

HPP-750 Laser Diode Pulsar



The HPP-750 laser diode pulser is a new concept in pulsed diode driver development. Designed to be used with the LDD series drivers as the power source, the HPP-750 pulser can deliver up to 350 amps of output current with full protection of the laser diode. Pulse widths of $\geq 50\mu\text{s}$ to CW can be achieved with rise/fall times of $< 10\mu\text{s}$. and repetition rates to 5kHz.

Control of the HPP pulser via the standard 15 pin analog/TTL interface includes inputs for enable, trigger, output current, simmer voltage and CW/pulsed operation. The output is fully protected against open and short circuits along with overtemp.

The HPP-750 pulser enhances Lumina Power's complete line of laser diode driver products from 10 watts to 6000 watts.

ADVANTAGES

- Pulsed current to 350 amps
- 750 watts average power
- Compliance Voltage: 10 to 120V
- $< 10\mu\text{s}$. Rise/Fall time
- Advanced diode protection
- $> 90\%$ Efficiency
- Continuously modulate current, pulse width and frequency



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Specifications:

INPUT

Voltage: 12 to 120VDC
Power Source: Modified LDD-series laser diode driver (HP Option)

OUTPUT

Power: 750 Average Power Maximum
Pulse widths ~50 μ s to CW
Output Voltage: 10 to 120 Volts.
Output Current: 350 amps Maximum
Efficiency: >95% at full output
Regulation: 0.5%

INTERFACE

Connector: 15 Pin "D" Sub Female
Voltage Program: 0-10V for 0-Max Voltage
Voltage/current Monitors: 0-10V for 0-Max Voltage
Pulse Input: TTL
Temperature Fault: TTL

ENVIRONMENT

Operating Temp: 0 to 40°C
Storage: -20 to 85°C
Humidity: 0 to 90% non-condensing
Cooling: Forced air

Output Cable: 36" (91cm) Custom low inductance flatstrip cable

NOTE: The HPP-750 pulser is designed to be powered by a modified LDD series CW laser diode driver. Consult factory for exact LDD/HPP combinations for your application.

Due to the potential for ground loops between the LDD and HPP-750 interfaces an Isolator is highly recommended. Use Lumina Power supply Isolator part number 11001377. See block diagram on page 4.



HPP-750 Laser Diode Pulser

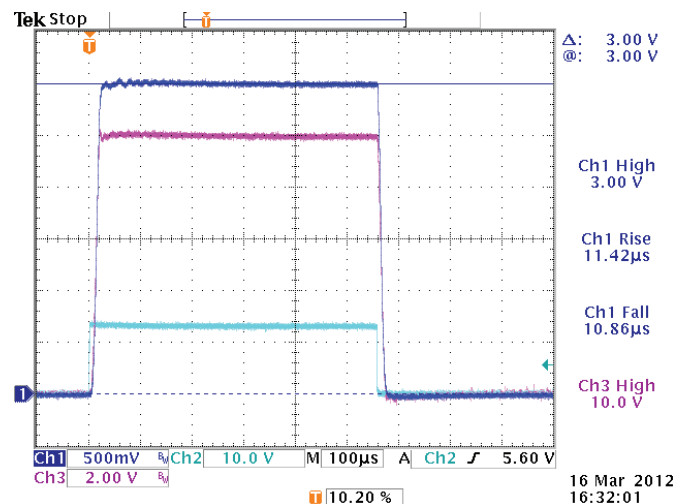
Interface:

Connector Type: Female 15 pin D-sub.
 Input logic level: < 0.4V = Low. 4V – 15V = High

Pin #	Signal Name	Description
1	Pulse. Pin:	High = Run. Default = Low = OFF Parallel with BNC 1. Input impedance: 10k
2,3,8	Ground	
4	Over Temp:	Active Low. Open collector with 10k pull-up to 15V. Shuts down PS when internal heatsink is hotter than 50 C.. Pulls "ready" signal, pin 12 Low.
5	Current Monitor	0 to 10V = 0 to Full current. Real time output current.
6	I Program	0 To 10V = 0 to Full Current output, Parallel with BNC 2.
7	Load Match	Fault indicates load voltage is mismatched. This signal is active only when I-Program is > 5V. Shuts down power supply. Reset by toggling System Enable, pin 14.
10	V Monitor	0 to 10V=0 to Maximum rated voltage
11,12	+ 15 Volts Input	Required to operate interface
14	System Enable	High = Run. Default = OFF, 10k input impedance.
9,13,15	N/C	Do not connect to these pins

