Operation Instruction for Model with PSU-H-OEM

Caution-Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

Note: The laser only can be operated after the case temperature of the laser system return to the room temperature to avoid the damage of the big temperature range.

1. Product features

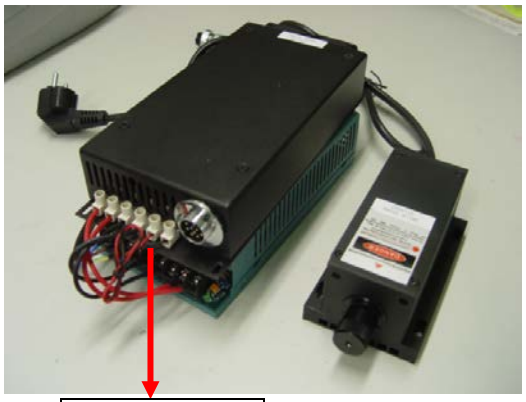
NOTE：

A. We suggests that the laser be mounted on a flat, thermally dissipating surface to maintain a high-level of heat dissipation, and reliability.

B. Slowly change between 10 -35 ℃. 0 rels will not work well. Do not touch any element of the PC board. Or else, the laser will not work well. If the laser is not already mounted on a thermally dissipating surface, it is strongly advised to do so. Failure to comply with this procedure may cause permanent damage to the laser.

C. The air duct should not be blocked, and make sure there is nothing placed within 0.05m-0.1m.

D. If the laser system needs to be installed into equipment, please make sure the airflow clear. If necessary, the extra fans can be used for heat dissipation.



1.1. Make sure your local voltage is in the range showed at the back panel.

1.2. TTL or Analogue external control signal interface (red+ ,black-).

2. Operation

2.1. Attach the laser head to the connector of power supply firmly. Please make sure to fasten the locking ring on the connector.

2.2. Remove the label at aperture.

2.3. Connect the plug of the power supply to the mains that can provide input voltage indicated on the power supply.

2.4. The green LED turns on and the laser starts to work after 5 seconds. The warming up time is about 15minutes.

2.5. TTL and analogue modulation are optional. As for the TTL or analogue instruction, please refer to the

"Notes for TTL Modulation" or "Notes for Analog Modulation "

2.5.1. Notes for TTL Modulation

a) Without signal input (or the leads open), the laser is in CW operation.

b) With signal low level input, the laser outputs minimum value/No output.

c) With signal high level input, the laser outputs maximum value.

2.5.2. Notes for Analog Modulation

a) Without signal input (or the leads open), laser is in the off state.

b) With signal low level input, the laser outputs minimum value/No output.

c) With signal 5VDC input, the laser outputs maximum value.

d) With other voltage between 0-5VDC, such as 1V, 2V, 3V, 4V, 4.5V, the laser outputs different powers.

2.5.3. Notes for pulse modulation, please refer to the "Matters need attention for controllable pulse laser MPL"

2.6. Closing the laser system: Turn off the mains power of the power supply.

2.7. To prevent optic path from dust, you should replace aperture label.

3. Operating Environment

3.1. Temperature: 10-35℃（environment temperature）

25±3℃（bottom plate temperature /recommended temperature）

NOTE：It is not recommended to operate the laser outside of this temperature range for prolonged periods. The unit is designed to shut down if the laser exceeds operating temperature limits. Failure to comply with the environment temperature may cause permanent damage to the laser. All CNI lasers are designed with ESD protection.

3.2. It should also be noted that the CNI laser must be operated in an environment with low vibration to meet the power stability specifications.

3.3. Humidity: 50±10% (RH)

If the air humidity overruns the figure, the working capability of the laser system will be affected indirectly (e.g. intracavity crystal deliquescence, circuit board short etc.). And operate the laser in an environment in which there is normal aeration.

3.4. Threshold voltage: （According to the testing report）

Failure to comply with this procedure may cause permanent damage to the laser.

Following is the possibility if the service voltage is unstable:

3.4.1. Integrated circuit will be damaged; crystal cooling exceeds the rated value (crystal cooling circuit invalid), output power decreased, and fan not run, caused by unstable service voltage.

3.4.2. Unstable power supply makes LD damaged by instantaneous peak current passing.

3.4.3. Unstable voltage/static electronic makes potentiometer/electric capacity/resistor/integrated circuit/TEC circuit/PC board damaged.

3.5. Threshold current: （According to the testing report）

Failure to comply with this procedure may cause permanent damage to the laser. The potentiometer/capacitance/resistance/integrated circuit/chiller circuit/ PC board may be damaged by momentary current or unstable current.

4. Laser safety

4.1. Optical Safety

4.1.1. Wearing a set of proper laser safety goggles is a good idea. Though laser safety goggles can protect a person's vision, it's always best to remember NEVER to look into a laser beam or bright reflection even when wearing laser safety goggles.

4.1.2. Viewing optics or display screens should be used during operation to make the accessible emission less than Class I, reflected beams can cause serious accident by aiming beam at reflective surfaces, e.g. mirror, glass and bright metal.

4.1.3. Never use your laser in the vicinity of highways and airports. DO NOT target moving vehicles and airplanes.

4.1.4. Never randomly aim a laser out the window

4.1.5. DO NOT use a laser at the place marked “No smoking” “inflammable and explosive” and easily caused the danger.

4.1.6. Use an infrared detector to verify that the laser beam is on or off before working on the laser.

4.1.7. Set up controlled access areas with for laser only in well marked areas with controlled access. Be sure to post appropriate warning signs visible to all.

4.1.8. The operation of lasers should be under the supervision of qualified personnel only. When not in use, lasers should be shut down completely and made off-limit to unauthorized personnel.

4.1.9. Limit access to the laser system to persons required to be present.

4.1.10. Laser should be operated in the ambient of clean and dry and no electric.

4.1.11. Maintain experimental setups at low level to prevent inadvertent eye encounter with beams.

4.2. Electrical Safety Precautions

4.2.1. Disconnect main power lines before working on any electrical equipment when it is not necessary for the equipment to be operating.

4.2.2. Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment, and who is competent to administer first aid.

4.2.3. When possible, keep one hand away from the equipment to reduce the danger of current flowing through the body if a live circuit is accidentally touched.

4.2.4. Always use approved, insulated tool when working on equipment.

4.2.5. Special measurement techniques are required for this system. Ground references must be selected by a technician who has a complete understanding of the system operation and associated electronics.

5. Warranty and maintenance

5.1. The warranty is one year from the shipping date.

5.2. This warranty will not apply to those products which have been **r**epaired or altered other than in accordance with the terms of this agreement**.**

5.2.1. Abused, misused, improper handling in use, or storage, or used in an unauthorized or improper manner or without following written procedures supplied by manufacturer.

5.2.2. Original identification markings or labels have been removed, defaced or altered.

5.2.3. Any other claims not arising directly from defects in material or workmanship.

5.3. Laser should be operated in the ambient of clean and dry and no electric

5.4. Always use finger cots, latex gloves, or the equivalent when handling optics, and use a clean, cushioned wok surface.

5.5. In case you have any question during operation, contact CNI representative.

5.6. Please do not open the laser head without instructions from manufacturer, which may lead to the danger of exposure of hazardous visible and invisible laser radiation. Exceptional care must be taken when operating the laser with the covers removed. Laser protective eye ware must be worn.

5.7. Please operate the laser according to the operation instructions.