

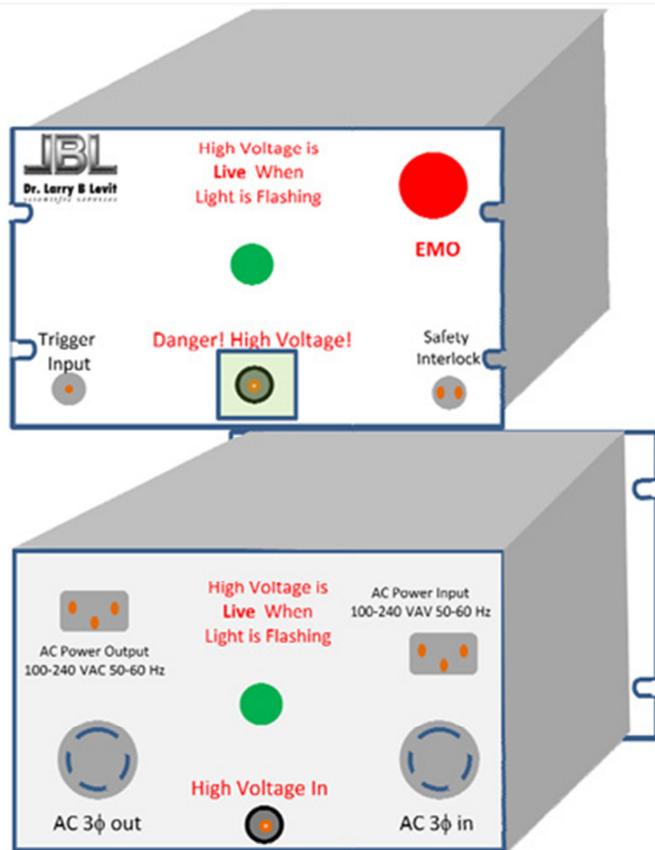


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LBL High Voltage High Power Pulser Family HSHVS 1000



- High Voltage: Models to 10 kV, 15 kV, 20 kV and 30 kV
- High Current: Models to current of 60-600 Amperes
- Fast Transitions: <5 ns rise and fall times
- Short pulse duration: 10 ns.
- High Repetition rate to 100 kHz,
- Fully protected against short circuits and arcs.
- Safety Interlocks
- Models available capable of driving 50 Ω to 30 kV
- Applications:
 - ✓ Electro-optics
 - ✓ Pockels cells
 - ✓ PEF food processing
 - ✓ Electromagnetic kickers
 - ✓ Electrostatic deflection
 - ✓ Mass Spectroscopy
 - ✓ RADAR
 - ✓ Carbon dating
 - ✓ DHS applications

The LBL Scientific HSHVS1000 family of high voltage pulse generators is a fast switching instrument capable of driving heavy resistive or capacitive loads with fast transitions. It operates in conjunction with a user-supplied high voltage power supply and is capable of driving high voltage fast pulses into the load at rep rates to 100 kHz. Based upon a new generation of solid state switches (patent pending) the device offers excellent long term stability and reliability. The HSHVS1000 is truly a high speed device offering transition times of <5 nsec and pulse widths of 10 nsec to 1 μ sec.

As a solid state device operating in a linear mode, the device has essentially no recovery time so it can be triggered at a high repetition rate. It happily can deliver pulses at a 500 kHz rate but depending upon the load, this means that the required power supply must be capable of delivering the power required. The Pulsers are designed to dissipate the charging power and remain reliable.

The LBL family of pulse generators is modular in nature and can be ordered in 10, 15, 20 or 30 kV versions. Modularity also allow the pulser family to be supplied with peak or sustained currents of 50 to 300 Amperes (limited by the power driving capability of the user-supplied high voltage power supply). The pulser family is capable of delivering a sustained power of 1 μ W to 10 kW, depending on the version ordered and the high voltage supply being driven.

Because of its high voltage and high current drive capability, the HSHV1000 family offers numerous safety features to protect the user. The front panel high voltage output connector is protected by a cover plate. When the plate is lifted, the unit shuts off AC power to the driving high voltage power supply and short circuits the internal storage capacitor in the pulser. There is also a front panel interlock connector and an EMO (emergency off crash button) which also shuts down the system. The unit is also interlocked against tampering. Removal of the top chassis cover also de-energizes the high voltage as above.

