

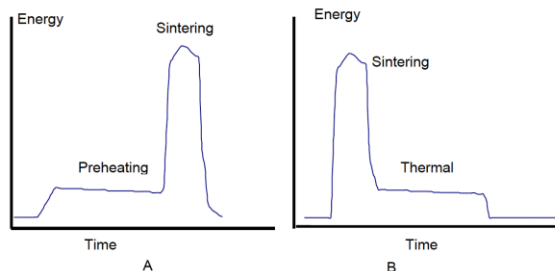
Shaped Pulse Light for Materials Research

Shaped Pulse Profile for Precise Thermal Management

The S-2300 High Energy Pulsed Light system provides state-of-the-art thermal management to address the needs of materials researchers working in areas such as printed electronics devices, bio sensors, OPV, and semiconductor thin films. Designed to assist in establishing the optimum energy exposure, the S-2300's unique shaped pulse offers researchers and companies a wider process window to investigate materials such as nanoparticles.

Software Configurable Pulse Shaping

Incorporating a software operator interface, the S-2300 provides a patent-pending, multi-stage pulsed energy exposure. Both energy level and exposure times are user-selected in each phase of a single pulse to establish a range of exposure conditions. Illustrated below are two examples of how the energy profile may be selected. Figure A shows settings to initially preheat material prior to sintering. Figure B shows how thermal management is implemented when a long energy exposure is applied in the 2nd stage after sintering in the 1st stage.



Pulse Sequencing

Selecting unique pulse shaping profiles is only one of the ways in which the S-2300 offers a researcher the ability to set up unique exposures of high energy pulsed light. A pulse sequence of from 1 to 40 pulses may be programmed, each pulse with a unique energy/duration profile. Delay between each pulse in the sequence is also programmable. Once a sequence of pulses has been programmed, the researcher can expose his target in one of three flash modes: (1) single sequence; (2) multiple number of sequences; or (3) continuous sequences.



Lamp Spectra

The S-2300 may be ordered with a XENON high-energy pulse light lamp mounted in an enclosed housing, providing a broadband spectrum from 200 to 2000nm. Lamps are available with three different spectral cutoffs, 190nm, 240nm and 370nm.

Features

- High energy pulsed light enabling materials research in a wide range of applications
 - Photonic sintering nano inks on heat sensitive substrates
 - Semiconductor and PV thin film research
- Unique thermal pulse management using multi-stage pulse shaping technology
- Scalable technology for R2R systems
- Graphical interface provides operator control of all energy exposure settings
- Process recipes' are stored and easily recalled for data management
- Range of options available to enable custom exposure conditions

XENON S-2300 High Energy Pulse Light System

Specifications

System Units	<ul style="list-style-type: none"> • 1st Stage electronics rack with 5 bays • 2nd Stage electronics rack with 4 bays and Uninterruptable Power Supply • Operator touch panel interface and system control • Optional Lamp Housings, Conveyor and air blowers
Operator functions - settings	Touch Panel Display
1 st Stage energy output	100 to 2000 Joules, max, in 5 milli-joule steps
1 st Stage duration	0.1 to 2 ms, max, in 0.05 ms steps
2 nd Stage energy output	100 to 5000 Joules, max, in 15 milli-Joule steps
2 nd Stage duration	0.1 to 10 ms, max, in 0.05 ms steps
1 st Stage lamp voltage	3000 V max, in 1 V steps Setting voltage also sets pulse energy, duration and power level
2 nd Stage lamp voltage	2400 V max, in 1 V steps Setting voltage also sets pulse energy, duration and power level
Number of pulses in sequence	1-40, max
Spacing between pulses	100ms, min, in 0.01ms steps
Pulse sequence modes	Single, repeat, continuous
Lamp flash	Run or Stop
High voltage	Enable ON/OFF
Lamp trigger voltage	Enable ON/OFF
Operator functions - monitored	Touch Panel Display
1 st Stage lamp voltage	3000 V, max
2 nd Stage lamp voltage	2400 V, max
Power output to lamp	1500 watts, max
Optical output – LH840	
Max output exposure	25 Joules / cm ² at 1in distance from target
Peak output power	5.7 Kilowatts/cm ² at 1in distance from target
Electronic racks - controls	
Mains AC Power	ON/OFF
+24 V Control Voltage	ON/OFF
High Voltage	ON/OFF
UPS Battery Backup Supply	For operator panel
Mains AC power	
1 st and 2 nd Stage racks	1-phase 200-240 Vrms, 50/60 Hz, 50 amps, max
Outline Dimensions (H x W x L)	
1 st Stage electronics rack	152.4 x 78.2 x 55.8 cm (60" x 31" x 22")
2 nd Stage electronics rack	108.2 x 80.0 x 54.1 cm (43" x 32" x 21")
Operator interface display	38 x 38 cm (15" x 15")
Cooling	
Electronics rack units	Total of 7 internal fans, continuous ON
Operating Environment	
Temperature	0°C - 40°C (32°-104°F)
Relative Humidity	10% - 90% (non-condensing)
Weight	
1 st Stage electronics rack	159 kg (350 pounds)
2 nd Stage electronics rack	135 kg (298 pounds)
Operator interface display	13 kg (29 pounds)

XENON S-2300 High Energy Pulse Light System

System Configurability with User Selected Options

A range of options may be selected when ordering the S-2300 system. All options are designed to support researchers in implementing a wide range of materials studies under selected exposures.

Lamp Housing Specifications

Lamp Housing Model LH-840 ^{1,2}

Arc length	40.6 cm (16") linear flashlamp
Treatment Area ³	1.9 x 30.5 cm (0.75" x 12")
Lamp spectra options	Type A , B or C spectra
Weight	14.5 kg (32 pounds)



Conveyor System

The conveyor frame and lamp housing provide the tools for high throughput, repeatable exposure of materials. The frame can accommodate either one LH-840 or two LH-830 lamp housings, mounted on a rotating base. The frame is fully equipped with (1) blower, (2) power distribution cabinet and (3) emergency stop buttons.

Conveyor frame dimensions	71 x 121 x 134 cm (28" x 47.5" x 52.7")
Conveyor dimensions	30.5 x 152.4 x 9.5 cm (12" x 60" x 3.75")
Conveyor speed	1.3 to 8 m/minute (4.3 to 26 feet/minute)
Weight	55 kg (121 pounds)
Mains Power-includes blower	1-phase, 200-240 Vrms, 60 Hz, 10 amps



Notes:

- 1 – All lamp-housings are available with power/control cables from electronics rack in 3 or 6 meter lengths.
- 2 – External air-cooling for lamp housings, 1274 M³/Hr. @ 750 Pa. Refer to user manual for additional details.
- 3 – Optimum distance from lamp housing glass window is 2.5 cm (1.0")
- 4 – Lamp housing blower kit supplied with blower includes filter, metallic ducting, duct clamps and mains power cord.

CONTACT XENON FOR ASSISTANCE IN CONFIGURING YOUR SYSTEM



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