

Demonstration Laser

Specification	Power	1mW max (Class II)
	Laser Element	Semiconductor laser
	Wavelength	670nm (red)
	Infra red content	Zero
	Polarisation	Random
	Beam diameter	Approx. 6mm at 5m
	Case	Black powder coated steel
	Dimensions	200 x 90 x 100mm (l x w x h)

Features	Fixed mains cable with moulded 13A plug
	Illuminated on/off rocker switch
	Laser 'on' indicator on back panel
	Laser on/off key switch
	Back panel mounted mains fuse

Do not aim the laser at anyone's face
Do not stare directly into the beam

Using the Laser The laser beam emerges from a hole at the front of the unit. Before plugging the laser in, ensure that it is aimed. The unit should be plugged into a suitable 13A socket and is switched on using the mains rocker switch on the rear panel which will illuminate.

The laser beam is switched on by use of a key switch. When the laser beam is on, a red warning led will illuminate. When not in use or during storage, the key switch should always be turned off and the key removed to prevent unauthorised use.

Aiming of the beam may be achieved by use of the four levelling feet which screw in and out.

The unit is supplied with a circular ceramic magnet which may be placed around the beam exit. By placing two razor blades in parallel across the magnet, a single slit diffraction pattern may be easily produced.

The use of commercial diffraction gratings allows demonstration of diffraction patterns and experiments such as checking the wavelength of the laser light and spacing of the diffraction grating slits.

$$n\lambda = d\sin\theta$$

Where

n = order of diffraction pattern (1, 2, 3, 4 etc.)
 λ = wavelength of laser light (in meters)
 d - grating spacing (in metres)
 θ = diffraction angle (in degrees)

More unusual diffraction patterns may be achieved using other diffraction materials such as cotton fabric, tights etc.

Fusing The back panel carries a mains fuse in a tamperproof holder. Replacement fuse is 20mm 250mA quick blow.

Specification	Mains supply	
	Supply voltage	230V ac
	Supply frequency	50Hz
	Maximum power	1W
	Panel fuse rating	250mA quick blow
	Mains plug fuse rating	3A

Electromagnetic Compatibility The use of this apparatus outside the classroom, laboratory, study area or similar such place invalidates the conformity with the protection requirements of the Electromagnetic Compatibility Directive (89/336/EEC) and could lead to prosecution.

Electrical Safety Testing The unit is classified as Class 1 (earthed). Suitable earth test points are any of the lid securing screws. For further details on safety testing, please refer to Health and Safety Executive leaflet GS23 (ISBN 0 11 883567 X).