



# 1064nm DFB Laser Diode Source System

## Single-Frequency Laser, 200mW CW Output Power

### 1064LD-2-1-1 / LASER-DIODE / CCS-CW



- o User-Adjustable Output Power up to 200 mW
- o 200 kHz Spectral Line Width
- o PM Fiber SM98-PS-U25D-H
- o FC/APC Connector, PM Aligned to Slow Axis
- o Integrated TE Cooler, Thermistor, Monitor PD
- o Hermetically Sealed 10-Pin Butterfly Package

### 1064NM SINGLE-FREQUENCY LASER DIODE SOURCE

This 1064nm CW source system is built around a wavelength stabilized DFB butterfly laser diode, in a preconfigured, pre-tested precision control system delivering up to 200mW CW power.

The laser is mounted in the controller and mounting module, configured for safe operation, and tested to ensure long-running reliable operation. The CCS controller system provides wide-ranging

control over the laser operating parameters, laser drive current, and laser temperature.

The source system is easily operated using the included graphical user interface over USB interface, and multiple systems can be operated together by the same computer.



## 1064NM SINGLE-FREQUENCY DFB SOURCE SPECIFICATIONS

### 1064NM DFB LASER DIODE CW OPTICAL OUTPUT SPECIFICATIONS

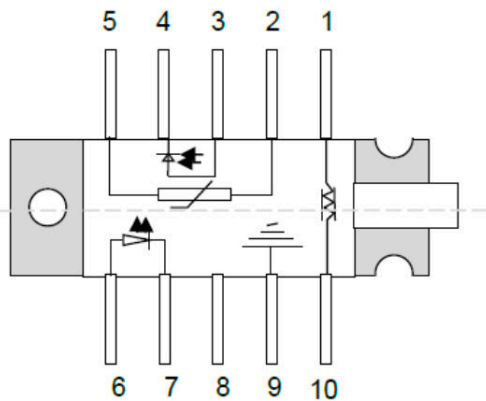
- Center Wavelength: 1064nm ( $\pm 1$ nm)
- CW Output Power (typ): 200mW
- SMSR (<10ns pulse width): > 25dB
- Spectral Width (FWHM @ 100ns Pulse Width): 200 kHz (typical)

### 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

### CW ELECTRONICS SPECIFICATIONS

- Output Current CW Mode: 0.00 mA - 800.00 mA
- Output Voltage Maximum: 4.8 Volts
- Current Noise and Ripple (100Hz to 10 MHz): < 0.03% of Full Scale
- Current Set-point Resolution @ 500mA: 0.1mA
- Current Set-point Resolution @ 1000mA: 0.3mA



Pin	Description	Pin	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 (-)



## 1064NM SINGLE-FREQUENCY DFB SOURCE SPECIFICATIONS

### TEMPERATURE CONTROLLER & MOUNTING SOCKET SPECIFICATIONS

- TEC Current Range: 0.0 - 1.5 Amps
- TEC Voltage Range: 0.0 - 3.8 Volts
- TEC Controller Compatible with NTC Thermistors: 1k $\Omega$  - 100 k $\Omega$
- Mounting Socket Base Material: Anodized Aluminum
- Mounting Socket Technology<sup>2</sup>: 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: 146mm (W) x 130mm (L) x 37mm(H)
- Libraries: DLLs - Hexa/Linux - Labview - Python
- Analog Interface (0 - 3.3V): Peak Power Adjustment
- OS Compatibility: Windows XP / Windows 7



## **Pre-Configured 1064nm CW DFB Source**

These CW 1064 nm DFB laser source & control modules offer the user a pre-configured, calibrated solution for test and sensing applications. The integrated 1064 nm laser diode source module is a II-VI Laser Enterprise fiber coupled single frequency DFB. A distributed feedback grating located in the laser cavity provides the wavelength stabilization. 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 low profile mini-butterfly which is fiber coupled with PM fiber. The source is rated for operating powers up to 200 mW (CW) in continuous wave 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 DFB sources have a Polarization Maintaining Fiber (PMF) pigtail. Other key features of these 1064 nm devices include high polarization extinction ration 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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**AeroDIODE**

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