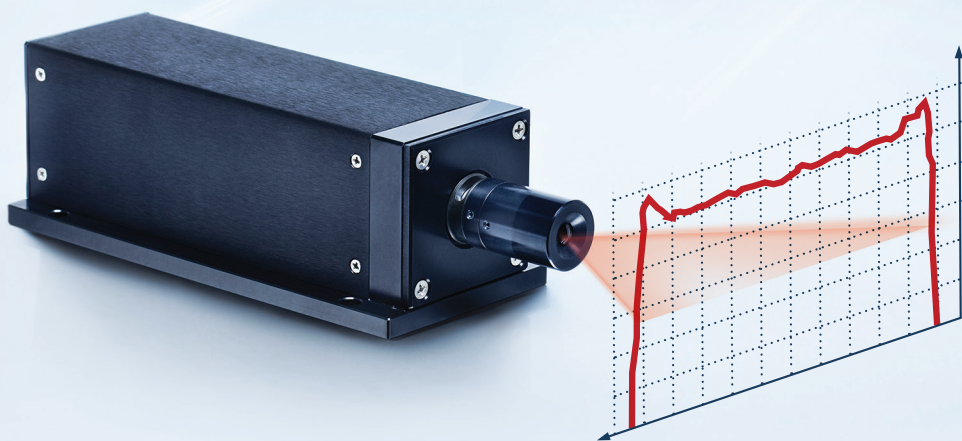




STRUCTURED LIGHT AND
LASER BEAM SHAPING SOLUTIONS

ILS: INDUSTRIAL LASER SYSTEM



INSTRUCTION MANUAL

WARNING!

The laser light emitted by this unit may be in the infrared (non-visible) region of the electromagnetic spectrum. Avoid Exposure to direct or scattered radiation from the laser. Use extreme caution at all times when the laser is in use.

The output power of these laser devices is sometimes high enough to cause permanent damage to the human eye. You should wear appropriate laser safety goggles at all times when the laser is operational.

All laser safety warning labels are provided on the unit and be taken into note. Warning labels comply with IEC 60825-1

LASER RADIATION DO NOT STARE INTO BEAM OR EXPOSE USERS OF TELESCOPIC OPTICS

Max Output Power: 1mW
Wavelength: 400-700nm

Complies with 21 CFR 1040.10 & 1040.11 except for deviations pursuant to Laser Notice No.50 dated June 24, 2007

Oseia Inc. 1869, 32e Avenue, Lachine, Quebec, Canada, H8T 3J1

CE RoHS CLASS 2 IEC 60825-1:2014

LASER RADIATION DO NOT STARE INTO BEAM OR EXPOSE USERS OF TELESCOPIC OPTICS

Max Output Power: 1mW
Wavelength: 400-700nm

Complies with 21 CFR 1040.10 & 1040.11 except for deviations pursuant to Laser Notice No.50 dated June 24, 2007

Oseia Inc. 1869, 32e Avenue, Lachine, Quebec, Canada, H8T 3J1

CE RoHS CLASS 2M IEC 60825-1:2014

WARNING - LASER RADIATION AVOID EXPOSURE TO BEAM

Max Output Power: 500mW
Wavelength: 400-700nm

OEM non-certified component Laser, DOES NOT comply with 21 CFR 1040.10 & 1040.11

Oseia Inc. 1869, 32e Avenue, Lachine, Quebec, Canada, H8T 3J1

CE RoHS CLASS 3R IEC 60825-1:2014

WARNING - LASER RADIATION AVOID EXPOSURE TO BEAM

Max Output Power: 500mW
Wavelength: 400-700nm

OEM non-certified component Laser, DOES NOT comply with 21 CFR 1040.10 & 1040.11

Oseia Inc. 1869, 32e Avenue, Lachine, Quebec, Canada, H8T 3J1

CE RoHS CLASS 3B IEC 60825-1:2014

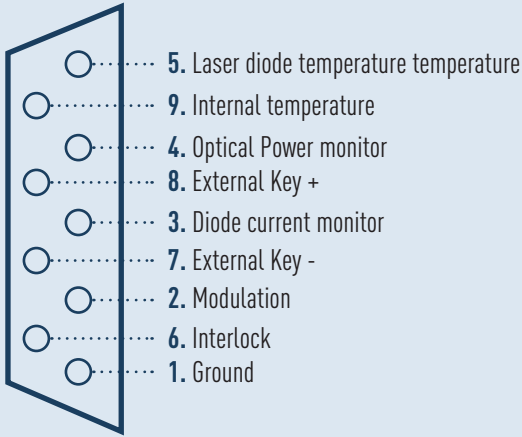
OPERATING THE LASER

- The Laser requires 12-24VDC, 1.5A and up to 2A at the extremes of the temperature range (white lead = 12-24VDC, black = Gnd).
- After a few seconds, assuming normal ambient temperature, the LED will be lit green and the laser will begin to emit radiation.
- The time delay is due to the stabilization of the laser's thermoelectric cooling device (TEC). The laser will not be lasing until the diode temperature stabilizes at 25°C set temperature. If the temperature largely exceeds ambient conditions, the laser will stop lasing until the temperature falls within the threshold.
- Stable output power is obtained approximately 2-3 minutes after the laser begins lasing at ambient temperature and slightly longer at the extremes of the temperature range.



