



Sintec Optronics Technology Pte Ltd

10 Bukit Batok Crescent #07-02 The Spire Singapore 658079

Tel: +65 63167112 Fax: +65 63167113

LDD Series Laser Diode Drivers

The laser diode driver LDD-AAVV-T is a high current-constant laser diode driver with a thermo-electric cooler controller. Current control, transient suppression, over-temperature protection, short circuit protection, and over current limit are provided. A temperature sensor is used to measure the temperature of the laser diode and then the constant-temperature is kept by automatically adjusting the current of the thermo-electric cooler. A digital meter shows the output current and output voltage.

Specifications:

Model: LDD-AAVV-Txx

LDD-laser diode driver

AA-maximum output current (A). Max is 60A and it is continuously adjustable.

VV-maximum output voltage (V). Max is 60V and it is continuously adjustable.

T - with thermal electronic cooler & power supply. 3 maximum output channels.

xx-remarks

Input voltage: 220VAC, +/-15%

Voltage noise: <0.1% p-p

Current noise: <=50mA

Un-stability: <0.1%



LDD-AAVV-T series
Dimension: 482x133x520mm
Net weight: 15kg



LDD-AAVV series
Dimension: 482x88x260mm
Net weight: 6.5kg

Detailed Specifications of LDD-40-02T:

Input: AC220V 50Hz

Output:

- Max. 3 channels of TE cooler, one is used to cool diode laser, another 2 channels may be used for cooling laser medium and Q-switch. The output is max. 12V 10A.
- one channel output to drive diode laser. The output is max. 2V 40A. Others available upon request.

Other features:

- The output current to diode laser can be adjusted by internal or external signal.
- Alarms such as over heat, over temperature, over current and over voltage

Typical Drivers:

LDD-4002T: output 40A 2V and with one channel TE cooler for cooling diode laser.

LDD-4002T2: output 40A 2V and with 2 channels TE coolers for cooling diode laser and laser medium.

LDD-4002T3: output 40A 2V and with 3 channels TE coolers for cooling diode laser, laser medium and SHG crystal.

LDC Series Laser Diode Drivers

The Model LDC1000 conveniently offer both laser diode current and temperature control in the same instrument. The current source provides CW or pulsed output currents to drive high power laser diodes, laser arrays and laser stacks up to 150A. The LDC1000 includes a 300W or 600W thermoelectric cooler controller to drive suitable heat sinks.

Features

Laser Diode Driver

- Up to 300, 600 or 1.500W
- Up to 150A laser diode current
- Up to 28V laser diode voltage
- CW and pulse operation
- Extern analogue modulation
- External trigger input and -output
- Interlock function
- RS232 PC Interface

TEC-Driver

- Integrated TEC driver 300 or 600W
- Up to $\pm 48V / \pm 13A$ bidirectional
- Digital PID temperature control
- Second TEC driver optional

Applications

- High power laser diode control
- Pumping solid state and fiber lasers
- Material processing
- Medical application
- Laser diode Burn-In and test station
- Illumination
- General purpose laboratory instrument



Intuitive User-Friendly Interface

An internal microprocessor provides the flexibility and convenience of software control and the system status is presented on an easy-to-read LCD graphics display.

Control of the Model LDC1000 can be achieved from the front panel or remotely via an RS-232 interface.

Built-In Laser Diode Protection Features

The LDC1000 features advanced circuitry to protect both the diode and the controller. Safety features include transient suppression, a suitable mains filter, delayed output enable, hardware interlock and a relay closure shorts the laser output when power to the LDC1000 is turned off.

An additional feature is if the laser temperature departs from a user defined temperature window, the laser current is switched off automatically.

Error Indication

In any case of error, such as exceeding the customer set limits, the diode current is turned off immediately and an error message appears on the display.

Laser Diode Current Modulation

External inputs allow analogue modulations and external triggering. An internal pulse generator allows digital modulation. The maximum modulation frequency of the laser diode current is 100Hz.

