

## LASER DIODE CONTROL ELECTRONICS MODULE – SF8150-NM



### ADVANCED PERFORMANCE LASER DIODE CONTROL ELECTRONICS MODULE

- ◇ An All-Inclusive Laser Diode Control Solution:
  - Low Noise Laser Diode Current Source
  - TEC Controller
- ◇ Complete Protection for Your Laser Diode:
  - Soft-Start Current Ramp
  - User Set Current Limit
  - User Set Temperature Limit
  - Zener Diode to Shunt Power Surges
- ◇ PC Control Through RS232 or USB
- ◇ Analog Control Signals Connector to Simplify Integration into a Laser System Product
- ◇ Free Control Software with GUI

Semiconductor Laser Sources and Control Instruments



Laser  
Diode  
Controllers



## ALL-ENCOMPASSING PROTECTION FOR YOUR LASER DIODE

### **On-Board Component Level Protection Against Input Power Surges and Reverse Voltage Transients:**

An integrated on-board zener diode in parallel with the bias current path protects the laser diode from damage which can occur from reverse voltage transients. These transients can occur when a standard DC power supply source is momentarily interrupted due to a black-out or brown-out power outage.

### **User Adjustable Laser Diode Current and Temperature Set Point:**

The user can set current limit and TEC thermistor temperature through on-board potentiometers. Limits can also be set using your PC through the included control software. Analog and digital signals provide feedback to the control system if there is an over-current or over-temperature error.

### **Soft-Start Current Ramp:**

There is an internal 900 millisecond soft-start ramp to the current set-point. This reduces the potential for thermal shock to the laser at power ON and is used to ensure good electrical contact prior to fully applying the current bias the laser diode.

### **Laser Diode Bias Current and DC Power Shunting Clips:**

These module ship with a jumper clip that shunts the laser diode bias current path of the driver to protect the laser from ESD or static discharge when the user is installing the laser into the mounting socket. This shunt also protects the laser when the user is connecting the DC power or any other external equipment.



### **Precision 1500 mA Current Source with 16 Watt TEC Controller / Compact Module**

These 1500 mA low noise laser diode controllers are designed to precisely provide drive current and control the temperature of 200mW to 1W output power laser diodes. These controllers are an excellent choice for product integration or for an affordable solution to laboratory test set-ups.

### **Small Footprint Laser Diode Controller**

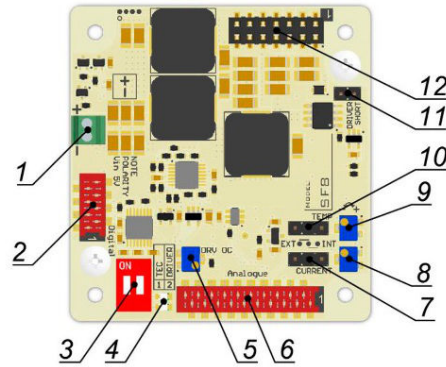
These modules are the smallest footprint controller which is commercially available. Careful selection of components and exacting design criteria allows the modules to provide complete control of your pump laser in a 61mm x 58mm package.

### **Multiple Integrated Laser Diode Protection Features**

These controllers are designed to provide a series of protection features to ensure the safety of your laser diode. The module ships with a jumper which shunt the LD bias current path of the driver to protect the laser diode from any ESD / static discharges when a user is installing the diode into the mounting socket. This shunt also protects the laser when the user is connecting the DC power, the control connector or any other external equipment. An integrated reverse diode protects the laser diode from any possibility of damage from reverse current and reverse voltage. The user can set a current limit and temperature limit through the analog control connector port on through the on-board trim potentiometers. These controllers also offer a ~ 900 millisecond soft-start ramp to the current set point to avoid the potential for thermal shock to the laser.



