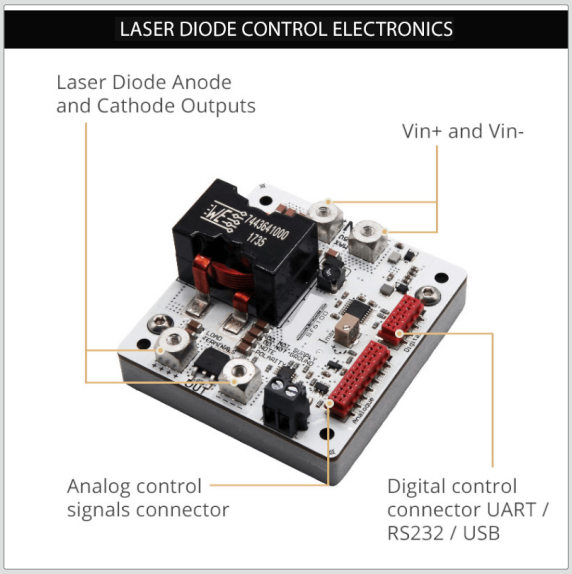
LASER DIODE CONTROL ELECTRONICS MODULE – SF6100



LASER DIODE DRIVER MODULE

- Up to 25 Amp Output Current
- Up to 40 V Compliance Voltage
- Soft-Start Current Ramp, Current Limit, Reverse Voltage Protection
- NTC Thermistor Input for Laser Over-Temperature Fast Shut-Down
- GUI Control Software Included

A Division of Laser Lab Source
LaserDiodeSource.com | LaserDiodeControl.com | LaserDiodeTechnologies.com

800-887-5065

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.

Additional External Over-Temperature Monitor/ Shut-Down Input:
Primarily designed for integration of the module into a laser system, an additional thermistor input is provided to allow the user to monitor the temperature from an external measurement point. This can then be used to shut off the laser diode if the temperature limits for the laser are exceeded.

Soft-Start Current Ramp:
There is an internal 500 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.

Controller Over-Temperature Protection:
The controller module includes an on-board sensor to prevent over-temperature operation of the controller. The controller issues a warning if the temperature exceeds 60ºC, and shuts down the laser driver if the temperature exceeds 80ºC. Operation resumes when the temperature falls below 58ºC.

Advanced Performance Laser Diode Control Module

These 40 Volt high performance OEM laser diode drivers are the ideal choice for next generation multi-single emitter pump laser diodes in the 808nm to 980nm near IR range. These CW drivers offer a very small form factor and high reliability. They are used to power high compliance voltage devices which typically require 15 to 40 Volts and have multiple singe emitters connected in series. These next generation pumps from companies such as Lumentum, BWT, II-VI and IPG Photonics. The Model SF6100 drivers are designed for demanding system integration applications which require the highest levels of reliability. They also offer a very affordable choice for laboratory research applications. The SF6100 is equipped with an integrated NTC thermistor monitor circuit to provide fast shut-down of the output current to the laser if a maximum temperature limit is reached.

Flexible Control Interfaces and Control Software with GUI Included

The model SF6100 offers the user multiple interface methods to set and measure the modules parameters. For simple, fast start-up, the module has trim potentiometers which the user can access on top of the control board. This manual mode of control is typically used to make sure the driver is functioning properly prior to connecting the laser. For complete control of all parameters, the user has the choice of using an analog control signal connector or a digital interface. The 8 pin RS23 / UART digital interface and the 14 pin analog control connector are both described in detail in the attached brochure.

Sourcing Current to your Laser and the Crowbar Clamp Protection

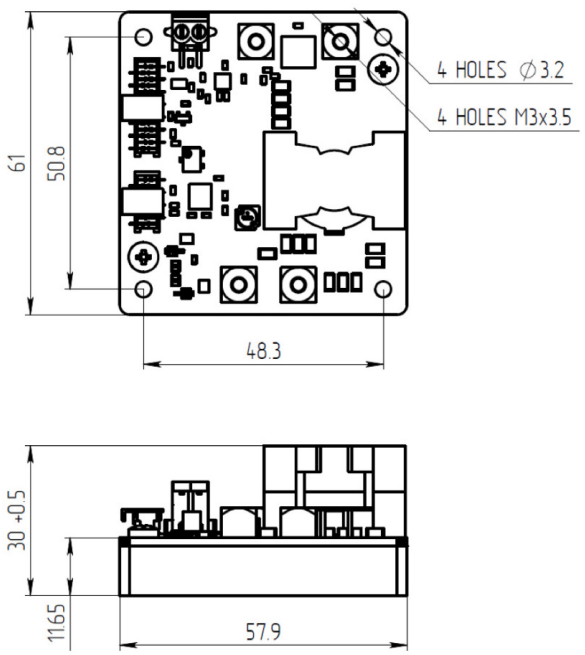
The modules are initially enabled by applying an active high 3.3V ~ 5V DC compatible logic input signal. The driver sources current and begins to operate when the 5V input enable pin is high. To ensure that the current enable is applied without overshoot, a slow start sequence initiates when the enable pin is set high. The enable pin can also be used in the quasi-CW mode. The output current is set by applying an analog signal to the current set pin on the control connector. The current set pin can be used for analog modulation by applying sign wave, square wave or ramp signal. The output may be pulsed by applying a TTL square signal to enable pin.