As a safety feature, the laser current limit can not be exceeded during external modulation.

Pilot Laser Control

If a high power laser diode is provided with a pilot laser, it can be controlled by the LDC1000. The pilot laser can be switched on and off and its optical power intensity can be set.

Power Monitor

If a high power laser diode is provided with a power monitor diode, which deliver a voltage corresponding the optical power it will be shown at the display and can be used for calibrating the LDC1000 P/I characteristic line.

Quasi Power Setting / Monitoring

Because the laser driver is current controlled, the laser power cannot be controlled directly. But the user can set two calibration points at the P/I characteristic line and the LDC1000 calculates the set power into set current and measured current into actual power. So the user can choose to set the laser current or set the laser power and can read the actual current and the actual power from display.

Supported Temperature Sensors

The LDC1000 can work with three several temperature sensor types: NTC, PT100, PT1000.

Adaptability to Different Heat Sinks

The LDC1000 can easily adapted to different heat sinks by the software PID controller. An adjustable TEC current limit prevents the controller from overdriving the TEC element. The LDC1000 includes a 300W or 600W thermoelectric cooler controller. Our heat sinks CL30 and CL50 are suitable for cooling 30W and 50W (optical power) laser diodes. They need the 300W TEC driver. Our heat sink CL100 is suitable for cooling a 100W (optical power) laser diode and needs the 600W TEC driver.

Fan Power Control

Normally the heat sink is provided with a powerful fan. In most cases the full fan power will not be used. For that reason the fan voltage can varied between 6 to 12V.

Specifications

Laser Diode Controller											
Power Laser Diode Driver	300 W				600 W			1.500 W			
Max. Laser Diode Current	60A	70A	50A	100A	120A	150A	55A	65 A	100A	125A	
Max. Laser Diode Voltage	5 V	3.6V	12V	6 V	5 V	3,6 V	28V	24 V	15 V	12 V	
Ripple / Noise (rms) [mA]	100	100	100	200	200	200	100	100	200	200	
Current Limit Range	0 ... Max. Laser Diode Current										
Current Adjustment Accuracy	100 mA										
Temperature Coefficient	< 100 ppm/°C										
Short Term Stability (1hr)	< 30 ppm										
Long Term Stability (24hr)	< 75 ppm										
Repetition Rate	0 ... 100 Hz										
Pulse Width (*)	> 5 ms										
Rise- / Fall- Time (*)	< 2ms (10 % – 90 % of max. current)										
Analog Modulation											
Input (BNC connector)	0 ... 5 V, 1 kΩ										
Transfer function	20 A/V up to 70 A max. laser current 40 A/V above 70 A max. laser current										
Bandwidth	0 ... 100 Hz										
Trigger											
Input (BNC connector)	TTL-level (High: U>2.4 V, Low: U<0.8 V)										
Output (BNC connector)	TTL-level (High: U>2.4 V, Low: U<0.8 V)										
Transfer function for TTL high	Iout = I set										
Transfer function for TTL low	Iout = 0 A										
Bandwidth	0 ... 100 Hz										
Pilot Laser											
Pilot Laser Voltage	5 V										
Pilot Laser Current	max. 300mA										
Pilot Laser Power Adjustment	1 ... 100 %										

