LDP Pulsed/CW Laser Diode Drivers

The LDP pulsed laser diode drivers are the second generation of precision pulsed diode drivers offered by Lumina Power. Building on more than a decade of experience in laser diode driver technology the new LDP drivers are capable of outputting up to 400 amps. Pulse widths of 50µs through CW operation are now possible at rep-rates to 2.5kHz. The LDP incorporates new technology that enhances pulsed performance while reducing circuit complexity shrinking the size of the package and increases reliability.

Offered in 2 versions, the "S" version for high current pulse widths to 3ms and the "L" version for high current pulse widths to 30ms* The new LDP series pulsed laser diode drivers give the laser designer maximum versatility in a low cost compact package.

* see page 4

Features

- **1000/2000 Watts Average Output**
- **Output Currents to 400A**
- **Output Power to 4kW Peak**
- **Output Energy to 300J/Pulse**
- **Compliance Voltages to 100V**
- **Pulse Widths From 50µs to CW**
- **10µs Rise/Fall Time**
- **Repetition Rates to 2.5kHz.**
- **Universal Input Voltage**
- **Auxiliary ±15 Volt Output**

Your distributor:

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Lumina Power, INC.

LDP Pulsed/CW Laser Diode Drivers

Models

Model	Poutmax	Ioutmax	Pulse Range	Input Voltage
LDP-2000-XX-YY-S	2000W CW 1000 W Pulsed	400A Pk 100A CW	50µs to 3ms	200 to 240VAC
LDP-2000-XX-YY-L			50µs to CW	
LDP-1000-XX-YY-S	1000W CW 1000 W Pulsed		50µs to 3ms	100 to 240VAC
LDP-1000-XX-YY-L			50µs to CW	

The "S" Version: The LDP-1000/2000-XX-YY-S is the "short pulse" version of the series and can output up to 400A over a pulse width range of 50µs to ≈3ms, and up to CW for power equal to CW power and rated output voltage.

The "L" Version: The LDP-1000/2000-XX-YY-L is the "long pulse" version of the series and can output up to 400A over a pulse width range of 50µs to ≈30ms, and up to CW for power equal to CW power and rated output voltage.

Specifications

OUTPUT
Power: See Chart:
                           100V max.
                           (higher voltages available)
Current: 400A (Pulsed) *
* See figures 1 & 2 on page 4

INPUT
Voltage:
LDP-1000:   100 to 240VAC ±10%, 50/60 Hz
LDP-2000:   200 to 240VAC ±10%, 50/60 Hz
Power Factor: > .98

INTERFACE
Connector: 15 Pin "D" Sub Female
Current Program: 0-10V for 0-Max Current
Current Monitor: 0-10V for 0-Max Current
Voltage Monitor: 0-10V for 0-Max Voltage

PERFORMANCE
Rise/fall Time: 10µs for Vout <30V
Current Regulation: <0.5% of Maximum output current
Current Ripple: <0.5% of maximum output current
Current Overshoot: <1% of max. output current
Stable Output Range: 20 to 100% of rated of rated current

ENVIRONMENT

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

AUXILIARY OUTPUTS
+15V   @ 200mA.
 -15V   @ 200mA

CE/Safety Agency Approvals:
IEC 60601-1-2 4th Edition EMC
IEC 60601-1 3rd Edition Safety
IECEE CB SCHEME

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Pin Description

Pin #	Pin Name	Functional Voltage Level	Description
1	Enable (input)	High = RUN = +5 to +15V Low = OFF = 0V Default/NC = OFF	The **Enable** function turns the output section of the power supply ON and OFF. When the power supply is enabled, current is delivered to load as programmed via **Iprogram(+)**, Pin 7. Rise times resulting from **Enable** are approximately 25msec. Enable signal must be asserted or toggled after AC power has been applied because the power supply starts up in disabled state disregarding the status of the Enable signal.
3	Interlock (input)	Open = OFF Connect to GND = RUN	The **Interlock** function can be connected to external interlock switches such as door or overtemp switches.
4, 9	GND		Interface RTN
5	**Vout Monitor**: (output)	$0 - 10V = 0 - Vout_{max}$	The output voltage of the supply can be monitored by **Vout Monitor**. 1k output impedance
6	**Iout Monitor** (output)	$0 - 10V = 0 - Iout_{max}$	The output current of the supply can be monitored by **Iout Monitor**. 1k output impedance
7	**Iprogram(+)**: (input)	$0 - 10V = 0 - Iout_{max}$	The power supply output current is set by applying a 0-10V analog signal to **Iprogram(+)**. 50k input impedance
8	**Pulse Control** (input)	TTL/CMOS High = On TTL/CMOS Low = OFF Default/NC = OFF	The output is OFF by applying a TTL 0 to **Pulse Control**, pin 8. When a TTL 1 is applied to pin 8, the amplitude of the output current pulse is determined by the current level programmed via Pin 7, **Iprogram(+)**. Rise fall times of <10usec at ≤30V are typical.
10,11, 15	**NC**		
12	**-15V @0.5A** (output)		Auxiliary -15V power supply for user. Up to 0.2A output current available.
13,14	**+15V @0.5A** (output)		Auxiliary +15V power supply for user. Up to 0.2A output current available.

