

# LEDI-1

## Experimental Unit of Planck's Constant

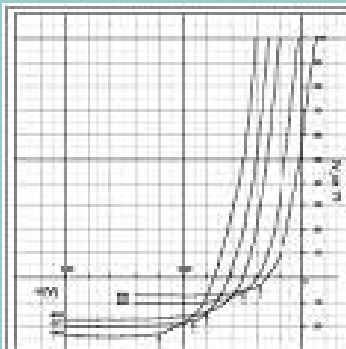
- *Easy operation*
- *Simple structure and stable performance*
- *Visual result reduces visual fatigue*
- *Ideal demonstration system for numerous users*



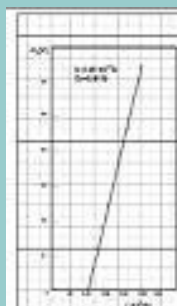
The measurement of Planck's constant has been carried out in many educational institutions with a variety of approaches.

This experimental unit uses the photoelectric effect, where electrons stimulated by incoming light, create an electric current to experimentally determine the value of Planck's constant ( $h$ ).

This unit also encourages students to get a fundamental understanding of the quantum character of light and to gain experience with experimental skill related to photoelectric effect.



Approximate I-V curve indicating the photoelectric cell's volt-ampere characteristic

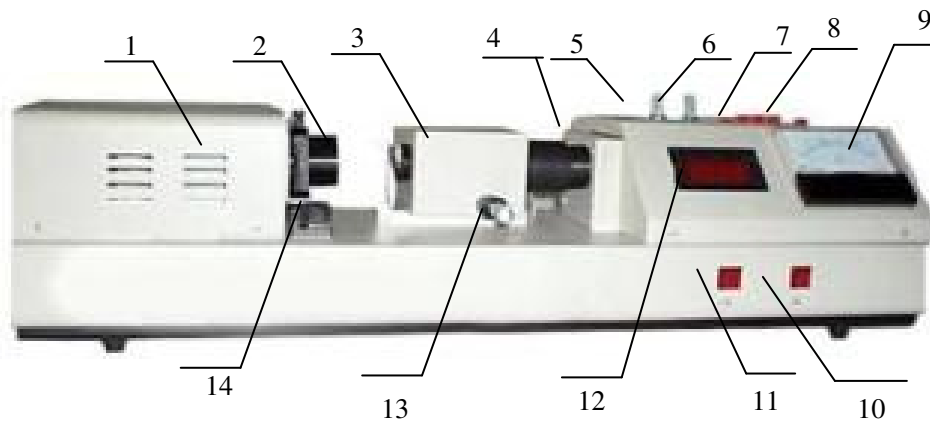
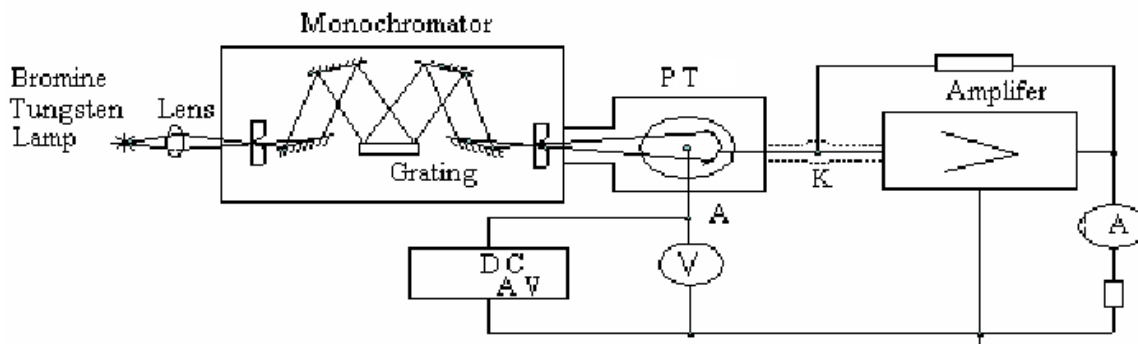


Vo-v Diagram and the Planck's Constant obtained

### Specification

Light source	Bromine Tungsten lamp 12V, 75W
Fan	0.17A for abstraction of heat
Condenser	$f' = 50\text{mm}$ , $f' = 70\text{mm}$
Monochromator	grating type
Wavelength range	200-800nm C12V
Slit width	0-3mm
Wavelength accuracy	$\pm 3\text{nm}$
Wavelength repeatability	$\pm 1\text{nm}$
Photoelectric tube	GD31A type
DC regulated power supply	$\pm 1.8\text{V}$
Measuring Amplifier	4 stop, 100 $\mu\text{A}$ , magnetoelectric

## Instrument schematic



- |                                |                        |                            |
|--------------------------------|------------------------|----------------------------|
| 1. Bromine tungsten lamp cover | 6. Voltage adjustment  | 11. Power switch           |
| 2. Condenser                   | 7. Current rate switch | 12. DC voltage meter       |
| 3. Monochromator               | 8. $\pm$ switch        | 13. Wavelength adjust knob |
| 4. PT Receiver                 | 9. Micro-ampere meter  | 14. Condenser adjust knob  |
| 5. Zero adjustment             | 10. Measurement switch |                            |

## Parts list

Description	Qty
Working bench	1
Bromine-Tungsten lamp	1
Small monochromator	1
Lens f = 70mm	1
Photoelectrical receiver ,amplifier and power supply	1
Power cable	2
User's manual	1
Packing list	1