Power Monitor	
Input Voltage	0 ... 2.5 V

TEC Controller				
Temperature Range	0 ... 50 °C			
Temperature Stability	< 0.1 K			
Temperature Adj. Accuracy	0.1 K			
Control Loop	PID			
Output Cooler 1				
TEC Output Power	300 W			600 W
TEC Current	0.. ±7 A	0.. ±12 A	0.. ±14 A	0.. ±13 A
TEC Voltage	0.. ±48 V	0.. ±28 V	0.. ±24 V	0.. ±48 V
TEC Current Limit Range	0.. 7 A	0.. 12 A	0.. 14 A	0.. 13 A
Ripple	100 mA			
Fan Voltage Adjustment Range (manual)	6 ... 12 V			
Fan current	max. 1 A			
Output Cooler 2 (optional)				
TEC Output Power	15 W			
TEC Current	0 ... ±3 A			
TEC Voltage	0 ... ±5 V			
TEC Current Limit Range	0 ... 3 A			
Ripple	50 mA			
Temperature Sensors				
Sensor Types	Thermistor / PT100 / PT1000			
Thermistor	NTC, 10 kΩ @ 25°C, current: 100 µA			
Power Supply				
Line Voltage	85 - 264 V AC, autoranging			
Frequency	50 - 60 Hz			
Power Consumption	1500 W			
Fuses rating for 115V AC	16A slow acting (5x20mm)			
Fuses rating for 230V AC	8A slow acting (5x20mm)			
General Characteristics				
Ambient Temperature, operating	0 ... 30 °C			
Relative Humidity, operating	30 ... 70 %			
Weight	11,1 kg			
Dimensions	465 x 150 x 500 (W x H x D, mm ³)			

Order Information

Part number: LDC1000-xx-yy

LDC1000: Product identifiers

xx: Maximum output power of the driver in unit of 100W

yy: Maximum output power of the TEC driver in unit of 100W

For example, LDC1000-3-3: maximum output power of the laser diode driver 300W and maximum output power of the TEC cooler 300W.

Typical part numbers are LDC1000-3-3, LDC1000-6-6 and LDC1000-15-0.

CL Series Heat Sink

The heat sink is designed for temperature stabilization of high power laser diodes and laser arrays of about 30W-100W optical power. Depending from the temperature difference between laser diode and ambient air the maximum heat load is up to 250W.

A heat sink includes the metal block, fans for the heat dissipation, the Peltier elements (TEC's), a heat spread plate with a temperature sensor, the laser diode cable and the cooler cable.

For using laser diodes with integrated Peltier elements and temperature sensor the heat sink is available without Peltier elements, temperature sensor and heat spread plate for a reduced price.



With 30W laser diode

With 50W laser diode

With 110W laser diode

Features

- Up to 250W heat load
- High temperature accuracy
- Peltier driven, air cooling
- Available with or without Peltier elements, temperature sensor and heat spread plate
- LD- and Cooler-cable included

Applications

- Temperature stabilization of passively cooled high power laser diodes and laser arrays up to about 30W optical power

Thermal Characteristics	CL30	CL50	CL100
Heat Load (max) with a temperature difference between laser diode module and ambient air of			
0 K	80 W	120 W	250 W
5 K	60 W	90 W	180 W
10 K	40 W	60 W	120 W
T _{max} (hot side)	50°C	50°C	50°C
Temperature Difference	40 K	40 K	40 K
Thermal Resistance	0.15 K/W	0.1 K/W	0.07 K/W
Electrical Characteristics			
Temperature Sensor	NTC 10 kOhm	NTC 10 kOhm	NTC 10 kOhm
Peltier Current	0...±10 A	0...±10 A	0...±13 A
Peltier Voltage	0...±15 V	0...±25 V	0...±48 V
Fan Current	500 mA	800 mA	1,0 A
Fan Voltage	12 V	12 V	12 V
General Characteristics			
Ambient Temperature	0...30°C	0...30°C	0...30°C
Relative Humidity	30...70 %	30...70 %	30...70 %
Weight	2 kg	3 kg	5 kg
Dimension (w x d x h) in mm ³	230 x 148 x 95	230 x 210 x 95	270 x 280 x 130

Remark: The temperature difference 0K means e.g. laser diode module has 25°C and ambient air has also 25°C. The temperature difference 5K means e.g. laser diode module has 25°C but ambient air has 30°C. And so on. The customer has to consider his maximum air temperature when he choose the right cooler.

LDD Series OEM 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.