These high power drivers offer a highly reliable crowbar clamp to short the current and disable power to your laser diode. There is a pin on the control connector which shows the crowbar protection circuit status. The crowbar will short the output while the module is in an over-current shutdown or an over-temperature shutdown mode.

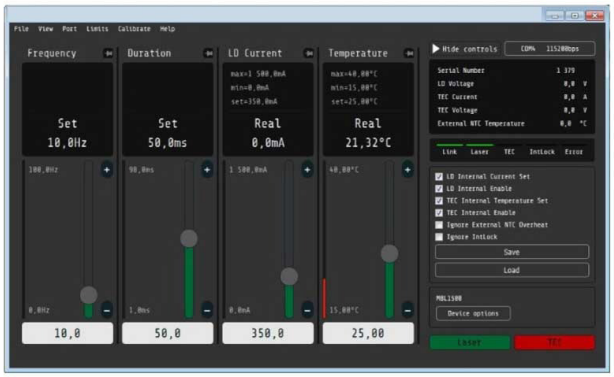
Driver Safety Interlock, Current Monitoring and Voltage Monitoring

These drivers provide many protection features for high compliance voltage devices and laser diodes connected in series. They offer a user-set current limit, an over-temperature protection circuit, protection against forward and reverse current transients and crowbar circuit protection. The crowbar circuit shorts the output during an over-current shutdown or over-temperature shutdown sequence. A reverse diode protects the laser diode from reverse current surges. These integrated protection features allow the SF6xxx modules to safely drive non-linear loads such as laser diodes and LEDs. These current sources offer an analog voltage control input as well as RS232 digital interface.

Dimensions

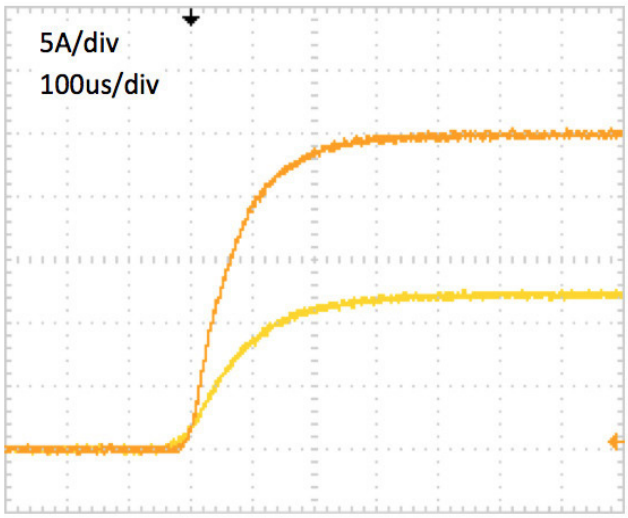


Product includes control software GUI for simple set-up and monitoring of your laser diode; alternately - you can use the trim pots on the board or the analog control connector



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

Rise time



Recommended Switching Power Supply
Mean Well RSP-1000-48 *

* Can be purchased with the Laser Diode Controller

SF6100 SPECIFICATIONS

LASER DIODE CURRENT & VOLTAGE

- Output Current Range (I): 0 ~ 25 Amps
- Output Voltage (V): 5 ~ 40 Volts
- Current Set-Point Step Size: 0.01 Amps
- Rise Time: (Iout = 12.5A) min.140µs; max.300µs
- Rise Time: (Iout = 25A) min.130µs; max.250µs
- Fall Time: min - 10µs; max.50µs
- Current Stability: <0.2 %
- Current Setpoint Absolute Accuracy: <1 %

LASER DIODE PROTECTION

- Soft-Start Ramp to Current Setpoint
- User Adjustable Current Limit
- Over-Current Protection Fast Shutdown
- Over-Temperature Thermal Warning and Shutdown
- Reverse Current Protection
- Crowbar Circuit Protection
- Disable Input
- Interlock

DIMENSIONS AND WEIGHT

- Dimensions: 61mm x 58mm x 30mm
- Weight: 162 g

USER INTERFACE

- Analog
- RS232/UART Digital Interface
- USB Optional: $25.00 (Option UART-USB)
- Enable / Disable Input Signal Input
- User Adjustable Trim Potentiometer Current Limit

DRIVER INPUT

- Input Voltage Range (Vin): 12V to 55V
- Recommended Switching Power Supply: Mean Well RSP-1000-48, available for purchase with this laser diode controller.

PACKAGE SET

- Driver – 1 pcs
- 50 cm ribbon cable with one 8-pin connector – 1 pcs
- 50 cm ribbon cable with one 14-pin connector – 1 pcs
- Wires fixing set – 1 pcs
- Datasheet & User Manual – 1 pcs

WARRANTY PERIOD

- 1-year manufacturer's warranty

PRODUCT WARRANTY:

This product is sold with a full one year warranty. The warranty includes all parts and labor. It is warrantied 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

LASER DIODE TECHNOLOGIES

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LaserLabSource.com
LaserDiodeSource.com
LaserDiodeControl.com
Laser Diode Technologies

Laser Lab Source Inc.
1820 W. Lincoln Street
Bozeman, MT USA 59715
contact@LaserDiodeSource.com
contact@LaserDiodeControl.com
800-887-5065