

201 Demonstration Laser battery/mains

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 ABS

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 switching the laser on, ensure that it is safely aimed. The unit is switched on using the keyswitch on the rear panel.

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 metres)
- 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.

Power Supply Requirements

The unit is internally powered by two AA, Alkaline Manganese cells. To replace, remove the four screws from the base and gently remove the base.

If the unit is to be stored for long periods, the cells should be removed. In tests, a fresh set of MnOH cells gave greater than 100 hours continuous life.

The unit may also be powered by the mains adapter supplied. Please note: The mains adapter switch has been disabled so that only 3V is available.

When using the mains adapter, the internal batteries are automatically disabled. The adapter is wired so that the tip of the jack plug is positive with respect to the screen. Should the polarity of an adapter be incorrect, the unit is diode protected and will not operate.