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Peak Power Derating Curve

Figure 1

LDP Peak Power Derating by Rep Rate

Figure 2

Pulse Peak Output Power, LDP
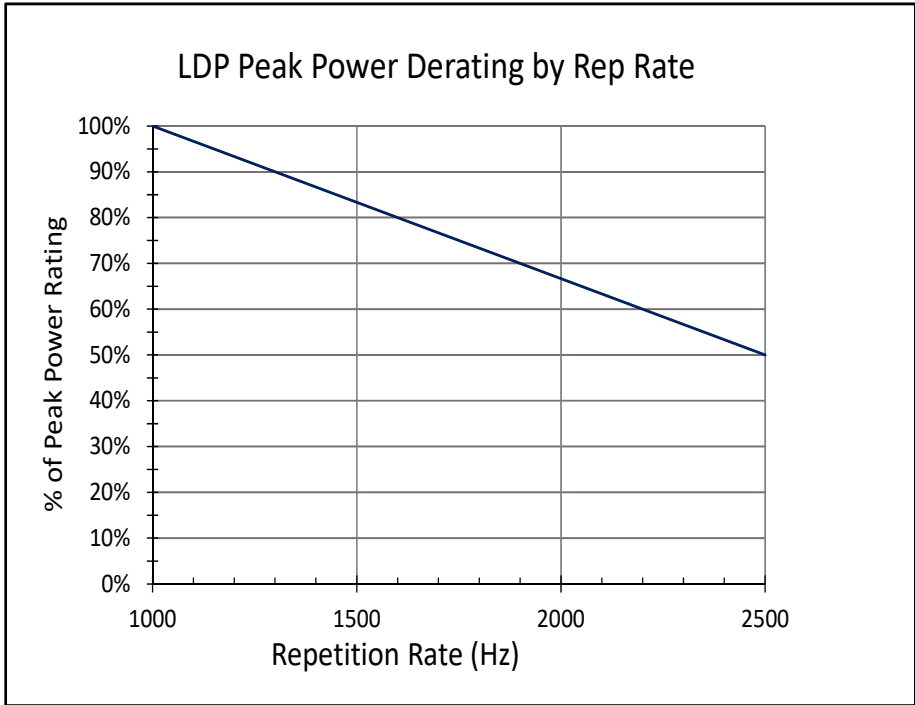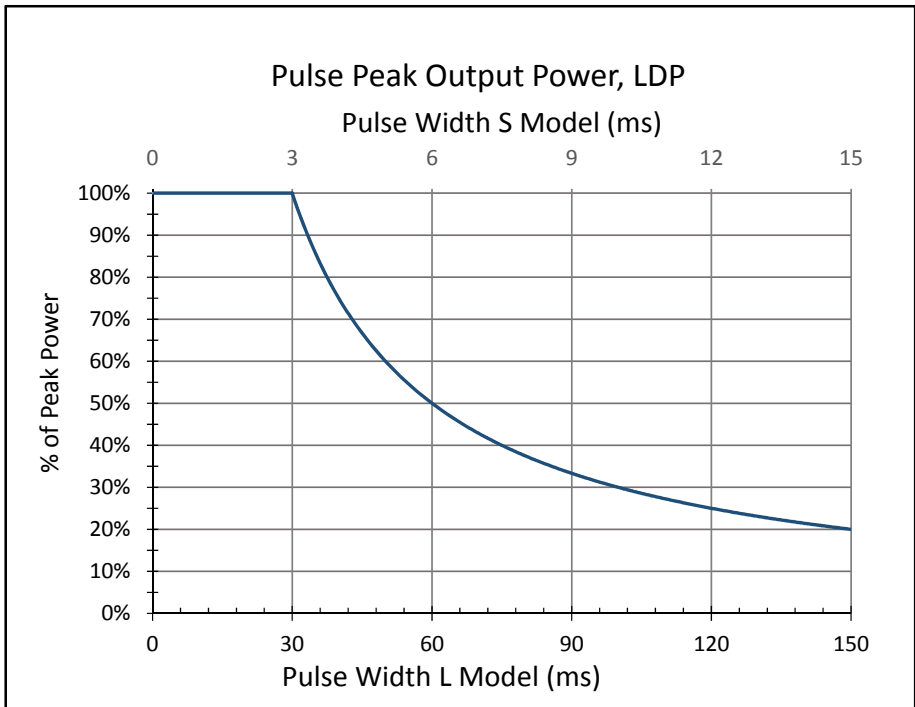
LDP-1000/2000-XX-YY-S/ L Outline Diagram