DB9 INTERFACE

A DB9-RA-SMT-Socket-Female is provided to interface with the laser.



Safety interlock:

A safety feature option of the laser where the laser will not function if the circuit (Pin1-Pin6) is open

Modulation:

The laser can be modulated in intensity and/or frequency by applying an external voltage (0 to 5V = 100% to 0% linear intensity modulation) on Pin 2 of the DB9 connector.

Diode Monitoring:

The laser diode current can be monitored by reading the voltage on Pin 3. The voltage readout is proportional to the current (i.e. 1V=1A). Not applicable for lasers driven in Constant Current mode.

Optical Power Monitoring:

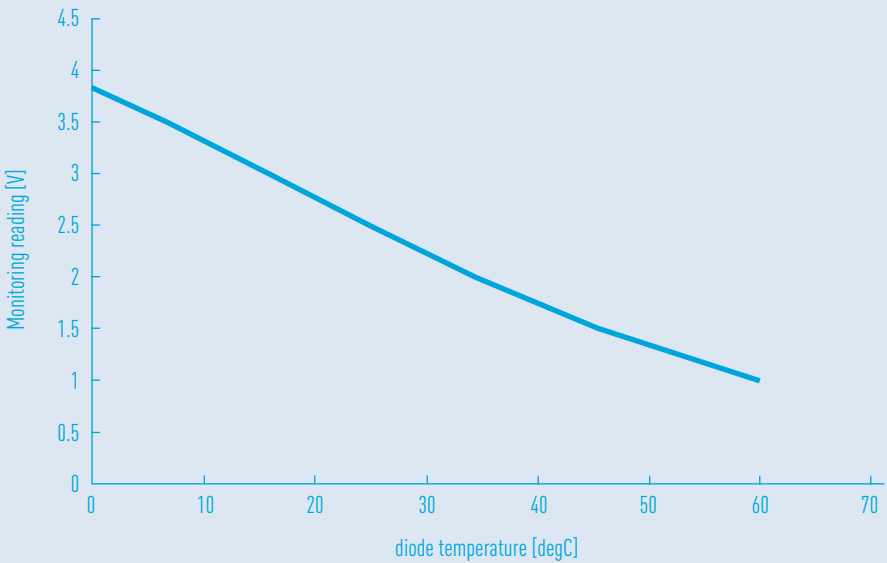
The optical power can be monitored by reading the voltage on Pin 4. The voltage read out is proportional to the output power (i.e. 1V=1W). Not applicable for lasers driven in Constant Current mode.

Diode Temperature Monitoring:

Pin 5 can be used to monitor the laser diode temperature. The diode temperature is preset to approx 25°C. The equivalent voltage reading on the DB9 is 2.5V and should remain stable throughout the operating life of the laser.

See next page for graph on voltage to temperature conversion.

DIODE TEMPERATURE MONITORING



OPERATING ENVIRONMENT

The lasers operating temperature range is from -10°C to 50°C . In order to prevent the diode from being damaged, there is built in over-temperature protection which will prevent lasing. Once the laser detects that the temperature has dropped within the safe threshold, it will begin to lase again automatically.

HEAT SINK AND VENTILATION

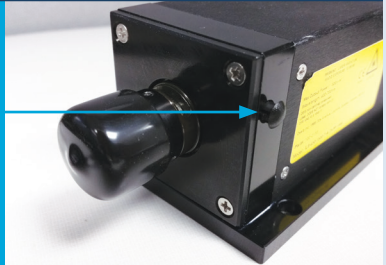
The laser should be mounted on a flat, thermally dissipating surface cooled at 10°C to 35°C in order to maintain a high-level of pointing stability, heat dissipation, and reliability. The laser should be operated in an environment in where there is normal aeration.

FOCUSING THE LASER

The laser can be focused with the aid of a 1/16" dowel pin and L5/64 hex wrench enclosed with the laser.

To refocus the laser you must remove black plastic protective sealer cap that protects the focus set screw from dust and debris.

