

Planck's Constant Apparatus



- **Compact, easy-to-use apparatus**
- **Accurate results with less than 5% error**
- **Measures Planck's constant and estimates the work function of cesium**

The **Planck's Constant Apparatus** is a compact unit containing an enclosed vacuum photocell with an attachment for illuminating light sources, a high stability power supply for applying a variable stopping voltage to the cell and a nanoammeter for measuring the resulting photocurrents.

Light from five interchangeable narrow spectrum LEDs is applied to the photocell from a second integrated high stability power supply via an enclosed fiber optic connecting cable that plugs into the photocell enclosure so that the ambient illumination is excluded.

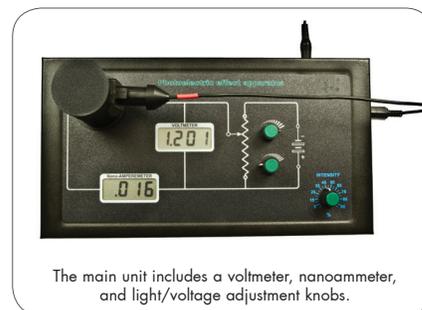
A maximum energy of the photons from each of the five LEDs in turn is measured by determining the stopping voltage for which the photocurrent becomes zero. This occurs for the peak wavelength of each LED.

Results are evaluated by combining the wavelength and energies to allow a value for Planck's constant to be found. The work function of the photocell cathode material can also be estimated. This can be performed graphically, analytically, or using the included Microsoft Excel® spreadsheet.

Specifications

Photocathode Material:	Cesium (Cs)
Voltmeter Display:	3½ Digit, LCD, precision 0.5% (typical)
Ammeter Display:	3½ Digit, LCD, precision 1% (typical)
Dimensions:	28cm x 12cm x 16cm
Weight:	Approx. 1 kg

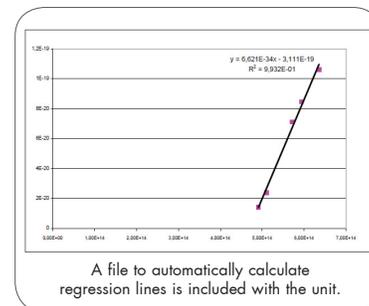
Item No.	Description
PLCN01	Planck's Constant Apparatus



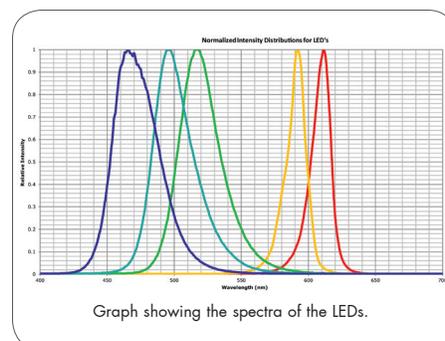
The main unit includes a voltmeter, nanoammeter, and light/voltage adjustment knobs.



Each of the five LEDs carries an identifying color band and a color patch with the wavelength maximum.



A file to automatically calculate regression lines is included with the unit.



Graph showing the spectra of the LEDs.