

The SINTERON 2000 provides a high energy, pulsed light for reliable, repeatable sintering of conductive nano particles on heat sensitive materials. The system features a high intensity pulsed xenon lamp that provides a broadband spectrum, from 240 nm to 1000 nm with adjustable pulse energy up to 1500 Joules/pulse.

The SINTERON 2000 offers the flexibility to adjust both the energy delivered to the flashlamp and the pulse width. The pulse width can be adjusted to four different preset values. The energy to the flashlamp can be controlled by setting the voltage on the system. This exceptional flexibility makes evaluating and deploying easy.

For more than 45 years, Xenon has provided high-energy pulsed-light lamps and systems for the production of medical devices, optical storage media, and displays. The SINTERON 2000 can generate pulsed light for photonic sintering of nanoparticle inks on low-temperature substrates and low-temperature curing of thin-film substrates (e.g. organic photovoltaic, OLED displays and multi-layer flexible circuits). Xenon has developed products with extraordinary ranges of power and system flexibility.

Features

- Selectable pulse width: 500 to 2000 us
- Adjustable pulse energy: 180 – 1500 Joules
- Single pulse sintering
- Sintering area: 1.9 x 30.5 cm

Applications

- Sintering conductive Cu & Ag metallic inks
- Curing thin-film substrates
- Solar
- Surface Modification

Detailed Description

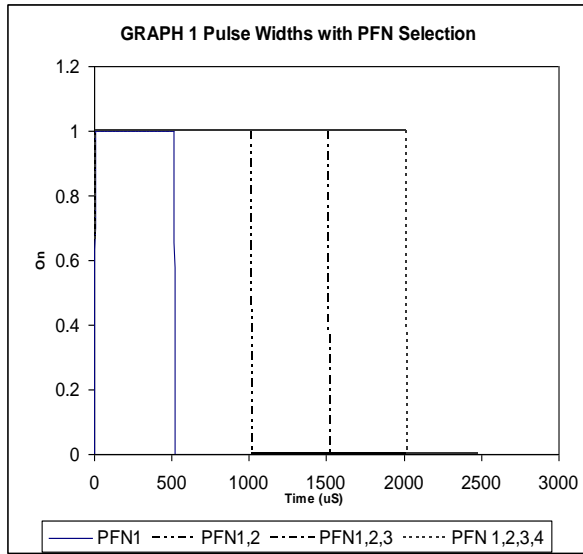
The SINTERON 2000 is a 19-inch rack unit comprising four bays that house the power supply, the controller and two pulse forming network (PFN) bays containing two PFN each. By allowing easy connections for these PFN stages, different pulse periods can be configured. Graph 1 shows the four different pulse widths that can be selected.



