LDYHC High Current CW Diode Laser Drivers



The LDYHC series is a new family of high current OEM diode laser drivers designed for the emerging high power diode laser industry. The LDYHC series can be configured for output current levels up to 200 A.

The LDYHC series includes all the perfomance of the LDY Line laser diode drivers, with its additional functions including including pulsing capability, over-temperature sensing and crowbar shorting of the output. The LDYHC series is ideal for high power applications where economy is important and performance cannot be compromised.

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 LDYHC 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:

- 600W
- 1000W
- 1500W
- Output current up to 200A

LDYHC High Current Laser Diode Driver Specifications

Model	Pout _{max}	lout _{max}	Input Voltage	Size (L x W x H)
LDYHC-600-XX-YY	600W	110A to 200A	90-264VAC	10.25" x 8" x 2.75" 26 x 20.3 x 7 cm
LDYHC-1000-XX-YY	1000W		90-264VAC	
LDYHC-1500-XX-YY*	1500W		180-264VAC	

Auxiliary Outputs: +5V @0.5A

+15V @0.5A -15V @0.5A

XX = Maximum rated output current YY = Maximum compliance voltage

XX*YY cannot exceed Poutmax

*LDYHC-1500 requires 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

Enable Interlock

Current Program: 0-10V for 0-Max Current Current Monitor: 0-10V for 0-Max Current Voltage Monitor: 0-10V for 0-Max Voltage

Overtemp Sense Crowbar Status Pulsing Function

Performance

Rise/Fall Time: <1msec standard (10% to 90% Full Current) (faster response available)

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: Designed to comply with UL60950 (Industrial), UL60601-1 (medical)

Emissions/Immunity: Designed to comply with FCC 47 CFR Class A Emissions,

EN55011:1998 Group 1 Class A Emissions, EN61000-3-2, EN 61000-3-3, EN60601-1-2:2001

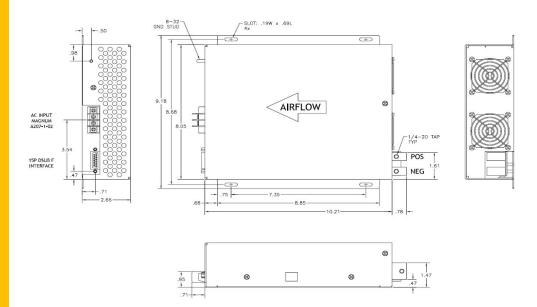
LDYHC High Current Laser Diode Driver Interface

CONNECTOR TYPE: 15 PIN D-SUB FEMALE					
Pin #	LDYHC 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, if the Pulse Control , Pin 8, is High and the Interlock , pin 3 is connected to interface GND . Rise times resulting from Enable are approximately 25msec. For pulsing, the Enable function should be set to ON, and the Pulsing Control , Pin 8, should be used.		
2	Crowbar Status (output)	High = Crowbar ON = +5V Low = Crowbar OFF = 0V	The Crowbar Status reports the status of the shorting crowbar clamp across the output. The crowbar will short the output under two conditions: 1) When the output is not ENABLED via Pin 1, or, 2) if the output is ENABLED via pin 1 but the control circuitry has detected a no- load condition or a voltage requirement on the output that exceeds the maximum voltage rating of the unit. A TTL+5V signal on Pin 2 reports that the crowbar is shorting the output. To turn the crowbar off, an appropriate load must be connected to the LDYHC and the output must be turned off and on via Pin 1, ENABLE .		
3	Interlock (input)	Open = OFF Connect to GND = RUN	The Interlock function must be connected to GND in order for output current to be delivered. It can be used for external interlock functions such as door or overtemp switches.		
5	*Vout Monitor: (output)	0 - 10V = 0 - Vout _{max}	The output voltage of the supply can be monitored by Vout Monitor . For LDYHC's with a maximum rated output voltage less than 10V, Vout Monitor = Vout. For output voltages greater than or equal to $10V$, $0-10V = 0$ - Voutmax.		
6	lout Monitor: (output)	0 - 10V = 0 - lout _{max}	The output current of the supply can be monitored by lout Monitor .		
7	Iprogram(+): (input)	0 - 10V = 0 - Iout _{max}	The power supply output current is set by applying a 0-10V analog signal to lprogram(+) .		
8	Pulse Control (input)	TTL High = On TTL Low = OFF Default = Off	The output may be pulsed by applying a TTL signal to Pulse Control , pin 8. The amplitude of the output current pulse is determined by the voltage programmed via Pin 7, Iprogram(+) . Rise fall times of <1 msec are typical. Rise fall times of 700 usec can be achieved with special order. When using the LDYHC as a CW diode driver, pin 8, the Pulse Control, must be set to TTL High in order for output current to be delivered. Pin 10, +5V, would be a convenient connection point for this. No output current will be delivered with pin 8 left unconnected.		
10	+5V @ 0.5A (output)		Auxiliary +5V power supply for user. Up to 0.5A output current capability.		
11	Over-Temp Warning	TTL High = High Temp TTL Low = Temp OK	When temperature of main heat sink exceeds 65 Deg C, Pin 11, the Over-Temp Warning , will go to a TTL High to indicate unit is in danger of shutting down due to over-temperature condition. When temperature of main heat sink exceeds 75 Deg C, unit will shut down.		
12	-15V @0.5A (output)		Auxiliary -15V power supply for user. Up to -0.5A output current available.		
13,14	+15V @0.5A (output)		Auxiliary +15V power supply for user. Up to 0.5A output current available.		
4,9,15	GND		Interface return		

TABLE 1: LDYHC Interface

^{*} 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 $0-10V = 0-Vout_{max}$.

LDYHC Outline Drawings







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