

Safety Notes

Lasers create a very special type of light that guarantees exciting laboratory experiments and visual demonstrations for inquiring young minds.

Industrial Fiber Optics (IFO) lasers emit a beam of visible orange-red light. They do not emit invisible, exotic, or otherwise harmful radiation. They emit light output of only a few thousandths of a watt and shouldn't be confused with the powerful commercial lasers used for burning, cutting and drilling.

Even so, the laser beam must be treated with caution and common sense because it is intense and concentrated. The greatest potential for harm with IFO lasers is to the eyes. No one should look directly into the laser beam or stare at its bright reflections, just as no one should stare at the sun.

The United States Department of Health, Education and Welfare regulates the manufacture of lasers to ensure users are not endangered. The federal government classifies lasers according to their power levels and specifies appropriate safety features for each level. Demonstration lasers fall into Class II and can be identified by a yellow CAUTION label that contains the warning, "Do not stare into beam" along with a universal laser warning symbol. Class II lasers have a maximum power of 1/1000th of a watt, a power judged to be eye-safe, except possibly in case of deliberate, long-term direct staring into the beam. Safety features include a pilot lamp that glows when the electrical power is ON and a mechanical beam-stop that blocks the beam when power is on. In addition, IFO observes safety directives issued by the European Standards Committee for optical and electrical safety, including directives 89/336/EEC and 92/59/EEC for lasers and EN 71-1 for optics kits.

Laser Safety

1. Instruct students not to look into the laser or stare at bright mirror-like reflections of the beam.
2. Remove all bright mirror-like objects from the work area, including rings, watches, metal bands and tools. Beam reflections can be nearly as intense as the original beam.
3. Block off the beam at a point beyond the farthest point of interest. Use a dull, non-reflective object, such as a piece of wood.
4. If the beam must travel a long distance, keep it directed close to the ground or overhead so it does not cross walkways at eye level.
5. Never use magnifiers such as binoculars or telescopes to look at the beam as it travels or when it strikes a surface.
6. Never allow unauthorized people to handle lasers; store them in a safe place away from unauthorized users.
7. Lasers are not toys; use them only for educational purposes.
8. Never point a laser at anyone, no matter how far away.
9. Make sure the laser is always secured on a solid foundation. Keep power cords and adapters away from areas where they can be accidentally disturbed.
10. Helium-neon lasers employ high voltages. The power supply retains potentially harmful voltage for periods after the input power has ceased. Never open the housing and expose anyone to these voltages.
11. Keep these safety regulations near the laser, and read and refer to them in case of safety questions.
12. If you have any other safety questions, please contact Industrial Fiber Optics at (480) 804-1227 or INFO@i-fiberoptics.com.

General Safety

1. Since optics kits contain glass pieces, it is important to remember that they can present a cutting hazard. Please handle them carefully and make sure that you don't contact any edges that might cut you.
2. To fully utilize this manual and its safety warnings, we recommend that the manual be kept close to the optics lab.

Electrical Safety

- If the laser housing is opened, IFO's warranty is void.
- If the laser is equipped with a UL-approved line cord and 3-prong grounded plug, ALWAYS PLUG THE LASER INTO A GROUNDED OUTLET.
- For further information about laser safety and the federal regulations involved, contact the Compliance Officer at the Bureau of Radiological Health, Public Health Service, Food & Drug Administration, Rockville, MD 20857. Telephone: (301) 443-4874. Ask for Regulation Publication HHS PUB FDA 80-80356.

WARRANTY INFORMATION

Industrial Fiber Optics lasers are warranted against defects in materials and workmanship for 2 years. The warranty will be voided if the laser components have been damaged or mishandled by the buyer, including entry to the laser housing and/or removal of screws. Industrial Fiber Optics' warranty liability is limited to repair or replacement of any defective unit at the company's facilities, and does not include attendant or consequential damages. Repair or replacement may be made only after failure analysis at the factory. Authorized warranty charges are made at the factory. Authorized warranty repairs are made at no charge, and are guaranteed for the balance of the original warranty.

Warranty Information (Continued)

Industrial Fiber Optics will pay the return freight and insurance charges for warranty repair within the continental United States by United Parcel Service or Parcel Post. Any other delivery means must be paid for by the customer.

The costs of return shipments for lasers no longer under warranty must be paid by the customer. If an item is not under warranty, repairs will not be undertaken until the cost of such repairs has been approved, in writing, by the customer. Typical repair costs range from \$50 - \$150 and repairs usually take two to three weeks to complete.

When returning items for analysis and possible repair, please do the following:

- In a letter, describe the problem, person to contact, phone number, and return address.
- Pack the laser, power adapter, manual, and letter carefully in a strong box with adequate packing material, to prevent damage in shipment.
- Ship the package to:

INDUSTRIAL FIBER OPTICS
1725 West 1st Street
Tempe, AZ 85281-7622
USA