DATASHEET

evolase Oy

PLD-CW-2000H-ZIF

PRECISION CONSTANT CURRENT **LASER DIODE DRIVER**

Key Features

- Special Design for 10/14 pin Butterfly Laser Diode
- High Precision Constant Current Mode
- Output Current up to 2000 mA
- High Current Stability: 0.01 mA
- Control interfaces USB, RS-232, CAN
- LabView compatible
- Python libraries
- Analog and Digital full current amplitude Modulation
- Optical power stabilization mode
- On-Board TEC Controller
- Regulated Maximum TEC Current
- Hi precision temperature stability: 0.01 deg
- 5Vdc Input Power
- Completed by Heatsink
- Compact Size 100 mm × 85 mm × 31 mm

Evolase Oy
Kivipolku 1
56100 Ruokolahti, Finland
Tel. +358 41 477 47 81
VAT 32417214
evolase.com

Description

The PLD-CW-2000H-ZIF is a constant current laser diode driver for powering 10/14-pin butterfly laser diode modules for applications, which require high precision low ripple constant current regulation.

The driver circuitry operates from a single 5Vdc power source. The driver supplies a bidirectional proportional-integral-derivative (PID) thermoelectric cooler controller (TEC) with current capability of 4A and voltage capability of 4V. Maximum TEC current is regulated by user.

The main parameters of PLD-CW-2000H-ZIF (output current, temperature set, maximum TEC current, monitor photodiode signal) are controlled by computer interface. The GUI can control multiple drivers connected by CAN/USB hub.

The driver supports full amplitude modulation of drive current by an external analog 0…5 V and TTL signals.

Driver has special push-in connector for easy connecting butterfly laser diode directly into driver board and large heat sink for stable heat dissipation.

Specifications

Parameter	Min.	Typ.	Max.	Units
INPUT				
Voltage	4.8	5.0	5.2	Vdc
Current	-	-	3	A
OUTPUT				
Current	-	-	2000	mA
Current Regulation Step	-	0.01	-	mA
Current Ripple amplitude	-	-	0.1	%
Current Stability	-	-	0.1	%
Current Set Accuracy	-	-	1	%
Compliance Voltage	1	-	3	V
TEC current setting range	-4	-	+4	A
TEC Voltage	1		4	V
TEC Temperature Set	5	25	50	˚C
TEC Temperature Step	-	0.01	-	˚C
TEC Temperature Accuracy	-	-	0.1	%
MODULATION				
Trigger input voltage	3.3	-	5	V
Trigger input impedance	-	500	-	Ω
Trigger pulse frequency	-	-	3	kHz
Trigger pulse width	150	-	-	µS
Current rise time	100	-	140	µS
Current fall time	80	-	160	µS
Analog input voltage	0	-	5	V
Analog input impedance	-	400	-	Ω
Current setpoint	-	400	-	mA/V
Analog input frequency	-	-	3	kHz

Parameter	Min.	Typ.	Max.	Units
TEMPERATURE				
Operating	+10	-	+50	˚C
Storage	-20	-	+70	˚C
Humidity, Non-Condensing	-	-	95	%
CONNECTIONS				
Power	2 mm / 5.5 mm Jack (PJ-05AH Cui Devices)			
USB	Mini-USB, Type B (1734035-1 TE connectivity)			
Interface connector	Terminal block (1-282834-0 TE connectivity)			
MECHANICAL				
Size	100 × 85 × 31 mm			
Weight, not more	200 g			

