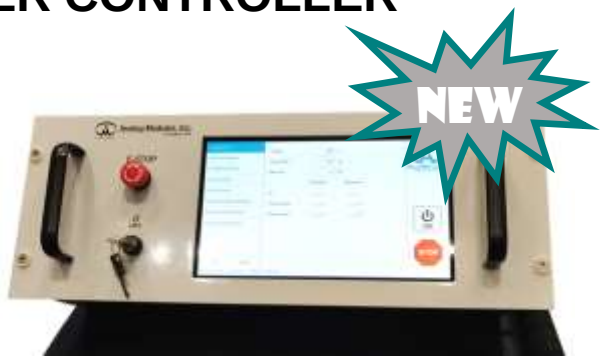
VARIABLE PULSE WIDTH LASER CONTROLLER

- **Variable Pulse Width 100 µs to >20 ms**
- **Microprocessor Control**
- **Up to 2000 W Power Factor Corrected**
- **Multiple Configuration Storage**
- **Programmable Duty Cycle**
- **Remote Control via USB and User-Friendly GUI**
- **Universal AC Input with Automatic Power Limit**
- **Touch Screen Front Panel Interface**



DESCRIPTION:

The ***Model 8808V*** laser flashlamp controller provides variable width pulses for pumping solid-state lasers. Based on a modular design approach, each system is optimized for a given application and/or specific customer need. The 8808V series provides a capacitor charging power supply, variable pulse forming network, simmer supply and all the electronic circuitry needed to drive flashlamps for pumping solid-state lasers. Software control allows operating parameters such as pulse energy, pulse repetition rate, pulse width, and mode of operation to be easily altered. Complete control of timing signals for multiple lamp and Q-switched applications is also provided by the embedded software. Interfacing and programming is made easy with multiple options; an easy-to-read touch screen display, external analog control and remote programming via a USB port with a provided GUI. The Model 8808V is CE marked and EU 2015/863 (RoHS 3) compliant for worldwide distribution. The internal capacitor charging power supply meets IEC-60601-1-2014 (4th edition) medical safety standards.

SPECIFICATIONS:

Input 100 – 240 VAC, 1 Ø 50/60 Hz

Output

Power	Up to 2000 W
Pulsewidth	100 µs to >20 ms
Simmer Trigger	-520 V spike for external/parallel trigger transformer.

Graphic Front Panel Display

Size 4U Rack Height

Front Panel	7” x 19”
Chassis	6.5” x 17” x 17”
Weight	<45 lbs.

Power
100 – 130 VAC, 1 Ø 50/60 Hz, up to 1300 W
200 – 240 VAC, 1 Ø 50/60 Hz, up to 2000 W

Voltage
400 to 1000 VDC Maximum

Standard Features
Microprocessor/USB
Touch screen interface
2000 W power supply
60 W simmer supply
8’ HV lamp output cable
Operating Manual

Options
Custom software
Additional HV switch
External capacitor box

Specifications subject to change without notice.

RoHS

ISO 9001 CERTIFIED

APPLICATIONS: *Flashlamp pumped laser controller for Research, R&D and Prototypes.*

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Options:	8808V	Specs
HV Switches: One Two	 -1 -2	 500 A peak 1000 A peak
Maximum Voltage: 400 V 500 V 800 V 1000 V	 -400 -500 -800 -1000	 33,600 µF 25,800 µF 8,400 µF 6,450 µF
HV Output Cable: 30 A_{RMS} 100 A_{RMS}	 -30 -100	 Fisher Coax SuperConn

To select the correct 8808V model for your application, use the two graphs at the bottom of the page.

Knowing the lamp impedance parameter, K_O, and the Joules per millisecond desired in the application, determine the graph which best fits the requirement. Once the selection is complete, the Y axis will determine the number (one or two) of HV switches required and the corresponding area under the desired charge-voltage curve (400 V, 500 V, 800 V or 1000 V) will determine the maximum charge voltage required.

