

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

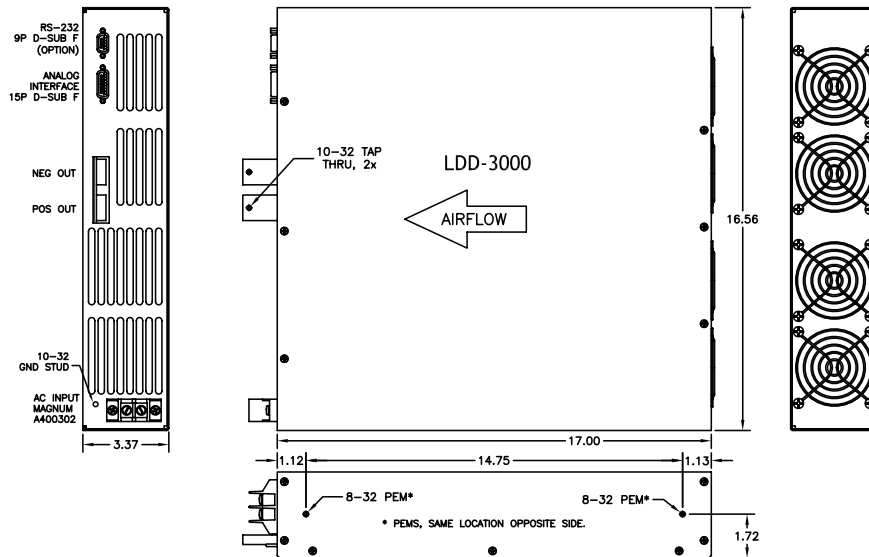
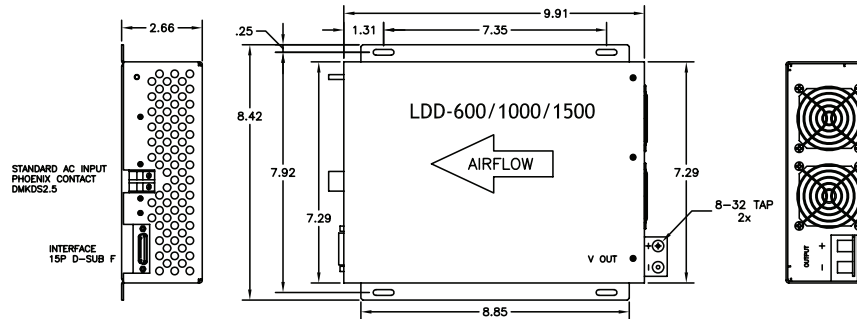
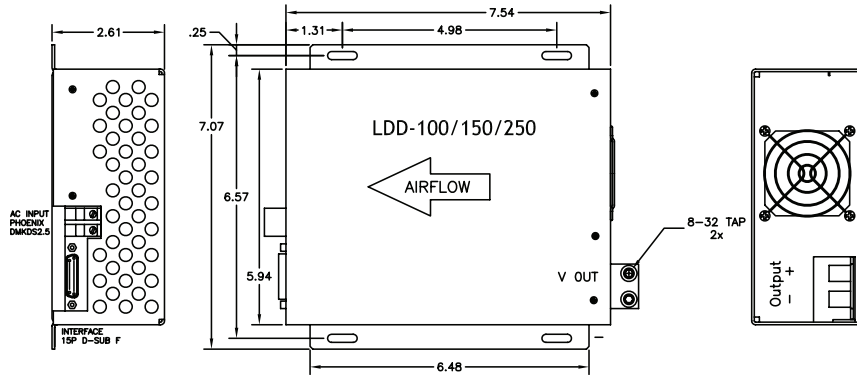
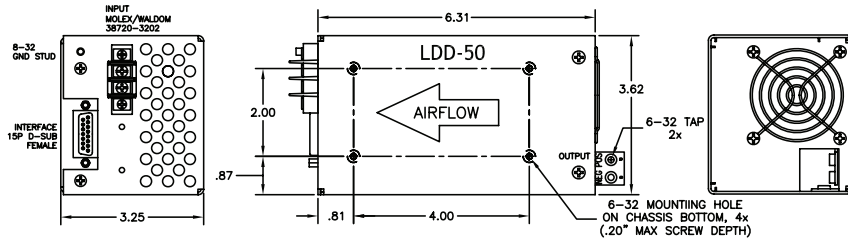
CONNECTOR TYPE: 15 PIN D-SUB FEMALE

(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



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