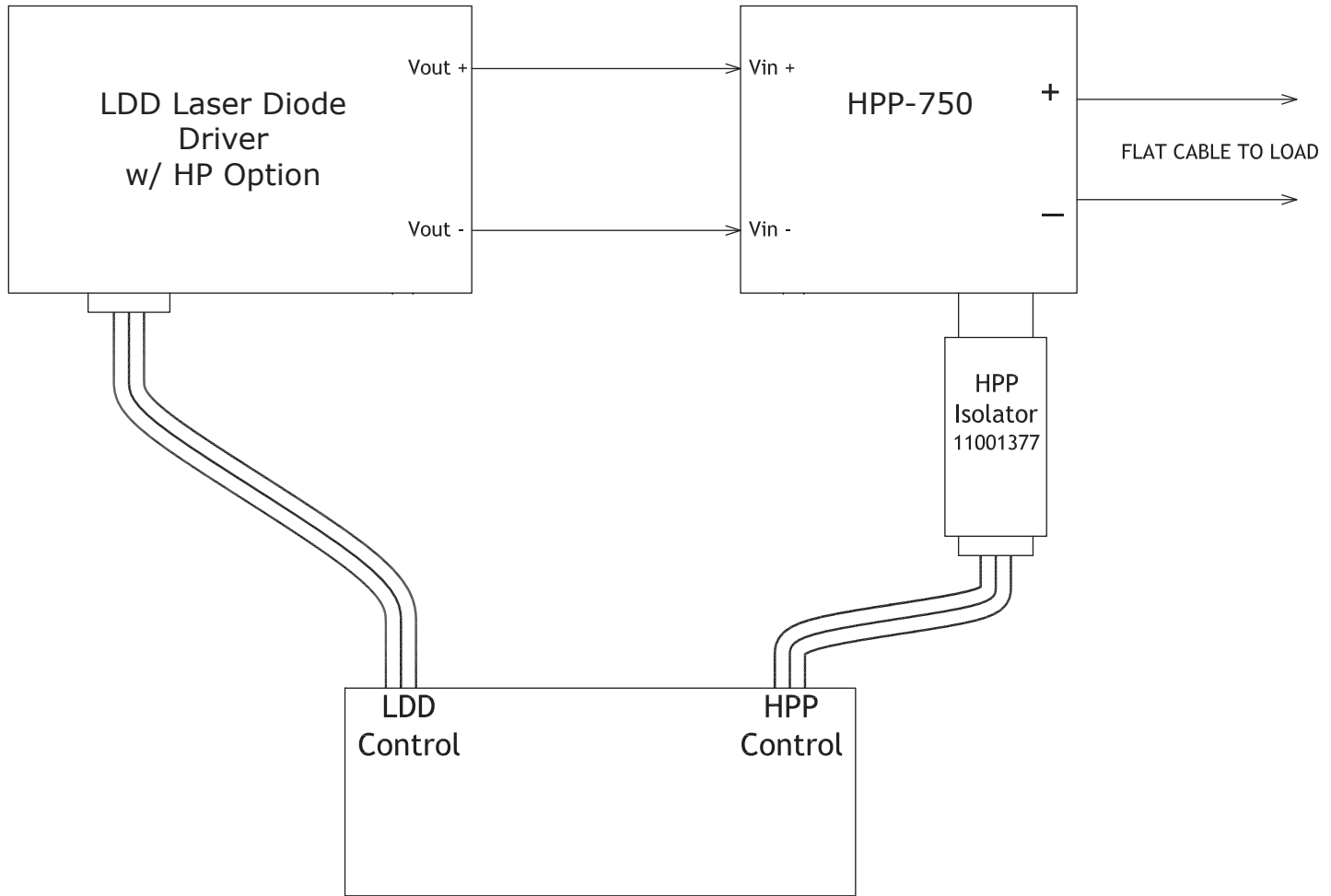
The scope trace on the right is an example of the waveforms that can be achieved with the HPP-750 Pulser. This is a 300 amp, 45V pulse. The rise time is 11.42µs and the fall time is 10.86µs with virtually no overshoot on the leading edge of the waveform.

The unique topology of the HPP pulser allows for a wide range of pulse widths from ~50µs through CW without any droop or rolloff near the falling edge of the pulse.



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Typical LDD/HPP-750 System



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Outline Drawing

