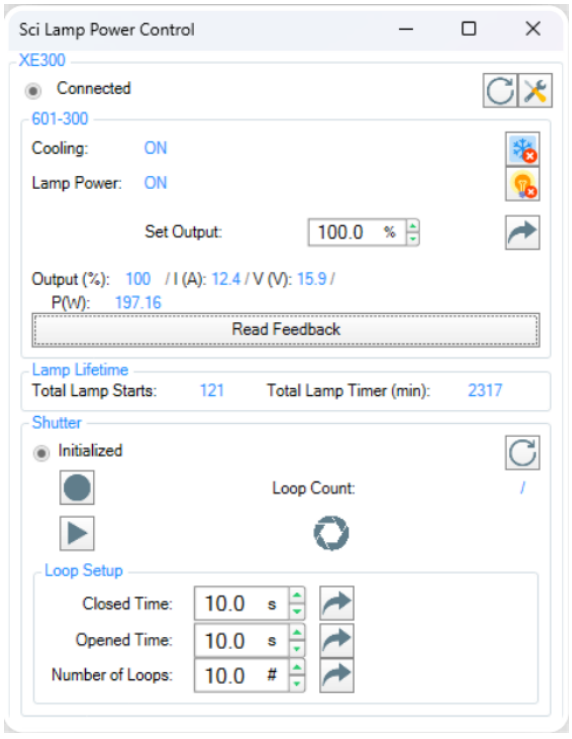
Standard features included with Sciencetech's 611– series power supplies:

- Touchscreen interface
- Shutter and exposure control (if electronic shutter is supplied *)
- Single connection for lamp power, cooling, and communication
- Lamp starts and timer log Fan cooling safety interlock
- RS232 computer control software GUI





* High speed shutters require a separate controller



Optional Upgrades:

- Optical feedback
- Remote lamp status monitoring
- Auto lamp starting

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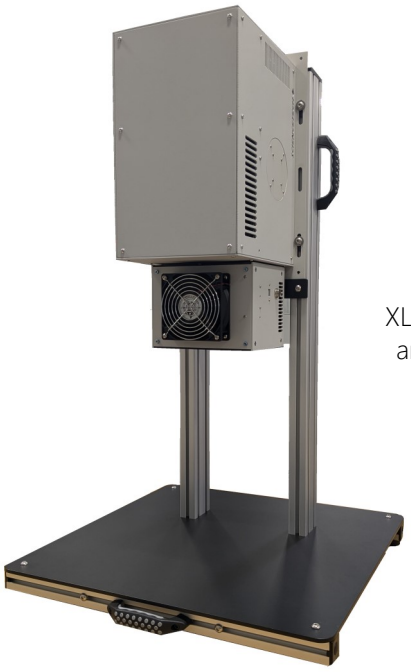
ACCESSORIES

Sciencetech carries many accessories for your light source housing, such as filter boxes for use with Sciencetech's variety of spectral filters, or a downward facing stand. The table below lists Sciencetech's accessories that are compatible with the LH series housing, so you can tailor your Sciencetech system to your application.

	Model	SKU	Description
Filter Boxes	FHV	100-8300	Multifunctional Filter Box for FT and water filter - cooled / uncooled
	FB1T	100-8081	One position filter box up to 3" (75 mm) filters - uncooled
Variable Focus Assemblies	VF2	100-8046	Variable focus optical assembly, 2" diameter BK7 optics
	VF2-UV	100-8047	Variable focus optical assembly, 2" diameter fused silica optics
Beam Turners	CTBT-2-S	160-9030	Beam turning assembly for XLH series light sources
Stands	XLH-DFS	102-8100	Downward facing stand for XLH series light sources
Fiber Couplings	FBC-1	100-8028	Fiber bundle coupler, non SMA, 1"
	FBC-2	100-8029	Fiber bundle coupler, non SMA, 2"
	FBC-SMA-2	100-8030	SMA fiber coupler, 2" flange
	FBC-SMA-1	100-8031	SMA fiber coupler, 1" flange
Shutters	MS-2	160-8040	Manual Shutter for 2" Output Optics
	SH-HS	165-8033	High speed shutter for XLH series light sources and SF solar simulators



XLH - E with XLH - DFS and Air Cooled Filter Enclosure

For information on spectral filtering please see Sciencetech's Bandpass Filters brochure or contact your Sciencetech technical sales representative