**Protective
Scaler cap**



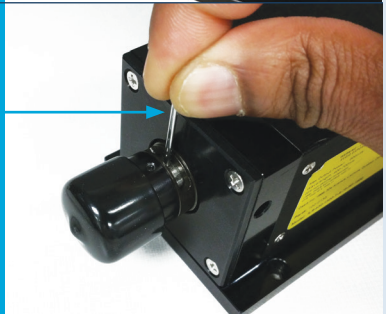
Use the hex wrench (counter clockwise) to unlock focus set screw as shown.

**Rotate counter
clockwise to
unlock and
vise versa to
lock focus set
screw**



Fit the dowel pin in the notches to shift focal point. A half turn either way will allow you to move the focal point from 100mm to infinity. Don't forget to lock the focus set screw and replace the black protective cap after the laser has been focused.

**Rotate Dowel
Pin to change
focus point**



LASER SAFETY

AVIOD EXPOSURE TO DIRECT OR SCATTERED RADIATION FROM THE LASER.

It is extremely important to follow laser safety and wear appropriate eyewear when working around lasers. Do not shine laser in the direction of other people or at reflective surfaces that might cause exposure to the human eye. Do not intentionally mount laser at eye level.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. Modifications, which affect any aspect of the product's performance or intended functions, will require re-certification of the product in accordance with the provisions of 21CFR 1040.10 and 1040.11.

Class 3B lasers are not intended for use in surveying, leveling, alignment, or medical applications. Laser classification is performed according to United States Center for Devices & Radiological Health (CDRH) document 21 CFR 1040.10, and or the International Electro Technical Commission (IEC) document 60825-1:2nd edition.

CLASS 1M	Denotes lasers that do not pose a hazard under normal or single fault conditions. No risk to eyes including use of optical instrument. No risk to skin. Laser emitting devices are lasers that are safe under reasonably foreseeable conditions of operation, including the use of optical instruments for intra-beam viewing.
CLASS 2M	No risk to skin. Includes lasers emitting visible radiation (400 nm to 700 nm) where eye protection is normally provided by an aversion response (blink reflex). No risk to eyes for short time exposure including use of optical instruments. This means that the low power light is not intended for direct viewing.
CLASS 3R	Direct intra-beam viewing is potentially hazardous; a label must be used.
CLASS 3B	Denotes lasers that pose a hazard when viewed directly, whether magnifying viewing aids are used or not.
CLASS 4	Class 4 laser can burn the skin, or cause devastating and permanent eye damage as a result of direct, diffuse or indirect beam viewing. These lasers may ignite combustible materials, and thus may represent a fire risk. Great care must be taken to control the beam path.

PRODUCT WARRANTY

The laser is guaranteed to be free from material & manufacturing defects for a period 12 months (diode dependent, please inquire) from the date of shipment. Should the product fail during this period, the company will, at its discretion, repair or replace the damaged unit. The repaired or replaced unit will be covered for the remainder of the original equipment warranty period. The warranty does not apply to the units examined by the company that are found to have failed due to abuse, acts of nature, mishandling, alteration, improper installation or negligence.

Removal of the laser safety sticker renders warranty null and void. All returns require a Return Merchandise Authorization number (RMA#). This number can be obtained by contacting Osela or the distributor from which the unit was purchased.

TROUBLESHOOTING

Please see table for some tips when laser is not operating as supposed to.

ISSUE	POSSIBLE FIX
Laser is not lasing and status LED is off	<ul style="list-style-type: none">• Verify that 12-24VDC is being correctly supplied to power leads of laser (white = 12-24VDC, black = Grnd).
LED Status Green but no power output	<ul style="list-style-type: none">• Verify that the interlock is properly connected. On the DB9 connector on back of laser, Pin 6 (interlock) and pin 1 (ground) must be shorted together in order for the laser to laser. We supply a MALE DB9 plug that has this connection made already.• Verify the signal going into PIN 2 of the DB9 connector. This pin is used for modulation. <p>Modulation operation (Pin 2)</p> <p>Synchro (standard) = 0-0.7VDC -> 100% power 0.7-4.2VDC -> linear decrease 4.2-5VDC -> 0% power</p> <p>Reverse Synchro (RS) = 0-0.7VDC -> 0% power 0.7-4.2VDC -> linear increase 4.2-5VDC -> 100% power</p> <p>TTL modulation (T) = 0-2VDC -> 100% power 3-5VDC -> 0% power</p> <p>Reverse TTL (RT) = 0-2VDC -> 0% power 3-5VDC -> 100% power</p>
Laser line seems unfocused	<ul style="list-style-type: none">• Verify the focus of the laser by following focusing procedure shown in "Focusing the laser" section.

If you are encountering any of these issues and the above recommendations do not work, or an issue that is not listed, please contact the company you purchased the laser from for assistance.

MECHANICAL SPECIFICATIONS

