

Laser Optics Demonstrator

- **Comprehensive optical demonstration system with built-in He-Ne laser**
- **Top quality optical components for over 75 demonstrations**
- **Demonstrate both ray optics and selected wave phenomena in a lighted room**

The **Laser Optics Demonstrator** consists of a base unit with a built-in He-Ne laser, deflection system and ray optics board, and an accessory case with 30 optical quality glass components mounted on carriers, three magnetic base supports, and a mechanical stage for wave optics experiments. An extensive operator's manual describes 51 ray optics demonstrations and 27 interference and diffraction experiments.

The **illumination system** consists of an enclosed horizontal He-Ne laser whose beam is diverted upwards at the left side of the instrument. A removable cylindrical lens on the top of the base fans the beam out for ray optics demonstrations. The beam then enters a series of five graded partially silvered mirrors that generate five equally intense beams. The mirror case is adjustable vertically and horizontally for positioning the ray bundle on the ray optics board, and the mirrors are independently adjustable to allow direct demonstrations of image formation (see illustration) and to allow a single beam to be generated for wave optics experiments.

The **ray optics board** carries a flush 360° graduated table at its center. The table can be rotated by a knob on the back of the board and has a central recessed magnet for holding optical elements in place. Each ray optics element is mounted on a chrome plated steel carrier rod that fits into the table recess. The collection of elements includes convex and concave lenses, plane, spherical, and angled mirrors, blocks and prisms, and simple optical instruments. A fiber optics demonstrator is also included.

For **wave optics experiments**, magnetic base supports fit onto the base to carry lenses and a polarizer as well as an air wedge and Fresnel's bi-prism and mirror. For other diffraction and interference arrangements, a mechanical stage attaches to the right side of the ray optics board to support and adjust three diaphragms that carry 34 different diffraction and interference apertures and obstacles. The diaphragms are mounted glass plates with an evaporated aluminum film, giving excellent contrast in the images. An additional film diaphragm carries nine more complex diffraction objects. Many interference and diffraction experiments can be viewed comfortably in a lighted room, but more extended patterns or diffraction at very small apertures require darkening.

Storage. The Laser Optics Demonstrator comes in a fitted metal carrying case that accommodates the base unit, the molded accessory case, and the operator's manual.

Specifications

Dimensions:

Base unit: 37cm L x 12.5cm W x 33cm H

Carrying case: 15" x 15" x 13"

Weight: 12 kg

The unit operates on 110V/60 Hz

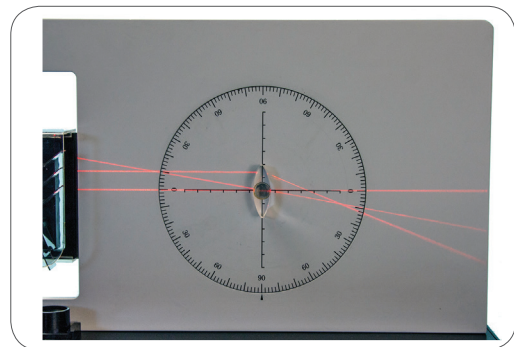


Image formation by a convex lens.

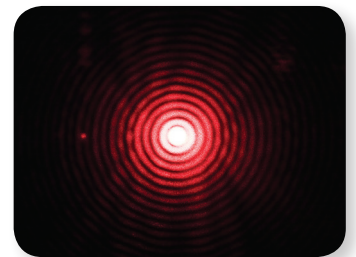


Photo of circular aperture diffraction pattern.

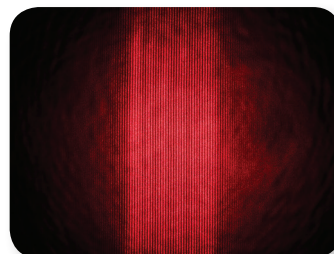


Photo of Fresnel's Mirror fringes.

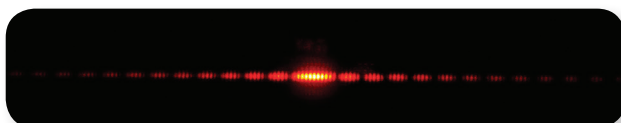


Image of Young's Double Slit experiment.

Item No.	Description
LOD001	Laser Optics Demonstrator