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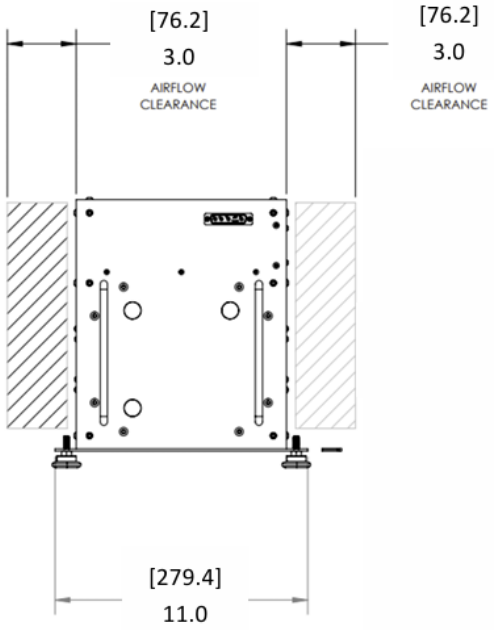
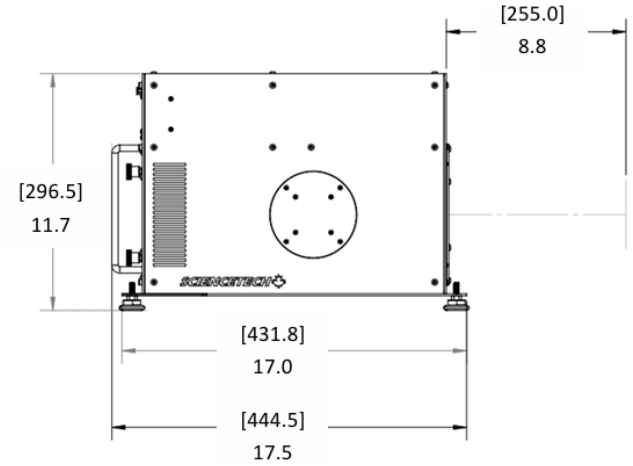
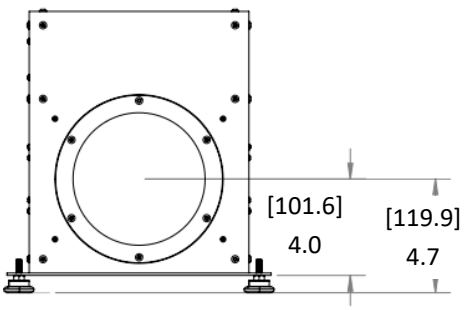
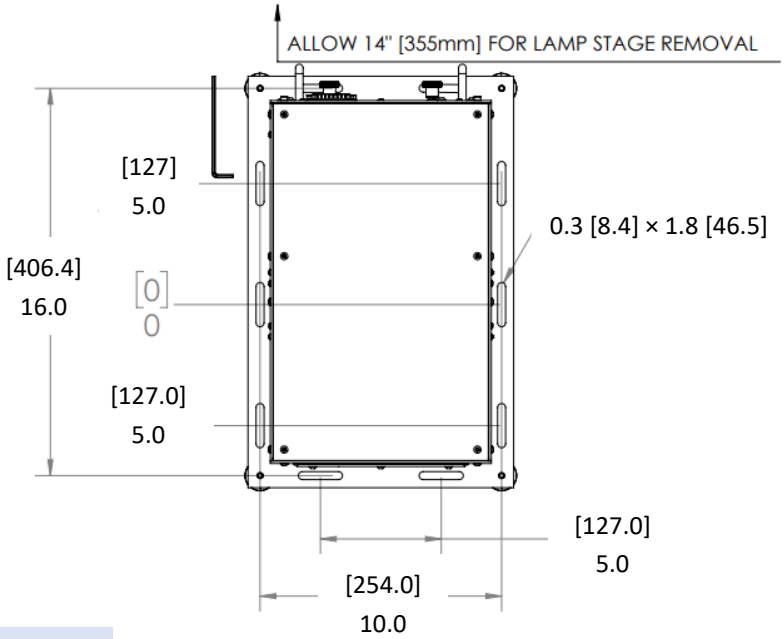
DIMENSIONS

XLH-E Dimensions









Overall H x W x L (mm)	444.5 × 279.4 × 296.5
Weight (kg)	11
Optical Height (mm)	101.6 mm or 120 to 140 mm with adjustable feet.
Mounting Options	1/4-20 leveling feet- M6-M8 through holes

All dimensions are in [millimeters] inches unless otherwise stated.