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

Model	Poutmax	Ioutmax	Input Voltage	Size (L x W x H)
LDD-50-AA-VVOEM	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-AA-VVOEM	100W	5A to 50A	90-264VAC	7.5" x 5.8 x 2.6" 19 x 14.7 x 6.6 cm
LDD-150-AA-VVOEM	150W	10A to 60A	90-264VAC	
LDD-250-AA-VVOEM	250W	10A to 80A	90-264VAC	
LDD-600-AA-VVOEM	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-AA-VVOEM	1000W	10A to 100A	90-264VAC	
LDD-1500-AA-VVOEM*	1500W	10A to 100A	180-264VAC	
LDD-3000-AA-VVOEM*	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 @ 0.25A**
 +15V @ 0.25A**
 -15V @ 0.25A**

** (no auxiliary outputs available on LDD-50.)

AA = Maximum rated output current VV = Maximum compliance voltage

AA*VV cannot exceed Poutmax

*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

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-Voutmax	The output voltage of the supply can be monitored by Vout Monitor. See note below
6	Iout Monitor (output)	0-10V = 0-Ioutmax	The output current of the supply can be monitored by Iout Monitor.
7	Iprogram(+): (input)	0-10V = 0-Ioutmax	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 @ 0.25A (output)		Auxiliary +5V power supply for user. Up to 0.25A output current capability. (not available on LDD-50)
12	-15V @0.25A (output)		Auxiliary -15V power supply for user. Up to 0.25A output current available. (not available on LDD-50)
13,14	+15V @0.25A (output)		Auxiliary +15V power supply for user. Up to 0.25A 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-Voutmax.

current

- Power Limit: Limited to maximum power with power fold-back circuit

ENVIRONMENT

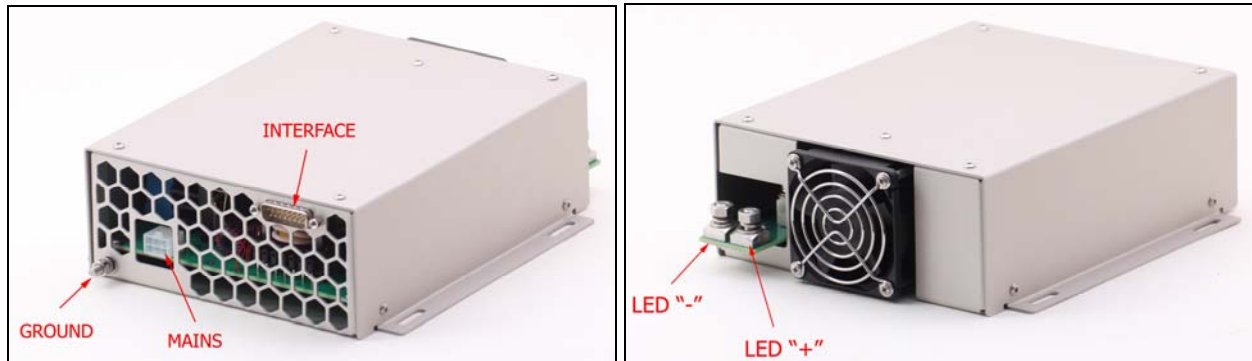
- Operating Temp: 0 to 40°C
- Storage: -20 to 85°C
- Humidity: 0 to 90% non-condensing
- Cooling: Forced air

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

LDD2 Series OEM Laser Diode Drivers

LDD2 is a series of laser diode drivers intended for single laser diode driving as well as for laser diode arrays driving. Maximal output power ranges from 50W to 1500W, and maximal output current ranges from 5A to 100A. These drivers may be used for industrial and medical applications.



Part number: LDD2-xx-AA

LDD2: LDD2 series OEM diode drivers

xx : Maximum output power

AA: maximum output current

The maximum output voltage is maximum output power divided by output current. Current is adjustable in range 10-100% of I_{max} . I_{max} is selected by customer. V_{max} is calculated as $V_{max} = \text{Power} / I_{max}$. Voltage is adjusted automatically in dependence on load, but voltage cannot exceed V_{max} .

