

LDD High Power CW Laser Diode Drivers



The LDD series is a new family of OEM laser diode drivers designed for the emerging high power laser diode industry. The LDD series is ideal for high power applications where economy is important and performance cannot be compromised.

Compact size is possible due to the low-loss Zero Voltage Switching inverter and incorporation of planar magnetics. The LDD is virtually wire free.

Power factor is greater than 0.99 and conducted emissions meet stringent European regulations. No additional line filter is required to meet EN 55011 emission requirements.

The LDD family has been designed with the knowledge that a high power laser diode is an expensive device. Rise and fall times are strictly controlled to reduce high voltage transients which could damage the laser diode.

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ADVANTAGES

- ◆ Ideal for OEM applications
- ◆ Safe turn-on/turn-off
- ◆ Compact design
- ◆ Power factor correction
- ◆ Auxiliary +15V/-15V/+5V
- ◆ Low conducted emissions, low leakage
- ◆ ROHS Compliant

AVAILABLE POWER OUTPUTS ARE:

- ◆ 50W
- ◆ 100W
- ◆ 150W
- ◆ 250W
- ◆ 600W
- ◆ 1000W
- ◆ 1500W
- ◆ 3000W
- ◆ Output current up to 150A

LDD CW Laser Diode Driver Specifications

Model	Pout _{max}	Iout _{max}	Input Voltage	Size (L x W x H)
LDD-50-XX-YY	50W	Up to 15A	90-264VAC	6.75" x 3.63" x 3.25" 17.1 x 9.2 x 8.26 cm
LDD-100-XX-YY	100W	5A to 50A	90-264VAC	7.5" x 5.8 x 2.6" 19 x 14.7 x 6.6 cm
LDD-150-XX-YY	150W	10A to 60A	90-264VAC	
LDD-250-XX-YY	250W	10A to 80A	90-264VAC	
LDD-600-XX-YY	600W	10A to 100A	90-264VAC	9.9" x 7.3" x 2.6" 25.1 x 18.5 x 6.6 cm
LDD-1000-XX-YY	1000W		90-264VAC	
LDD-1500-XX-YY*	1500W		180-264VAC	
LDD-3000-XX-YY*	3000W	Up to 150A	180-264VAC	17" x 16.6" x 3.4" 43.2 x 42.2 x 8.6 cm
Auxiliary Outputs +5V @0.5A** +15V @0.5A** -15V @0.5A** **(no auxiliary outputs available on LDD-50.)				
XX = Maximum rated output current YY = Maximum compliance voltage XX*YY cannot exceed Pout _{max} *LDD-1500 and LDD-3000 require AC input voltage between 180-264VAC				
RS-232 Option available Other outputs available upon request				

INPUT

Voltage: See table above
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: <1msec standard (10% to 90% Full Current) (<350usec available upon request)
Current Regulation: <0.5% of Maximum output current
Current Ripple: <0.5% of maximum output current
Current Overshoot: <1% of maximum output current
Power Limit: Limited to maximum power with power fold-back circuit

ENVIRONMENT

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

REGULATORY

Safety: LDD-150/250: UL60950
LDD-600/1000/1500: UL60950 (Industrial), UL60601-1 (medical)
Emissions/Immunity: FCC 47 CFR Class A Emissions, EN55011:1998 Group 1 Class A Emissions, EN61000-3-2, EN61000-3-3, EN60601-1-2:2001

LDD Interface

CONNECTOR TYPE: 15 PIN D-SUB FEMALE

(Refer to Figure 2, LDD Interface Schematic)

Pin #	Pin Name	Functional Voltage Level	Description
1	Enable (input)	High = RUN = +5V to +15V Low = OFF = 0V	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.
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	GND		Interface return.
5	*Vout Monitor: (output)	0-10V = 0-Vout _{max}	The output voltage of the supply can be monitored by Vout Monitor . See note below
6	Iout Monitor (output)	0-10V = 0-Iout _{max}	The output current of the supply can be monitored by Iout Monitor .
7	Iprogram(+): (input)	0-10V = 0-Iout _{max}	The power supply output current is set by applying a 0-10V analog signal to Iprogram(+) .
8	Pulse Control (input) (LDD-3000 only)	TTL High = On TTL Low = OFF Default = On (LDD-3000 only)	The output of the LDD-3000 may be pulsed by applying a TTL signal to Pulse Control , pin 8. The amplitude of the output current pulse is determined by the current level programmed via Pin 7, Iprogram(+) . Rise fall times of <1msec are typical. Contact Lumina Power for faster rise and fall times. If left unconnected, the default will be ON for CW operation.
9	GND		Interface return.
10,11	+5V @ 0.5A (output)		Auxiliary +5V power supply for user. Up to 0.5A output current capability. (not available on LDD-50)
12	-15V @0.5A (output)		Auxiliary -15V power supply for user. Up to 0.5A output current available. (not available on LDD-50)
13,14	+15V @0.5A (output)		Auxiliary +15V power supply for user. Up to 0.5A output current available. (not available on LDD-50)
15	GND		Interface return.

* If maximum compliance voltage is less than 10V, **Vout Monitor** will read output voltage directly. If maximum compliance voltage is greater than 10V, then **Vout Monitor** will be scaled such that 0-10V = 0-Vout_{max}.

LDD Outline Drawings

