

Compact Laser Diode Driver For Laser Diodes with TEC and Current Driver



Description

PD-LD's compact Laser Diode Driver is a compact all-in-one unit designed for convenience of use, and combines a user interchangeable mount for a laser diode, SLED, SOA or similar device, a current driver and a TEC controller, all in a self-contained enclosure. This product includes a USB port and a software control application with a graphical user interface (GUI) for real-time device monitoring, control and data logging.

This Driver is used with either a 14-pin butterfly mount (provided with Type I, Type II and custom pin out routing boards) and/or a DIL mount. The mounts are user-interchangeable and are sold separately from the base unit.

Features

- Compact all-in-one laser diode controller
- CW operation and external modulation up to 500kHz
- Operating current range 15 to 2000mA
- USB port and control software included
- Graphical User Interface for real-time monitoring, control and data logging
- 14-pin butterfly mount or 14-pin DIL mount included
- Additional mounts are optional
- Compact size (164x105x95mm)
- 110-240V AC adapter included

Application

- TDLAS
- Laser diode Control

Physical/Optical Characteristics

Items	Parameters
Compatible Laser type	14pin Butterfly package/DILPacakge
Power supply	8~12VDC
Driving Current	Max 2A

Laser diode Driving Current	
Max Driving Current	0~500mA/0-2000mA(Optional)
Max Output Voltage	5V
Internal STW scanning period	10~200ms (Set by Software GUI)
Internal STW scanning Current period	0~200mA (Set by Software GUI)
External modulated signal' s Frequency Range (-3dB)	DC~100kHz
External modulation coefficient	200 mA/V \pm 2%
External modulated signal' s Input Voltage Range *	0~850mV DC
External modulated signal' s Input interface	BNC, Female
External modulated signal' s Input impedance	20k Ω

Temperature Control	
Temperature Control Range	15~50°C
Temperature Display Resolution	0.1°C
Short-term stability (1hr airtight cavity)	0.001°C
Long-term stability (1day airtight cavity)	0.002°C
Temperature sensor	Resistance type NTC, 10 k Ω \pm 1%@ 25°C
TEC Peak Current	\pm 1A
TEC Peak Voltage	5V
Temperature Control Interface	DB9, Male

Others	
Computer Interface	USB type B
Operation Temperature	0~50°C
Store Temperature	-10~80°C
Dimension (LxWxH)	22.8cm*22.0cm*10.1cm
Weight	700g

Note: * The modulation signal peak level is determined by the max driving current of the laser diode,It may Permanent damaged the LASER DIODE When Customer over Modulated.Before Appling the Modulated Voltage into this Drvider.Please make sure the peak Voltage level of the driver suites for the LD' s Safe driving Current.

The following we give out two Operation Conditions:

1. The laser modulation signal is only the external modulation input signal, External modulated signal' s Input Voltage is limited by the max Driving Current(I_{Lim}),The max peak voltage level V_{max} should less than $5 \times I_{Lim}(A)$,and the lowest voltage should $> 0V$, one negative voltage is prohibited.

eg: One DFB LASER DIODE' s max driving Current is 0.15A, External modulated signal' s peak Voltage level should be: $V_{max} \leq 5 \times 0.15 = 0.75V$,The lowest modulated peak voltage should be: $V_{min} \geq 0V$;

2. When the laser modulated signal is selected as the synthesis with external signal and internal sawtooth.When the maximum current of the internal sawtooth wave is set at I_{max} , the minimum current is set at I_{min} , the maximum Volatge level V_{max} of the external modulation signal should be less than $5 \times (I_{Lim} - I_{max}) (A)$, and the minimum level V_{min} of the external modulated signal should be greater than $-(I_{min} / 5)$.

Example: the maximum safe drive current of the laser, 0.15A,

The maximum current of the internal sawtooth wave is $I_{max} = 0.075A$,

The minimum current $I_{min} = 0.015A$,

The external modulation signal peak level V_{max} is less than $5 \times (0.15 - 0.075) = 0.375V$.

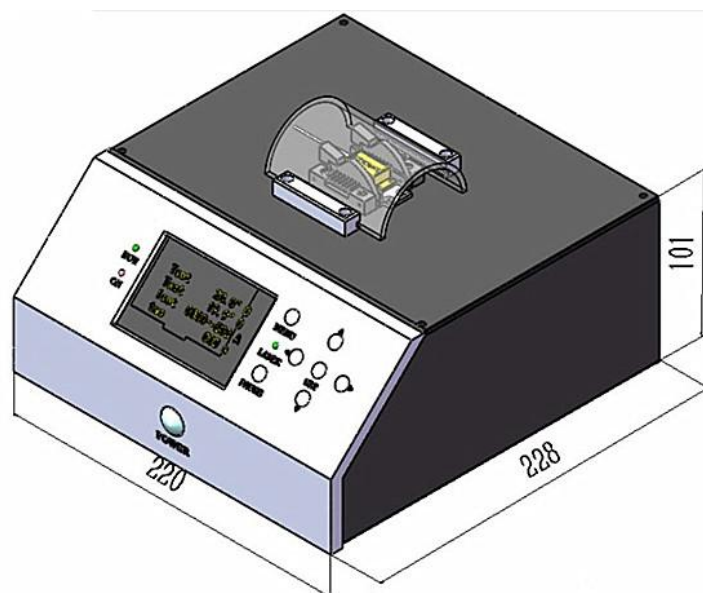
The minimum level V_{min} is $(0.015) \div (5) = -0.003V$;