EQUIPMENT RACK

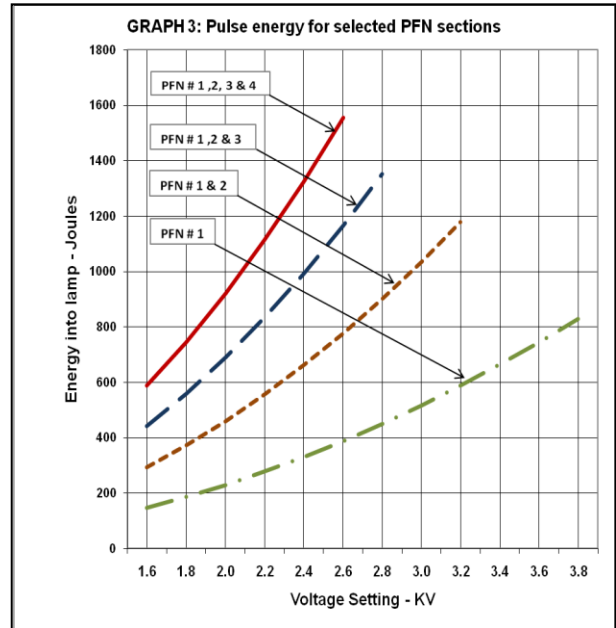


LAMP HOUSING WITH FLASHLAMP

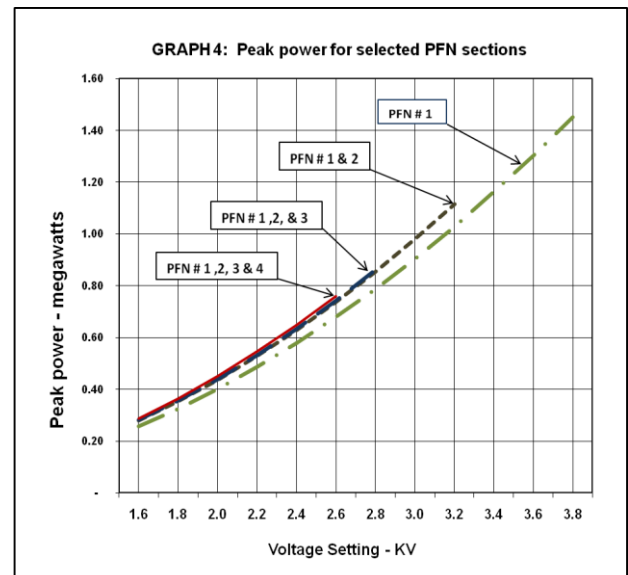
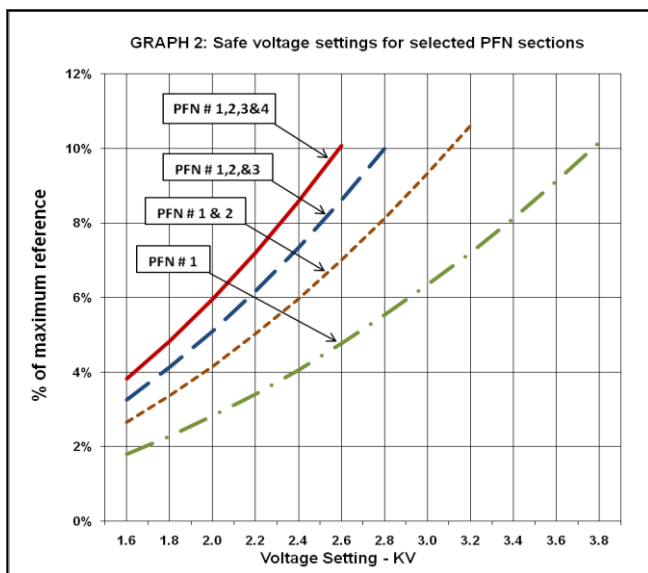


The energy into the flashlamp can be controlled by adjusting the voltage and pulse duration. Graph 3 illustrates the electrical energy into the flashlamp for the four PFN settings based on voltage setting. Graph 4 shows the variation in peak power for these settings in megawatts.

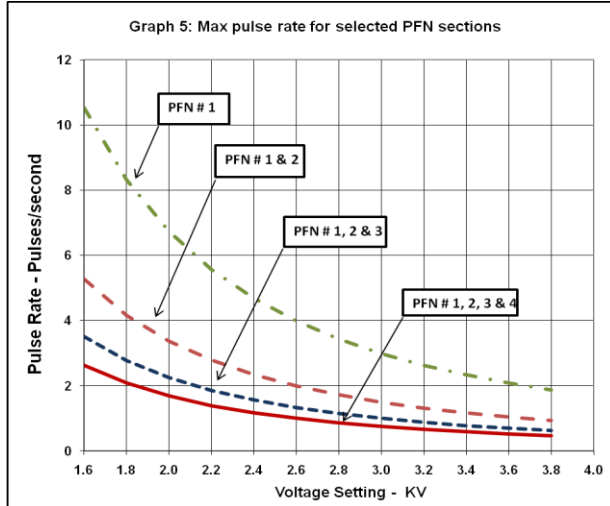
Once the pulse duration has been selected, the voltage can be adjusted by a dial on the controller bay. An LED display shows the voltage set. Care must be taken to ensure that the voltage set is within the safe operating range for the lamp.



Graph 2 illustrates the range of voltages that are recommended for each PFN setting.



The controller bay includes the timer module to turn on and trigger the lamp. External triggering and control is also possible at the rear of the unit. Two BNC connectors are available for monitoring voltage and current during operation. Graph 5 illustrates the range of pulse rate for each PFN setting



The SINTERON 2000 includes circuit breaker emergency-stop and interlocks for safety. It also has LED indicators on the PFN modules to indicate presence of power. For user safety, ensure that the PFN LEDs are OFF and the power is switched OFF before opening the rear

of the rack unit to configure the circuit. There is 8U spare rack space in the SINTERON 2000 for expansion and other equipment.

Photonic Curing Area

The linear lamp provides a curing area of 0.75" x 12" (1.9 x 30.5 cm). For different curing areas, contact Xenon sales to discuss availability of other lamps that are compatible with the SINTERON 2000 electronics.

Lamp Spectra

The Xenon flashlamp type B supplied with the SINTERON 2000 inherently produces a broadband spectrum suitable for materials that absorb UV light from 240nm to 1000nm. No ozone is produced.

SPECIFICATIONS

All specifications are typical unless otherwise noted ($T_{\text{AMBIENT}} @ +25^{\circ}\text{C}$, $V_{\text{INPUT}} = 208 \text{ Vrms}$)