The average power required is determined by the product of the Joules per pulse and the pulse repetition frequency.

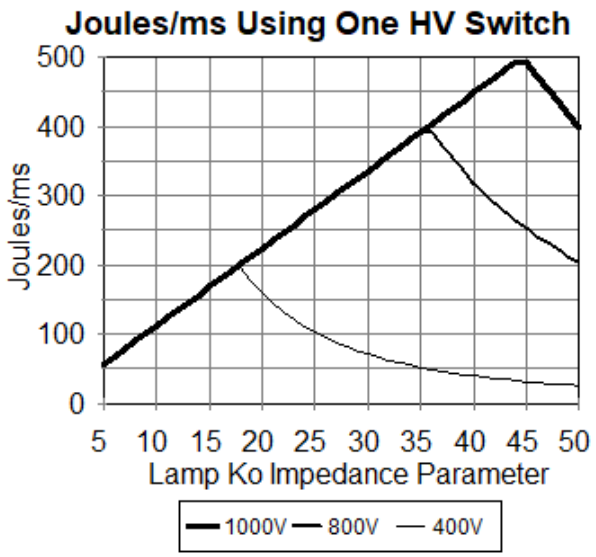
For example:

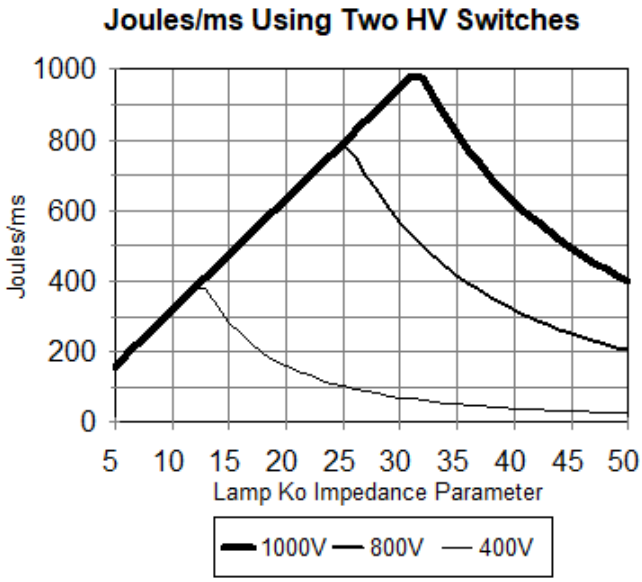
1. Lamp impedance parameter (K_O) = 28Ω-$A^{½}$.
2. 350 J per pulse, 1 mS pulse width at 3 Hz is desired for the application.
3. Calculate the Joules/mS by dividing the Joules per pulse by pulse width required.
4. Find the lamp K_O on horizontal axis of graphs at bottom of page. Find the required J/ms on the vertical axis. Select the graph labeled "Joules/mS using Two HV Switches". This graph will accommodate the required 350 J/ms with K_O of 28. Also note that the intersection of K_O and desired J/ms falls just below the 800 V curve on this graph.
5. Calculate the average power required from the power supply with the product of Joules per pulse and pulse repetition frequency. P=350 J x 3 Hz = 1050 J/s or Watts.

Therefore, the application requires an 8808V with two HV switches, charge voltage of up to 800 VDC and 2 kW minimum power supply.

Typical Part Number: *8808V-2-800-30* =

No. of High Voltage Switches: 2
Charge Voltage: 800 V
HV Output Cable: 30 A





Note: The graphs represent typical performance and do not account for lamp risetime and droop over pulse width. For narrow pulse applications (~100-200 µs), the energy "calculated" and energy "measured" by the microprocessor will differ due to lamp risetime delay. This delay is due to the dynamic properties of each lamp and will vary from lamp to lamp. For long pulse width applications, allowable droop should be considered on a case by case basis.