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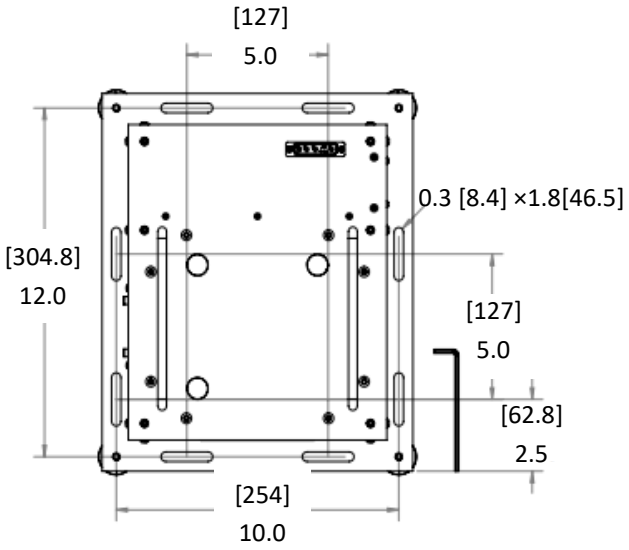
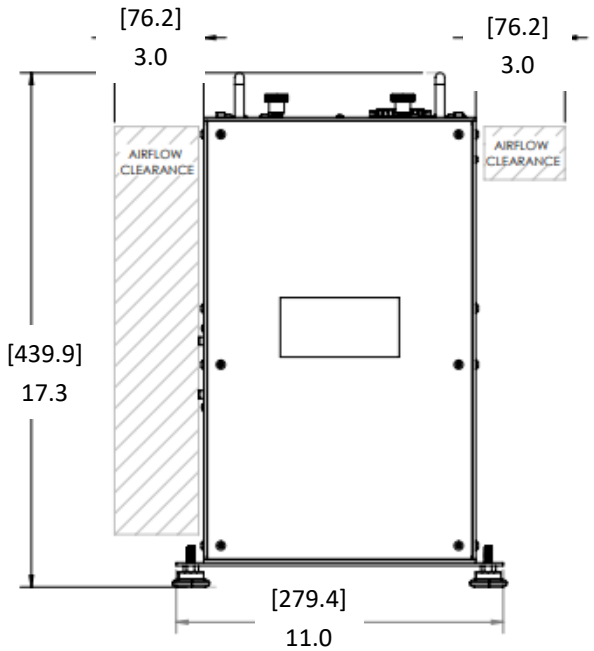
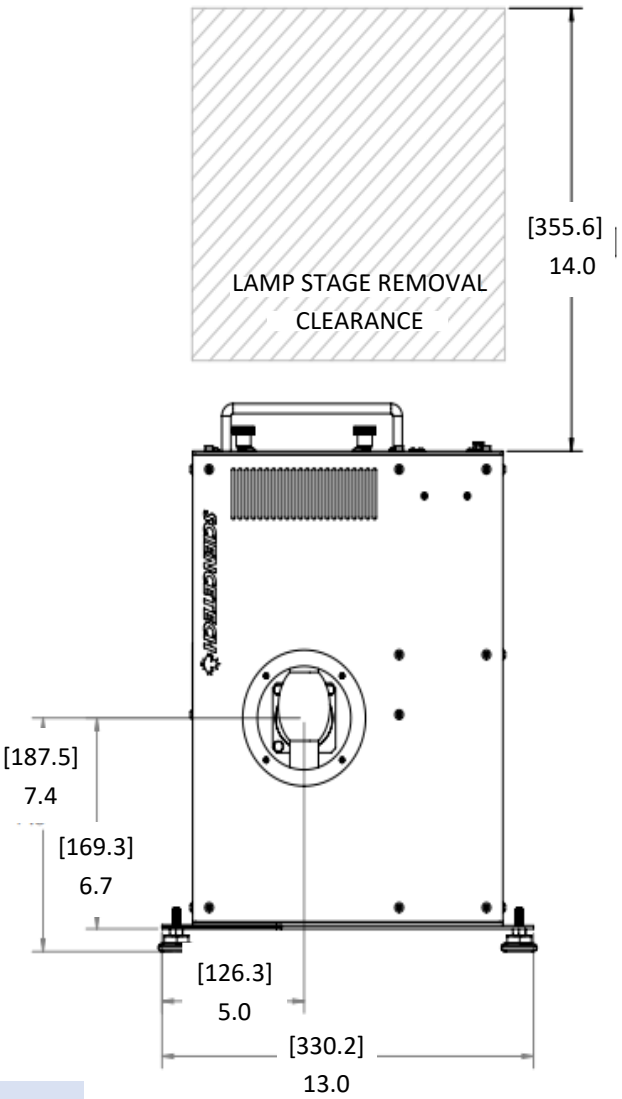
Research Grade Xe Arc Lamp 500 - 1600 W