NAME	MAX POWER	CURRENT	INPUT VOLTAGE	CASE
LDD2-50-AA*	50 W	5-25 A	110/230 VAC	A
LDD2-150-AA	150 W	5-75 A	110/230 VAC	B
LDD2-250-AA	250 W	10-100 A	110/230 VAC	B
LDD2-400-AA	400 W	10-100 A	230 VAC	B
LDD2-600-AA	600 W	10-100 A	110/230 VAC	C
LDD2-1000-AA	1000 W	10-100 A	110/230 VAC	C
LDD2-1500-AA	1500 W	10-100 A	230 VAC	C

* Additional information about LDD-50 model is available on request.

Examples: LDD2-150-70 or LDD-1500-50

Maximal output voltage in these examples is 2.1V and 30V, respectively.

Specifications:

OUTPUT	
Efficiency	more than 80%
Rise/fall time	< 1 ms (10% to 90% full current) < 500 us on request
Current regulation accuracy	< 1% of I_{MAX}
Current value error	< 1% of I_{MAX}
Current overshoot	< 1% of I_{MAX}
INTERFACE	
Connector	15 Pin "D"-Sub Female
Current program	analog, 0-10 V
Current monitor	analog, 0-10 V
Voltage monitor	analog, 0-10 V
SAFETY	
PFC value	> 0.98 (active)
Leakage current	< 150 μ A
Input/output isolation voltage	4000 VAC
Safety approval	IEC60950, IEC60601-1
EMC approval	EN55011 (Class A)
Cooling	No external cooling is required

ENVIRONMENT	
Operation temperature	0 ... +40 °C
Storage temperature	-20 ... +60 °C
Humidity	90%, non-condensing

Interface

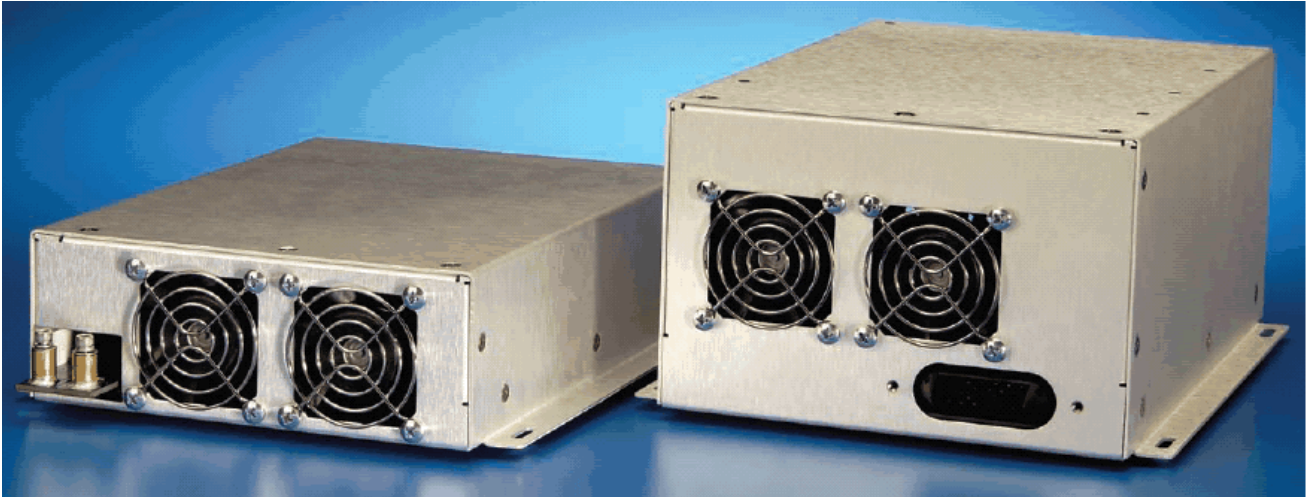
PIN (color)	DESIGNATION	DESCRIPTION
1 (green)	Enable	Apply +5V DC on this pin to enable work of LDD. While 0V are applied to this pin or pin is unconnected module is disabled. Once <i>Fault</i> has occurred module is blocked till you eliminate fault cause, then <i>disable</i> module and <i>enable</i> it again.
2 (orange)	Fault *	If module is <i>enabled</i> and some trouble has occurred, module automatically stops operations and sets <i>Fault</i> status (<i>Fault</i> loop is "closed"). In case of normal operations <i>Fault</i> loop is "opened". Maximal allowed current in <i>Fault</i> loop is 50mA.
3 (transparent)	Interlock	When <i>Interlock</i> loop is "opened" output is inhibited. You should "close" this loop to start operations (electrical resistance of "closed" loop should be below 100 Ohm level). Once <i>Interlock</i> has occurred module is blocked till you "close" <i>Interlock</i> loop, then <i>disable</i> module and <i>enable</i> it again.
4, 9, 15 (black)	Interface Return	Return of all interface circuits. This pin is connected to the GROUND stud.
5 (yellow)	V OUT monitor	The voltage at this pin is a monitor signal proportional to the measured value of voltage on load. 0V at <i>PIN5</i> corresponds to 0V at load. Voltage at <i>PIN5</i> corresponds either to voltage at load ($V_{MAX} < 10V$) or to one-half of this voltage ($V_{MAX} > 10V$).
6 (purple)	I OUT monitor	The voltage at this pin is a monitor signal proportional to the measured value of output current. 0V at <i>PIN6</i> corresponds to 0A. 10V at <i>PIN6</i> corresponds to I_{MAX} .
7 (blue)	I program	Voltage applied to this pin sets output current. 0-10V DC are linear with 0- I_{MAX} .
8 (white)	Pulse	Apply +5V DC on this pin to allow the output. While 0V are applied to this pin or pin is unconnected output is inhibited.
10-12	–	Not used
13, 14 (red)	+15V OUT	Auxiliary 15 VDC output. Maximal current – 100mA.