Interface connector pinout

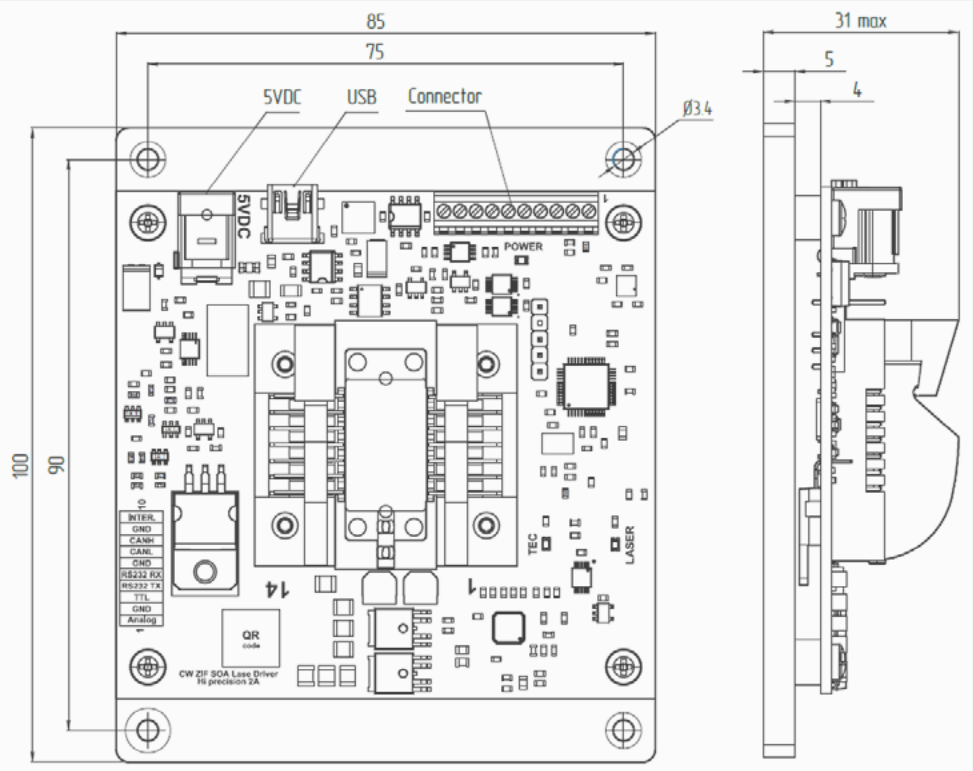
PIN	Function	Description
1	ANALOG	Analog modulation input. Connect to the external analog voltage or external sinusoidal signal generator for control output current. 0÷5V analog input correspond to 0÷2A output current. Current setpoint is 400mA/V. Input impedance is 400 Ω. Choose “ANALOG” mode by PC software and press “ON/OFF” button to activate output current and control it by analog input. Maximum frequency of external sinusoidal signal is 3 kHz, that supports 2A modulation amplitude. The modulation amplitude gets smaller at higher frequency.
2	GND	Device ground
3	TTL	Trigger input. Connect to the external TTL signal generator for triggering output current. The amplitude of external trigger must be 3.3V to 5V range. Input impedance is 500 Ω. Choose “External” mode by PC software and press “ON/OFF” button to activate triggering output current by external input. Current amplitude sets by PC software. Maximum frequency of external triggering signal is 3 kHz.
4	RS232 TX	RS232 port transmit
5	RS232 RX	RS232 port reception
6	GND	Device ground
7	CANL	CAN bus high
8	CANH	CAN bus low
9	GND	Device ground

INTERLOCK

Connect to the external interlock circuit. Open: device is locked. Closed: device is operational. Internally pulled up to 3.3 V by 1 kΩ resistor. Use open collector or dry contact.

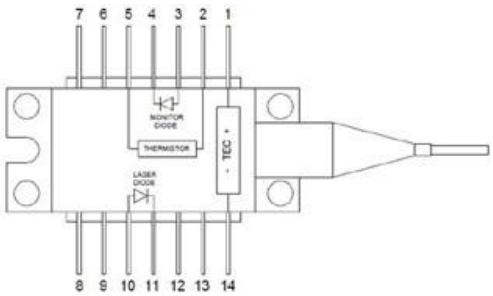
Note: The laser emission can only be started when the interlock circuit is closed

Dimensions and Connections



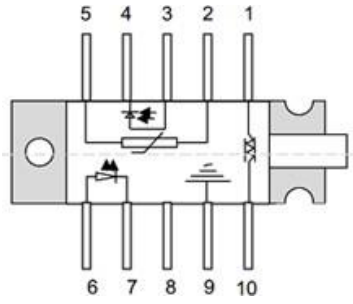
Compatible Laser Pinout

14- pin Butterfly package



№	Description	№	Description
1	TEC Anode	8	n/c
2	Thermistor	9	n/c
3	Monitor PD Anode	10	LD Anode
4	Monitor PD Cathode	11	LD Cathode
5	Thermistor	12	n/c
6	n/c	13	n/c
7	n/c	14	TEC Cathode