DIMENSIONS

XLH-S Dimensions







Overall H x W x L (mm)	439.9 x 330.2 x 304.8
Weight (kg)	11
Optical Height (mm)	Vertical: 169.3 mm or 187 to 207 mm with adjustable feet. Horizontal: 101.6 mm or 120 to 140 mm with adjustable feet.
Mounting Options	1/4-20 leveling feet- M6-M8 through holes

All dimensions are in [millimeters] inches unless otherwise stated.

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Research Grade Xe Arc Lamp 500 - 1600 W

ORDERING INFO

7. Ordering Information

Model	SKU	Description
XLH-S-500X	102-9001	XLH - series lamp house with spherical back reflector for 500 W xenon arc lamps.
XLH-S-1000X	102-9002	XLH - series lamp house with spherical back reflector for 1000 W xenon arc lamps.
XLH-S-1600X	102-9005	XLH - series lamp house with spherical back reflector for 1600 W xenon arc lamps.
LH-E-500X	102-9003	XLH - series lamp house with elliptical back reflector for 500 W xenon arc lamps.
LH-E-1000X	102-9004	XLH - series lamp house with elliptical back reflector for 1000 W xenon arc lamps.
LH-E-1600X	102-9006	XLH - series lamp house with elliptical back reflector for 1600 W xenon arc lamps.
611-500	150-9150	Touchscreen power supply for LH - series housing and 500W xenon arc lamp.
611– 1k	150-9151	Touchscreen power supply for LH - series housing and 1000W xenon arc lamp
611-1.6k	150-9152	Touchscreen power supply for LH - series housing and 1600W xenon arc lamp
XE500	650-0019	500 W xenon arc lamp, non-ozone producing.
XE1000	650-0017	1000 W xenon arc lamp, non-ozone producing.
XE1600	650-0045	1600 W xenon arc lamp, non-ozone producing.
611-CABLE	150-7012	Replacement power supply cable for 611– series power supply and XLH– series housing.

8. Light Source Package

Product Code	Description of Research Grade Arc Lamp Source	Collimated or Focused	Power (W)	Aperture Ratio (F/#)	Lens configuration	Clear Aperture (mm)	Material
102-9150	500 W Collimated Research Grade Arc Lamp Source, 2 inch, One Lens, Fused Silica, O_3-free	Collimated	500	-	A	50.8	FS
102-9151	500 W Focused Research Grade Arc Lamp Source, 2 inch, F/3.0, Two Single Lenses, Fused Silica, O_3-free	Focused	500	3.0	A (COL and IO Optics))	50.8	FS
102-9152	1000 W Collimated Research Grade Arc Lamp Source, 2 inch, One Lens, Fused Silica, O_3-free	Collimated	1000	-	A	50.8	FS
102-9153	1000 W Focused Research Grade Arc Lamp Source, 2 inch, Two Single Lenses, F/3.0, Fused Silica, O_3-free	Focused	1000	3.0	A (COL and IO Optics))	50.8	FS
102-9154	1600 W Collimated Research Grade Arc Lamp Source, 2 inch, One Lens, Fused Silica, O_3-free	Collimated	1600	-	A	50.8	FS
101-9155	1600 W Focused Research Grade Arc Lamp Source, 2 inch, Two Single Lenses, Fused Silica, F/3.0, O_3-free	Focused	1600	3.0	A (COL and IO Optics))	50.8	FS