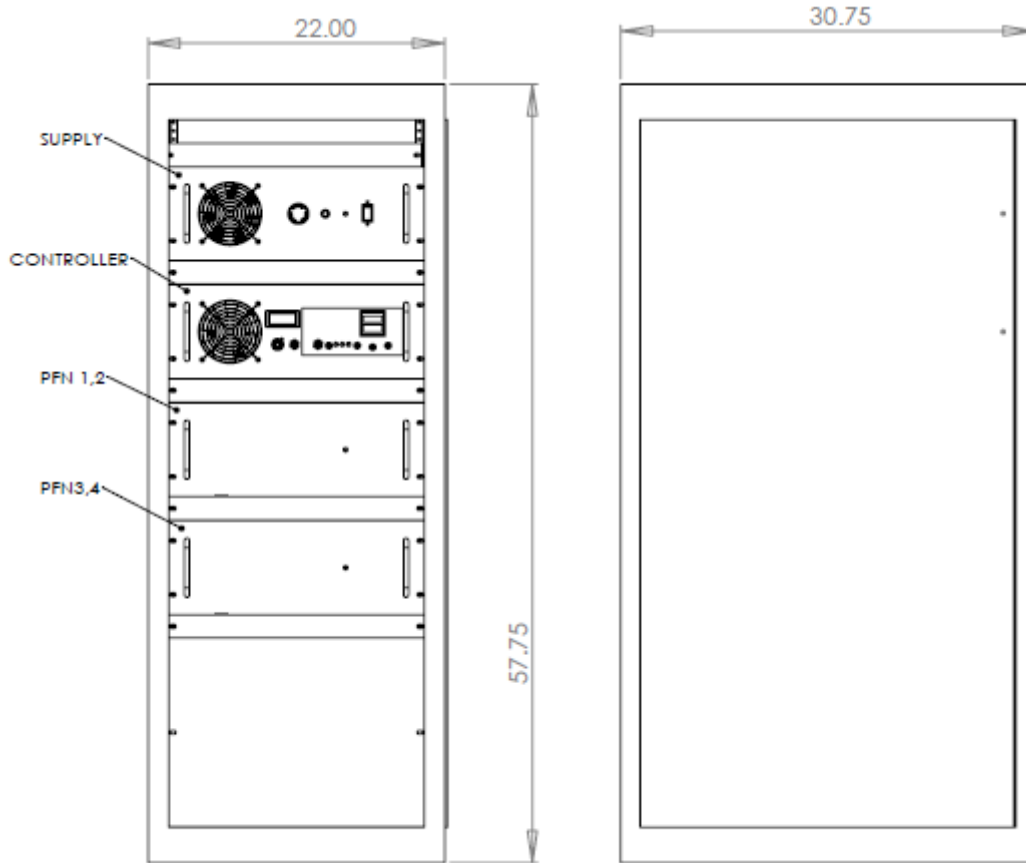
System Units	SINTERON 2000 rack with four bays – each 4U height Bay 1: Power Supply Bay 2: Controller Bay 3: PFN 1 and PFN 2 Bay 4: PFN 3 and PFN 4 Lamp Housing with Type B Flashlamp Lamp Housing Blower Options: Model BL-1020 (60 Hz) or BL-1030 (50 Hz) Lamp Housing Blower Kit ¹	
SINTERON 2000 User Controls	Main Power Switch	ON/OFF
	Emergency-STOP	OFF
	Timer	ON/OFF
	High voltage	ON/OFF/STANDBY
	Continuous mode	ON/OFF
	Pulse-mode select	Timed or Continuous
	Programmable timer	1 to 999 seconds in 1 sec interval
	Flashlamp pulse rate	Timed start, thumb-wheel switches
Power Input	SINTRON 2000 Rack	1-phase 200-240 Vrms, 50/60 Hz, 30 amps, max
	Lamp Housing Blower	Model BL-1020 1-phase 200-240 Vrms, 60 Hz, 6 amps Model BL-1030 1-phase 200-240 Vrms, 50 Hz, 6 amps
Pulsed Light	Pulse rate	see graph 5
	Pulse Energy Adjustment Range	600-1500 Joules, max @ 2.0ms pulse width 500-1350 Joules, max @ 1.5ms pulse width 300-1100 Joules, max @ 1.0ms pulse width 200-800 Joules, max @ 0.5ms pulse width
	Pulse Width ²	PFN 1 = 0.572ms PFN 1 & 2 = 1.055ms PFN 1, 2 & 3 = 1.570ms PFN 1, 2, 3 & 4 = 2.044ms
	Power output to flashlamp	2300 Joules/second, max
Lamp Housing	Arc Length, Spectrum	16" (406 mm) linear lamp, flashlamp type B spectrum
	Window Opening	21" x 3.5" (533 x 89 mm) L x W
	Sintering Curing Area	0.75" x 12" (1.9 x 30.5 cm)
	Optimum Distance from Window	1.0" (2.54 cm)
Cooling	Electronics Rack units	Total of 5 internal fans, continuous ON
	Lamp Housing	External blower 1.5mm Water Static Pressure
Outline Dimensions	Height x Width x Length	
	Electronics Rack	58" x 22" x 31" (147 x 56 x 79 cm)
	Model LH-840 Lamp housing	7.50" x 30.0" x 7.0" (19 x 76 x 18 cm)
Operating Environment	Temperature	0 - 40°C (32-104°F)
	Relative Humidity	10 - 90% (non-condensing)
Weight	Electronics Rack	350 pounds (159 kg)
	Model LH-840 Lamp Housing	32 pounds (14.5 kg)

Notes:

- 1 – Lamp Housing Blower Kit includes blower, blower filter, metallic ducting, duct clamps and mains power cord.
- 2 – User selectable with PFN jumper settings on rear of electronics rack

Specifications subject to change without notice

OUTLINE DIMENSIONS



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