Software GUI



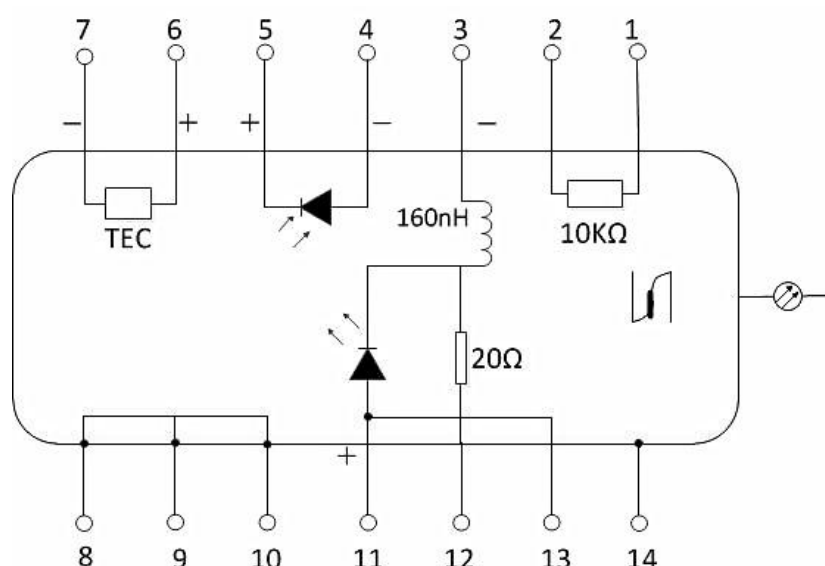
Dimensions and Pin definitions

Unit in mm



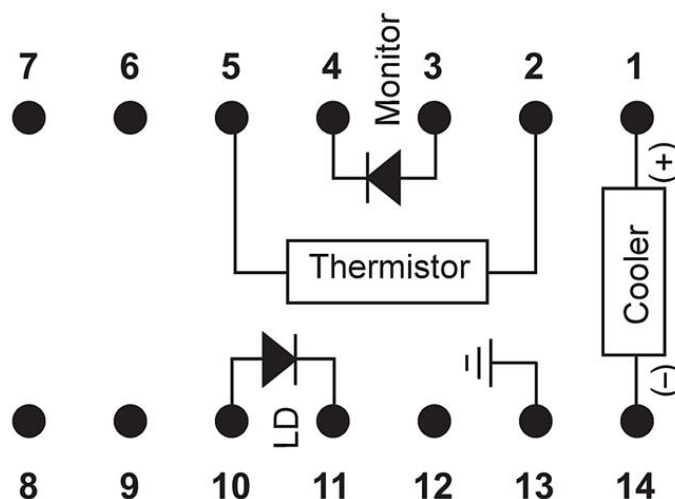
Two definitions for optional

Type A



1	Thermistor	8	Case Ground
2	Thermistor	9	Case Ground
3	Laser dc Bias (Cathode) (-)	10	Case Ground
4	PD Monitor Anode (-)	11	Laser Anode (+)
5	PD Monitor Cathode (+)	12	RF Laser Input Cathode (-)
6	Thermoelectric Cooler (+)	13	Laser Anode (+)
7	Thermoelectric Cooler (-)	14	Case Ground

Type B(Pump Type)



1	Thermoelectric Cooler (+)	8	Laser Cathode (-)
2	Thermistor	9	Laser Cathode (-)
3	PD Monitor Anode (-)	10	Laser Anode (+)
4	PD Monitor Cathode (+)	11	Laser Cathode (-)
5	Thermistor	12	N/C
6	N/C	13	Case Ground
7	N/C	14	Thermoelectric Cooler (-)

Absolute Maximum Ratings

Item	Symbol	Unit	Min	Typ	Max	Testing Condition
Axial Pull Force		N	-	-	5N	3x10s
Side Pull Force		N	-	-	2.5N	3x10s
Fiber Bend Radius			16mm			-
Store Temperature	TSTG	°C	-40	-	+85	2000hr
Operating Temperature	TOP	°C	-55	-	+125	
Relative Humidity	RH		5%	-	95%	Noncondensing

Ordering Info

PL-LDM☆-□

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500: Max Driving Current at 500mA

2000: Max Driving Current at 2000mA

□:

A-Type A pin definition

B-Type B pin definition