

## Characteristics of Photo Devices

### (Photo Diode, Photo Transistor, LED & LDR)

**Model : SA-129**

**SINCOM SA-129 Characteristics of Photo Devices** is All-In-One trainer useful to study characteristics of Photo Diode, Photo Transistor, LED and LDR under different conditions. The Photo devices are the basic building elements of an Optical remote control and an Optical receiver circuits. The trainer is simply designed to study their characteristics and determine its various parameters in a simple experimental way. The trainer is without meters and has the facility to connect the external analog or digital voltmeter, ammeter and variable light intensity source in the circuit.

#### Features

- ❖ Plastic/Metal Package Photo Diode and Photo Transistor
- ❖ 5mm Diameter LED and 5mm ceramic LDR Package
- ❖ Photo Diode, Silicon NPN Photo Transistor, Red LED and LDR are provided
- ❖ LDR is having high dark resistance and Passive Resistance output
- ❖ Convex Front, Fast response time, High photo sensitivity
- ❖ Current controlling resistor in series
- ❖ Facility to vary wide range of applied DC input voltage
- ❖ In-Built Variable regulated DC Power Supply
- ❖ Multi color Circuit Diagram printed on the front of the white board
- ❖ Enclosed in an attractive, light weight, High Quality, Poly Coated Imported Pine Wooden cabinet
- ❖ Facility to connect the external Digital/ Analog Voltmeter and Ammeter
- ❖ On Board 60W Lamp load with variable light intensity
- ❖ User friendly Designed
- ❖ Very Easy for Operation
- ❖ Interconnections by 2mm high quality banana sockets and pins
- ❖ Maximum Test points to explore all the corners of experiment
- ❖ 1 Year Warranty

#### Technical Specifications

▪ AC Mains Power Supply	: 230V $\pm$ 10%, 50Hz
▪ DC Power Supply	: IC Regulated variable 0V to +12V / 500mA
▪ Photo Device	: Photo Diode, Photo Transistor, LED & LDR
▪ Photo Diode	: 5mm Photo Diode
▪ Photo Transistor	: Silicon NPN Photo Transistor
▪ LED type	: Red color 5mm LED
▪ LDR type	: 5mm, 10K $\Omega$ , CDs coated LDR
▪ Front	: Convex
▪ Viewing angle	: 70 $^{\circ}$
▪ Photo Device Dark Current	: 10-100 $\mu$ A @
▪ Maximum Forward Current	: 30mA



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▪ Maximum Operating Voltage	: 12V
▪ Current Controlling Resistor	: MFR 470Ω, ±5% in series
▪ Light Source	: 60W Lamp load max-Variable Intensity control
▪ Weight	: 2.0 kg (approx)
▪ Dimensions (mm)	: L 220 x W 270 x H 110
▪ Interconnections	: 2mm Banana sockets
▪ Operating Temperature	: 0-50°C, 80% RH

## Learning Scope

- To Study the characteristics of **Photo Diode** w.r.t. applied light intensity. To Determine the Dark Current of Photo Diode. To Observe & Note the Change in Photo Current & Voltage across Photo Diode w.r.t. change in the intensity of light & applied Reverse Voltage.
- To Study the characteristics of **Photo Transistor** w.r.t. light intensity. To Determine the Dark Current of Photo Transistor. To Observe & Note the Change in Photo Current & Voltage across Photo Transistor w.r.t. change in the intensity of light & applied Voltage.
- To Study Forward characteristics of Red color **Light Emitting Diodes (LED)**. To Observe & Note the Change in the Intensity & Voltage across LEDs w.r.t. applied forward Voltage.
- To Study operation of **Light Dependent Resistor (LDR)**. To Study the characteristics of LDR of different values. To Observe & Note Change in LDR Resistance, Current & Voltage w.r.t. change in the intensity of light.

## Other Instruments Required

SINCOM Digital VI meter (DVI) : Model DVI-02 Range V-20V, I-200mA DC. Dimmerstat single phase 230V.

## Accessories Included

Set of Patch Cord, Lamp Load 60W with variable light intensity and Details Instruction Manual