Fault

Module sets Fault state in the following cases:

- overheating (temperature of the module exceeds 70+/-2 °C level).
To remove Fault status module must be cooled below 65+/-1 °C temperature.
- overvoltage (voltage on the load exceeds 110% of V_{MAX} level).
Most popular causes of such fault are load type mismatch and load absence.
- overcurrent (output current exceeds 1.05 I_{MAX} level)
- incorrect I Program (input voltage exceeds 10.5V level)
Once Fault has occurred you should eliminate Fault cause, then "reboot" module (DISABLE module and ENABLE it again).

LDQCW Series OEM Diode Laser Drivers



The LDQCW series is a new family of OEM diode laser pulsars designed for the emerging high power diode laser industry.

Lumina Power LDQCW diode drivers can be configured for compliance voltage requirements up to 100V.

Maximum efficiency is realized with circuitry that minimizes losses across the output pulsing circuit. Compact size is possible due to the low-loss Zero Voltage Switching inverter and incorporation of planar magnetics.

Leakage current is less than 250uA, 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.

ADVANTAGES

- <25uSec rise/fall times
- 200A pulsing capability
- Power factor correction
- Auxiliary +/-15V outputs
- Compliance voltage capability up to 100V
- Ideal for OEM applications
- ROHS Compliant

AVAILABLE POWER OUTPUTS ARE:

- LDQCW-50: 50Wavg
- LDQCW-250: 250Wavg
- LDQCW-600: 600Wavg
- Pulsed output current up to 200A

Model	Poutmax	Ioutmax	Input Voltage	Size (L x W x H)
LDQCW-50-AA-VV-ZZ	50W	120Amax	90-264VAC	9.9" x 7.3" x 2.6" 25.2 x 18.6 x 6.6 cm
LDQCW-250-AA-VV-ZZ	250W	200Amax	90-264VAC	10.9" x 7.3" x 4.81"
LDQCW-600-AA-VV-ZZ	600W	200Amax	90-264VAC	27.2 x 18.5 x 12.2 cm

AA = Maximum pulsed output current

VV = Required compliance voltage (unit will drive a load between 75% and 100% of this voltage)