## Connectors



- 1 - Inpute Voltage 5V
- 2 - Digital Control
- 3 - Enable Switch
- 4 - Overcurrent Protection and Interlock LEDs
- 5 - Driver Current Limit
- 6 - Analogue Control
- 7 - Driver Control Switch
- 8 - Driver Current Trim
- 9 - TEC Temperature Trim
- 10 - TEC Control Switch
- 11 - Driver Contacts Short
- 12 - Output Socket

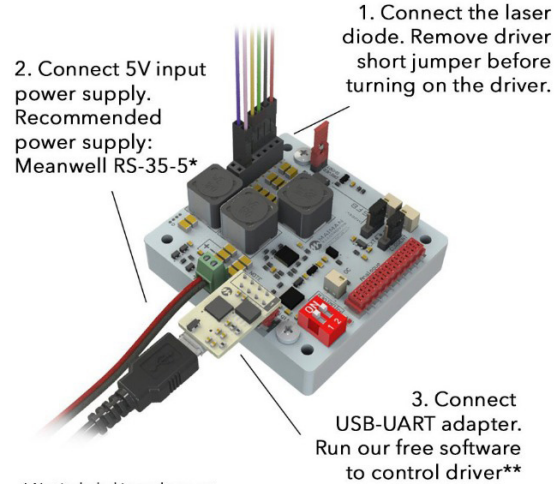
Product includes control software GUI for simple set-up and monitoring of your laser diode; alternately - you can use the trim pots on the board or the analogue control connector



Software opens when you connect the USB adapter board; USB adapter board is included with shipment



### How to get started with SF8xxx-NM?



\* Not included in package set  
\*\* SF8xxx also can be controlled by analogue signals and switches on the board

### Recommended / Compatible DC Power Supplies Available to Purchase with this Control Electronics & Mount Module

#### Affordable General Purpose Switch Mode DC Power Supply:

*Mean Well LRS-35-5 (5V, 7A)*  
Good choice for pump lasers  
(ie 808nm, 976nm, 980nm)



#### More Expensive Low Noise Linear DC Power Supply:

*Condor HCS-6-OV-A+G (5V, 6A)*  
Linear supply for lower noise performance; best suited for single frequency laser diodes  
(ie DFB, DBR)





## SF8150-NM SPECIFICATIONS

### CURRENT, VOLTAGE & TEC CONTROLLER

- Output current LD (I): 0 - 1500 mA
- Output voltage LD (V): 0.5 - 3 V
- Current stability: 0.1 %
- Current set accuracy: 1 %
- Output current noise: 10-15  $\mu$ A
- TEC output current:  $\pm$ 4A
- TEC output voltage:  $\pm$ 4V
- TEC output current ripple: 2 - 4mA
- Temperature Control Range: +15 to +40 °C

### LASER DIODE PROTECTION

- Current limit
- Temperature limit
- Reverse current protection
- ESD and transient protection
- Soft-start laser diode current ramp

### DIMENSIONS AND WEIGHT

- Dimensions 57.9 x 61 x 22 mm
- Weight: 115 g

### USER INTERFACE

- Trim Potentiometers for Driver Current and TEC Power
- Analog
- RS-232 / UART/ USB

### INPUT AND RECOMMENDED DC SUPPLY

- Input voltage range (Vin): 5 V
- Recommended Linear / Switching Power Supply Options:
- Condor HC5-6-0V-A+G Linear Power Supply for better low-noise performance, narrow DFB laser line width
- Mean Well LRS-35-5, Switching Power Supply more economical; ideal for pump lasers

### SHIPPING KIT (INCLUDED PARTS)

- Laser Diode Controller – 1 pcs
- 50 cm ribbon cable with one 8-pin connector – 1 pcs
- 50 cm ribbon cable with one 20-pin connector – 1 pcs
- Datasheet & User Manual – 1 pcs

### WARRANTY PERIOD

- 1-year manufacturer's warranty

### OPTIONS AND ACCESSORIES

- USB Adapter: Part Number CL1 ~ price \$35.00



**PRODUCT WARRANTY:**

This product is sold with a full one year warranty. The warranty includes all parts and labor. It is warranted to be free from defects in material and workmanship for a period of one year from the date of shipment. The warranty does not include damage to the product due to customer mishandling or use of the product outside of its specified maximum ratings.

**INSTALLATION SUPPORT OR TECHNICAL SUPPORT FOR THIS PRODUCT:**

**800-887-5065 extension 1**  
**[contact@laserdiodesource.com](mailto:contact@laserdiodesource.com)**



**LASER DIODE**  
TECHNOLOGIES

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