10-pin Butterfly package

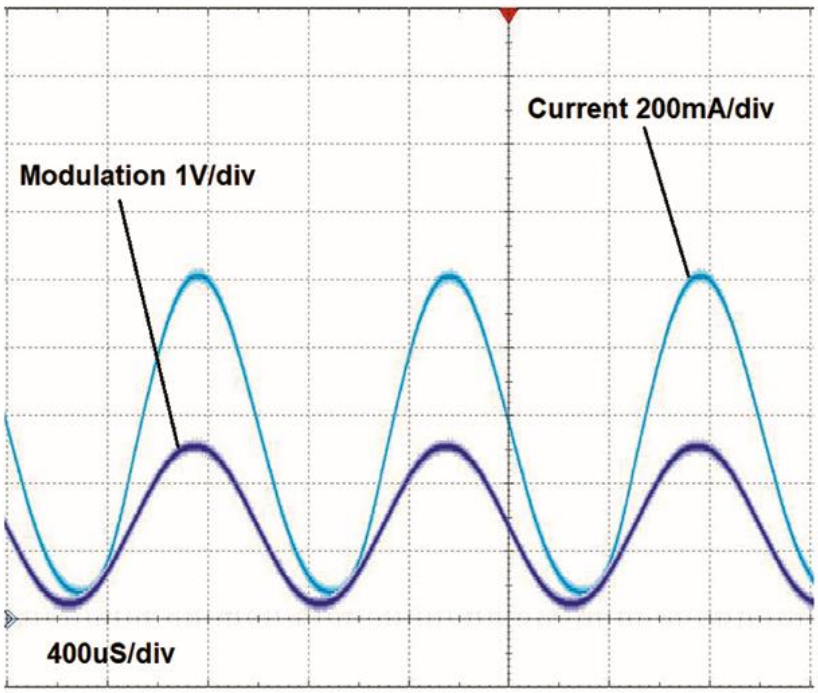


№	Description	№	Description
1	TEC (+)	6	Laser anode (+)
2	Thermistor	7	Laser cathode (-)
3	Monitor anode (-)	8	NC
4	Monitor cathode (+)	9	Package ground
5	Thermistor	10	TEC (-)

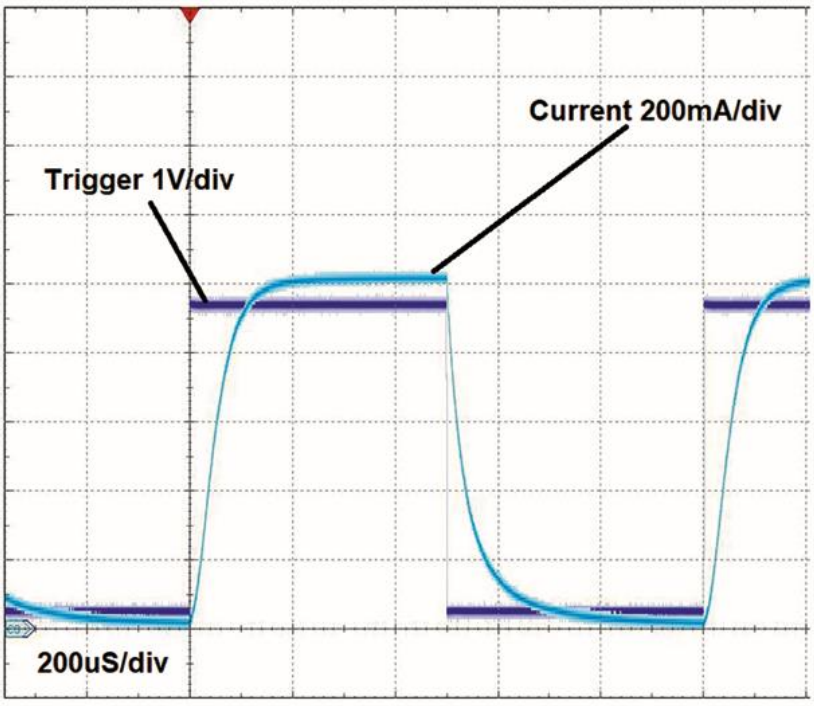
Power supply

Recommended type of power supply unit MEAN WELL RS-25-5.
It is possible to use other power sources with an output voltage of 5 V and a current of up to 5 A.

Typical Performance Characteristics



1. Output current waveform, modulated by external sinusoidal signal generator with frequency 1 kHz



2. Output current waveform, modulated by external trigger signal generator with frequency 1 kHz. Current amplitude is set at 1A by PC software

Typical Performance Characteristics