ZZ = Maximum pulse width at maximum pulsed output current -specified by customer

Note 1: Average power must not exceed Poutavg

Note 2: Output current and voltage compliance can be configured for individual requirements

Auxiliary Outputs: +/-15V @ 0.25A (Auxiliary output on LDQCW-50: +12V @50mA)

Other configurations available upon request

INPUT

- Voltage: See table above
- Power Factor: >.98

OUTPUT

- Poutavg See table above
- Ipulsemax 200Apeak
- Iavgmax 80A
- Vcompliance max Configurable up to 100V

INTERFACE

- Interface Connector: 15 Pin "D" Sub Female
- Pulse Enable: +5V TTL to +15V CMOS
- Current Program: 0-10V for 0-Ioutmax
- Current Monitor: 0-10V for 0-Ioutmax
- Voltage Monitor: 0-10V for 0-Voutmax

PERFORMANCE

- Pulse Width Range: 50usec to 2msec
- Max Rep Rate: 10kHz
- Rise/Fall Time: <25uSec
- Current Regulation: 1.0% of Maximum output current
- Current Ripple: <0.5% of maximum output current
- Current Overshoot: <5% of maximum output current
- Power Limit: Limited to maximum average power with power fold-back circuit

ENVIRONMENT

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

REGULATORY

- Safety: Compliant with UL60950

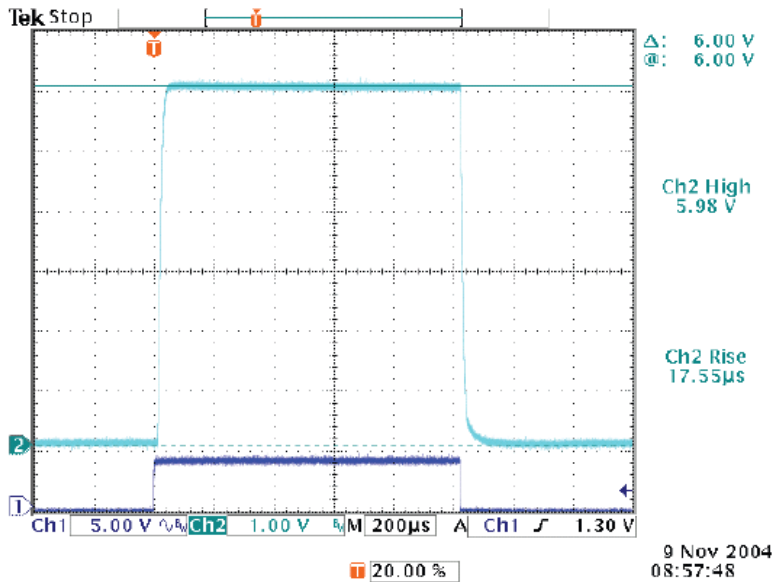
MECHANICAL

- Dimensions: See table above
- Input Power Connector: Phoenix DMKDS 2,5
- Terminal Block
- Output Connector: Ampower Wavecrimp
- Connector #765608-1
- (Strip Line system)

LDQCW Interface

LQCW-250/600-AA-VV-ZZ INTERFACE	
Connector Type: 15 pin D-sub Female	
Pin	#Pin Name
1	Pulse Control
2,3,8	GND
4	Temp Fault
5	Iout Monitor
6	Iprogram (+)
7	Poor Load Match
11	+15V @0.25A
12	Ready Status
13	N/C
14	Enable
15	-15V @0.25A

LDQCW-50-AA-VV-ZZ INTERFACE	
Connector Type: 15 pin D-sub Female	
Pin	#Pin Name
1	Enable
3	Interlock
4,9	GND
5	Vout Monitor:
6	Iout Monitor
7	Iprogram(+):
8	Pulse Control
10,11,12	N/C
13,14	+12V @50mA



TYPICAL PULSING CHARACTERISTICS
CH: 1 - PULSE CONTROL
CH: 2 - IOUT 20A/DIV

