



# 1064nm Grating-Stabilized CW Laser Diode Source

## 700 mW CW Output Power



### 1064LD-1-1-6 / LASER-DIODE

#### FEATURES

- o CW Output Power up to 700mW
- o Fiber Bragg Grating Stabilized
- o PM Fiber SM98-PS-U25D-H
- o FC/APC Terminated
- o Integrated TE Cooler, Thermistor, Monitor PD
- o Hermetically Sealed 10-Pin Butterfly Package

#### APPLICATIONS

- o Fiber Laser Systems
- o Frequency Conversion
- o Spectroscopy

Note: this laser diode is based on a Fabry-Perot technology with Bragg grating. The laser pulse takes ~100 ns to lock on the Bragg Wavelength. Short pulses have a significantly broader bandwidth than 1 nm.

#### 1064NM GRATING STABILIZED

This wavelength stabilized high power laser module has been designed as a light source for narrow bandwidth fiber laser and direct frequency conversion applications.

A fiber Bragg grating (FBG) is located within the fiber about 1 m from the laser diode butterfly module. The small back-reflection generated by the FBG allows to get a very stable and narrow emission spectrum at the center wavelength of 1060 nm  $\pm$ 0.5 nm. It is not possible to tune the wavelength by tuning the laser diode chip temperature as the FBG "locks" the wavelength at 1060 nm.



## 1060NM GRATING STABILIZED CW SYSTEM SPECIFICATIONS

### 1060NM CW FBG LASER DIODE OPTICAL OUTPUT SPECIFICATIONS

- Center Wavelength: 1060 nm ( $\pm 0.5$  nm)
- CW Output Power (typ): 700 mW
- Emission Bandwidth:  $<0.2$  nm

### CONTROL ELECTRONICS AND MOUNTING MODULE

- TEC Current Range: 0.0 - 1.5 Amps
- TEC Voltage Range: 0.0 - 4.8 Volts
- TEC Controller Compatible with NTC Thermistors: 1k $\Omega$  - 100 k $\Omega$
- Mounting Socket Base Material: Anodized Aluminum
- Mounting Socket: Zero Insertion Force Socket

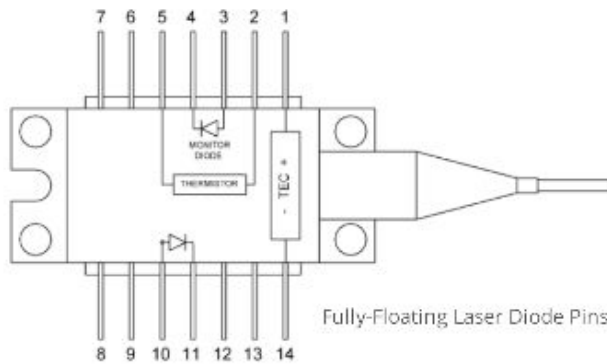
### USER INTERFACE , DIMENSIONS AND POWER INPUT

- Current Adjustment through Side Panel Control Knob or USB
- Remote Interface: USB
- Control Software: Control Software Windows GUI Included
- Input Power Supply: 12 VDC (220V/110V adapter included)
- Module Dimensions: 126.8mm (W) x 130mm (L) x 32.5mm(H)
- Libraries: DLLs - Hexa/Linux - Labview - Python
- Analog Interface (0 - 3.3V): Peak Power Adjustment
- OS Compatibility: Windows XP / Windows 7

### DFB LASER DIODE FIBER AND CONNECTOR

- Fiber Type: PM, Polarization Maintaining Nufern PM980-HP or equivalent
- Mode Field Diameter: 6  $\mu$ m
- Buffer Diameter: 250  $\mu$ m
- Fiber Length: 1 meter
- Connector: FC/APC, PM Aligned to Slow Axis
- Integrated Fiber Bragg Grating
- Also available without Fiber Bragg Grating (inquire)

### Butterfly Laser Type-1 Pinout



1	TEC (+)	8	NC
2	Thermistor	9	NC
3	PD Anode (+)	10	LD Anode (+)
4	PD Cathode (-)	11	LD Cathode (-)
5	Thermistor	12	NC
6	NC	13	Case Ground
7	NC	14	Thermistor (-)



### **PRE-CONFIGURED 1060NM CW SOURCE**

These CW 1064 nm laser source & control modules offer the user a pre-configured, calibrated solution for test and sensing applications. A fiber Bragg grating is installed in the fiber, about 1 m from the butterfly package. Both the chip in the butterfly package and the package itself were designed and optimized to provide excellent long term reliability. The coupling of the laser light into the fiber is based on proprietary techniques and manufacturing processes that provide high peak output power. The power is very stable over time and over temperature.

### **INTEGRATED DFB LASER DIODE SOURCE**

The laser package style is a 14-pin butterfly which is fiber coupled with PM fiber. The laser is rated for operating power up to 700 mW CW output power, and the control system is able to drive the laser to output up to 700mW power in CW mode. The source laser butterfly package incorporates a thermoelectric cooler (TEC), a precision NTC thermistor and a back-facet monitoring photodiode. All of these integrated elements can be controlled and monitored through the control electronics module. These sources have a Polarization Maintaining Fiber (PMF) pigtail. Other key features of these 1064 nm devices include high polarization extinction ratio and long MTTF.

### **LASER DIODE CONTROL ELECTRONICS AND BUTTERFLY MOUNTING MODULE**

The control electronics and mounting module for these laser diodes delivers high stability bias current, a precision TEC controller and a pre-configured ZIF mounting socket. These

control modules offer multiple mechanical, thermal and electronic protection features. They ensure that your laser diode is protected and operated safely. The on-board TEC controller incorporates a fast feedback PID control loop to provide high temperature set-point stability. A user-set temperature limit keeps the source from thermal damage. Additionally, multiple bias current / voltage protection features are designed to keep the source safe from ESD, power outages and reverse voltage. A user controlled current limit clamps the current at the set limit level.

### **USB AND CONTROL SOFTWARE**

The user can set and monitor all of the control parameters of the 1064nm source laser using the USB input and the supplied GUI software. These units ship with the USB cable to connect your PC to the connector on the side panel. A simple to use single page menu graphical user interface allows you to control all of the pulse or CW parameters as well as set current and temperature limits.

Other features of these control modules include a daisy chain output, sync output, alarm monitor and back facet monitor output to monitor the DFB laser's power.



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