Specifications

High Voltage Input: N-type connector. 0 to 30 kV, 0 to 20 kV, 0 to 15 kV or 0 to 10 kV. Polarity selectable by internal jumper option.

Maximum Output Current: 60, 120, 300 or 600 A (15 kV unit only) versions available.

Maximum Repetition Rate: to 500 kHz for pulse width to 50 nsec. The power output of the high voltage power supply can also limit the repetition rate of the composite system.

Output Pulse Width: Equal to the Trigger Input pulse width. Operating range 10 nsec to 1 μ sec.

Trigger Input: TTL to + 18 V. Positive true. Optically isolated from pulse ground.

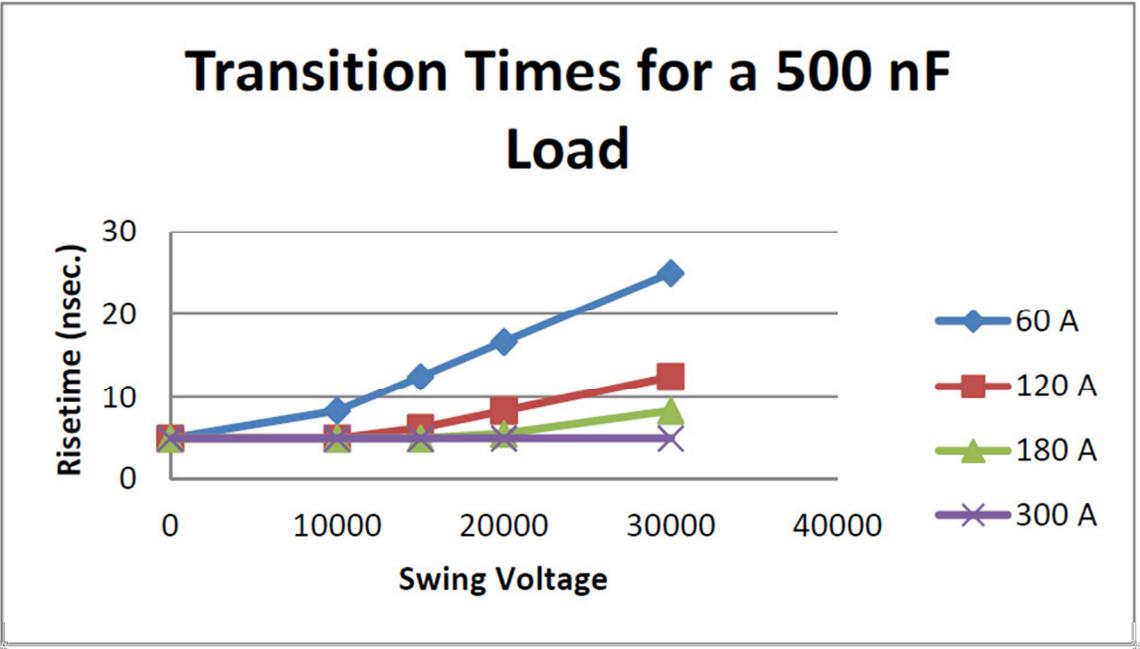
Interlock Input: BNC input. Clamp to ground enables the unit. Open circuit asserts the interlock.

Interlock Function: When interlock is asserted, the rear panel AC power output of the HSHVS1000 to the external high voltage power supply (both line voltage [100-240 VAC 50/60 Hz] and the rear panel 2 phase power output) is disabled. Also, the internal storage capacitor is shorted to ground to drain any stored energy.

Interlock Control: Interlock is asserted by a front panel interlock input, by removing the output high voltage pulse output connector cover, by removing the top cover or by pushing in the EMO (emergency off panic button).

Pulse Droop: 0.03%/100 nsec. for a 300 Ω Load. For termination hardware and recommendations, consult the factory.

Pulse Flatness: Limited by signal coaxial cable termination quality. For recommended termination schemes and low inductance, low capacitance resistors, consult the factory.



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