HPP-750 Laser Diode Pulser

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 ≥50µs to CW can be acheived with rise/fall times of <10µs. 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 18,000 watts.

ADVANTAGES

- Pulsed current to 350 amps

- 750 watts average power

- Compliance Voltage: 10 to 120V

- <10µs. 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   ~50µs 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.

Accesories: HPP-750 comes standard with 1 meter low inductance cable. Custom cable lengths are available. To avoid ground loops in some installations an Interface Isolator may be required.
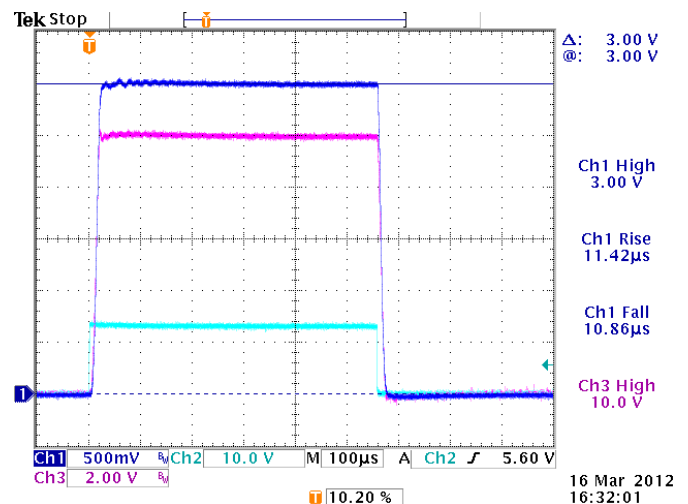
Interface:

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

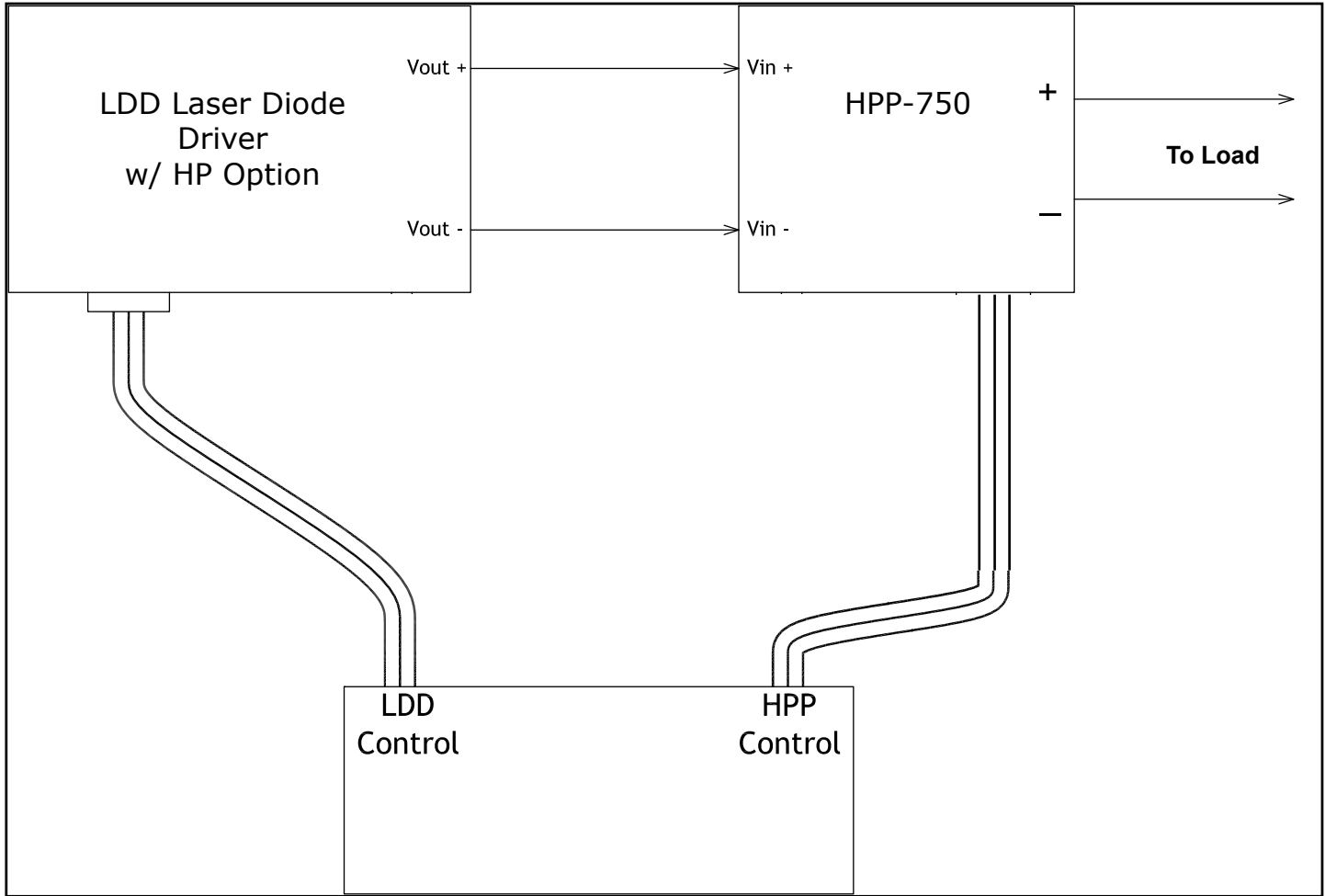| Pin #	Signal Name	Description
1	**Pulse. Pin:**	High = Run. Default = Low = OFF Parallel with BNC 1. Input impedance: 10k
2,3,8	**Ground**	
4	**Over Temp**:	Active Low. Open collector with 10k pull-up to 15V. Shuts down PS when internal heatsink is hotter than 50 C.. Pulls "ready" signal, pin 12 Low.
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. **Note: Accuracy will be compromised when operating below 30% of the maximum value**
7	**Load Match**	Fault indicates load voltage is mismatched. This signal is active only when I-Progam 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**	2 amp minimum, Required to operate interface (+15 volt, 200mA output from LDD/LDN, CW drivers cannot be used to power this input.)
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

LDD Laser Diode
Driver
w/ HP Option

Vout +

Vout -

Vin +

Vin -

HPP-750

+

−

To Load

LDD
Control

HPP
Control

Outline Drawing