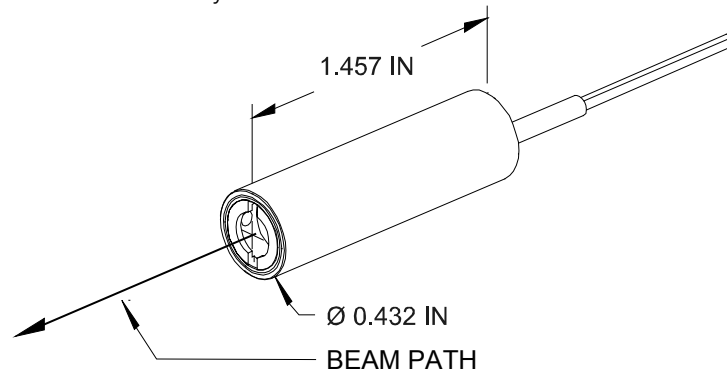


Operating instruction for RS laser diode module

General operation

Introduction

The RS laser diode module is designed for the cost-sensitive application. The unit can be configured with a variety of laser diodes at various output powers and operating wavelengths. Products with output powers above 5mW or with IR output are not intended for surveying, leveling, and alignment applications. Visible units less than 5mW are CDRH certified as laser systems.



Installation

Do not mount the laser in a thermal insulating material, such as foam plastic. Heat can have adverse effects on laser diodes. Such effects include decreased output power and large shifts in wavelengths. Lasers below 5mW may not need a heat sink. For best heat dissipation use a metal mounting fixture like PTI's MB6 mounting bracket. A heat sink is always recommended for operating temperatures above 25°C.

The operating voltage for the RS laser module is 3.3 to 9VDC.

If the label attached to the laser module reads, "Complies with 21CFR 1040.10 and 1040.11," a permanently installed switch at the power source will be required to retain the modules certification as a laser system. This certification is void if the unit is enclosed or otherwise inaccessible, if the labels are modified or removed, or if the system is permanently connected (i.e. soldered, etc.) directly to the power source without the required switch. Modifying the laser will void the CDRH certification. If the distance between the laser head and the power source switch exceeds two meters, an emissions indicator must be mounted near the switch.

Operating Procedure & Control Description

The RS operates in automatic power control mode, accomplished using an internal photocell built into the laser. The photocell picks up changes in reflections off of the optics to either increase or decrease current to the laser. Therefore, if there is a change in temperature, focus, or any other dynamic that changes the output of the laser, the driver's feedback control loop will automatically adjust current output to compensate. The output power is factory preset according to the parameters of the system ordered and is not adjustable.

The RS is, however, focus-adjustable, and users will receive a focusing key. Please note that reflections onto the internal photocell from the lens are a vital part of the feedback loop. This photocell is very sensitive to these reflections. Any adjustment of the lens outside the normal focusing range (beam divergence to beam convergence) will change the amount of reflection, thereby changing feedback characteristics. Therefore, **reducing the amount of reflection (i.e., removing the lens) will result in destruction of the laser diode due to excessive drive current.**

On modules with a line generating lens installed, the unit is not focus-adjustable. The factory-installed line generating lens is permanently attached at a fixed focal distance.



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Maintenance & Service

This laser module contains no user serviceable parts. Depending on environmental conditions, the optics may require occasional cleaning. Clean, compressed air is recommended to blow the optics clean. If compressed air fails, clean lens carefully with alcohol and a lint free rag or cotton swab.

Warranty and Repair Return Policy

Opening the RS laser will void the warranty.

No return of merchandise will be accepted by PTI without an RMA (Return Material Authorization) number, issued by the factory and prominently displayed on the return package. No return shipments will be accepted "Collect" or "COD". On warranty returns, PTI will pay for shipping charges on the return of merchandise to the customer.

When contacting the factory for an RMA number, please have the following information available: model number, serial number(s), and a description of the problem.

Laser Safety

Class 3b and 4 lasers are not intended for use in surveying, leveling, alignment, or medical applications.







Caution: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Caution: The use of optical instruments with this product will increase eye hazard.







Do not shine laser in the direction of other people or at reflective surfaces that might cause exposure to the human eye. Do not mount the laser at eye level.

Modifications, that affect any aspect of the product's performance or intended functions will require re-certification and re-identification of the product in accordance with the provisions of 21CFR 1040.10 and 1040.11. A copy of 21CFR 1040.10 and 1040.11 can be downloaded from www.powertechology.com.

The product labels shown below and on the following page can typically be found near the output optics.

<p align="center">Class 1 Laser: Class 1 Laser Product</p>	<p align="center">Class 1M Laser: Laser Radiation, Do not view directly with optical instruments</p>	<p align="center">Class 2 Laser: Laser Radiation, Do not stare into beam</p>
<p><input type="checkbox"/> Component</p> 	<p><input type="checkbox"/> Component</p> 	<p><input type="checkbox"/> Component</p> 
<p><input type="checkbox"/> System</p> 	<p><input type="checkbox"/> System</p> 	<p><input type="checkbox"/> System</p> 
<p align="center">One of the above labels is attached to the laser head.</p>	<p align="center">One of the above labels is attached to the laser head.</p>	<p align="center">One of the above labels is attached to the laser head.</p>



<p align="center">Class 2M Laser: Laser Radiation, Do not stare into the beam or view directly with optical instruments</p> <p><input type="checkbox"/> Component</p>  <p><input type="checkbox"/> System</p>  <p align="center">One of the above labels is attached to the laser head.</p>	<p align="center">Class 3R Laser: Laser Radiation, Avoid direct eye exposure</p> <p><input type="checkbox"/> Component</p>  <p><input type="checkbox"/> System</p>  <p align="center">One of the above labels is attached to the laser head.</p>	<p align="center">Class 3B Laser: Laser Radiation, Avoid exposure to beam</p> <p><input type="checkbox"/> Component</p>  <p><input type="checkbox"/> System</p>  <p align="center">One of the above labels is attached to the laser head.</p>
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