Providing Excellence in Science Education

IPC Irwin Infra-Red Probe

Part Number: IPC-4566-W

User Instructions

INTRODUCTION.

The IPC Irwin Infra-Red Probe is a simple device for demonstrating the existence of invisible light, that is to say light that the human eye cannot see. The probe has been designed to pick up the invisible light (known as radiation) in the infra-red region of the spectrum, which is classed as radiation between the wavelengths of 780nm and 1mm.

DESCRIPTION.

The IPC Irwin Infra-Red Probe consist of a phototransistor mounted at one end of a plastic probe, while at the other end a two-core connection lead, with 4mm plugs, is securely attached.

The phototransistor has a maximum response in the infra-red region of the spectrum at around 950nm, this is near to the visible region of the spectrum. When the phototransistor picks up sufficient infra-red light it produces a small DC voltage which can be measured. The probe itself has both a red (positive) and black (negative) 4mm plug so that the polarity can be demonstrated.

INSTRUCTIONS.

The phototransistor is mounted at the end of the probe which enables it to be scanned across the area to be investigated. The phototransistor, which is the device sensitive to infra-red, is the square black component mounted within the end of the probe.

The probe should be used in conjunction with a suitable digital voltmeter with a resolution of at least 0.001VDC, the IPC Irwin 2VDC Digital Voltmeter (IPC-1904-M) is ideal for this. When

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connected to the voltmeter the probe will produce a reading proportional to the amount of infra-red radiation being received on the phototransistor's sensitive front surface.

SPECIFICATIONS.

Infra-Red Sensitivity	= 950nm (peak wavelength)
Voltage Output	= 0.350VDC Typical @ 1mW/cm^2 (at 950nm)
Probe Length	= 140mm
Lead Length	= 700mm

SUGGESTED EXPERIMENT.

Using a prism, split the light from a light source into its spectrum, then scan the front of the probe across the full spectrum of light, while noting the reading on the voltmeter.
The reading on the voltmeter will be low and fairly constant while scanning the visible light region, now scan past the red end of the spectrum and it will be found that the voltmeter reading increases when the probe is positioned several millimetres further along from the visible red light, therefore showing that infra-red radiation, which is invisible to the human eye, is present.

Thank you for choosing this IPC Irwin product, which has specifically been designed for education and we know it will bring you good service long into the future. This is just one product of a wide range of UK designed and manufactured products to enhance a STEM education, please see www.ipcirwin.com website for more details on the products and service we provide to support teaching and learning in science and technology.

IPC Irwin also provide Portable Appliance Testers and a Calibration service, for more details please go to www.ipcirwin.com or call our sales and technical support line on 015395 58555.

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