Email : sales@laboratoryinstrumentindia.com

Product Name : Solar Cell Trainer Modules	**Product Code :** LBNY-0002-620055

Description :

Solar Cell Trainer Modules

Technical Specification :

Solar Cell Trainer
The Solar Cell Trainer is an easy and self-contained trainer designed for learning the basic configuration and characteristics of a solar cell.
Through the use of different irradiations for various load units, students study the photoelectric effect of solar cells and plot the current-voltage curve as well as charging / discharging curves.

Solar Cell Modules
1 pcs of monocrystalline silicon solar cell.
Each unit : solar cell
Open circuit voltage (Voc): 49.75V DC ±2V
Short circuit current (Isc) : 13.93A ±1A
Maximum load voltage (Vpm): 41.8V DC ±2V
Maximum load current (Ipm) : 13.04A ±1A
Maximum power (Ppm) : 545W A ±25W
Efficiency (Eff) : Not less than 20%
Adjustable Angle (0-90)degre dua axis

Dimmer
Adjust the brightness of halogen lamp :

Input voltage 110VAC or 230VAC
Output voltage 0-230V

Light Source
Halogen lamp 230V/100W
Beam angle 90° variable

Digital Multimeter x 2
DC Voltage : 400mV, 4V, 40V, auto range
Input resistance ? 10M?
AC Voltage : 400mV, 4V, 40V, auto range
Input resistance ? 10M?
DC Current : 400?A, 400mA,10A, push button selector switch
10A Range : 10A/250V fuse protected
mA/ A Ranges : 0.5A / 250V fuse protected
AC Current : 400?A, 400mA,10A, push button selector switch
10A Range : 10A/250V fuse protected mA/?A
Ranges : 0.5A/250V fuse protected ?
Resistance : 400?, 4K?, 40K?, 4M?, 40M?, auto range
Diode test : 0~1.5V
Continuity : Buzzer for the measured resistance Display : 3 ¾ digit LCD, max. indication 3999

Energy Storage
NiMH rechargeable battery 1.2V/80mAh
Super capacitor 10F/2.7V

Load
DC motor : 0.5V~6V,10mA
Light bulb: 1.1V, 300mA
Potentiometer : 100?, 10-turn

Inverter
Input voltage : 2VDC
Output :
Modified sine wave 1Vpp 50/60Hz
Square wave 2Vpp 50/60Hz

Power Supply
Input voltage 110/220 VAC
Output voltage 15VDC
DAQ with Sofware
Channel 1 and 2 : max. input voltage ±5V
Channel 3 and 4 : max. input current 1A
System Requirements

List of Experiments
Measuring the irradiation of various light sources
Energy conversion of solar cells
Diode characteristic of a solar cell
Effect of light-sensing area on the open-circuit voltage of solar cell
Effect of light-sensing area on the short-circuit current of solar cell
Effect of irradiation on open-circuit voltage and short-circuit current of solar cells
Relationship between the angle of irradiation and the short- circuit current of solar cell

Open-circuit voltage and short-circuit current of solar cells connected in series-shading
Open-circuit voltage and short-circuit current of solar cells connected in parallel-shading
I-V curve of solar cells
Conversion efficiency and Maximum Power Point(MPP)
Simulating a daily course of sunlight
Charging a capacitor with solar cells
Capacitor discharging
Constructing a solar power island system
Inverter

Optional
8 Solar Power Meter
Display : 3 ½ digit LCD, max indication 1999 2 2 2.
Measuring range : 2000 W/m , 634 Btu/(ft x h) 2 2 3.
Resolution : 0.1 W/m , 0.1 Btu/(ft x h) 2 2 4.
Accuracy : ±10 W/m , ±3 Btu/(ft x h)
Sampling rate : 2 Hz.

Accessories:
Test leads : 1 set
Experiment manual
Instructor's manual

Basic solar power meter (GES-18002)
Operating with DAQ 2
Measuring range 10~1200W/m
25% Shading plate
50% Shading plate
75% Shading plate
100% Shading plate.