

# Power Electronics Trainer

PB-600



## Description:

The Global Specialties Power Electronics Trainer, model PB-600, is a powerful and versatile educational tool. It's designed with a wide choice of built-in circuit accessories providing user convenience and allow easy construction of numerous power electronics circuits. Designers, Engineers, Technicians, Students, and Hobbyists will find this trainer to be a useful experimenting and prototyping tool.

The PB-600 contains all the necessary controls and devices required to construct power electronics circuits. From a firing angle control to semiconductor devices, this unit provides the user with several options to choose from when connecting a circuit.

The trainer includes (PDF download) an 85-page Student Lab Manual which is essentially a mini Power Electronics Course. Reading the lessons and completing the select circuits, will provide the user with a practical and solid understanding of power electronics.

The PB-2 board is removable for easy placement in the breadboarding area. This feature would be ideal for multi-student use in a classroom environment.

The PB-600 is designed to withstand the toughest treatment. It is constructed with the highest quality components for many years of reliable service.

## Applications:

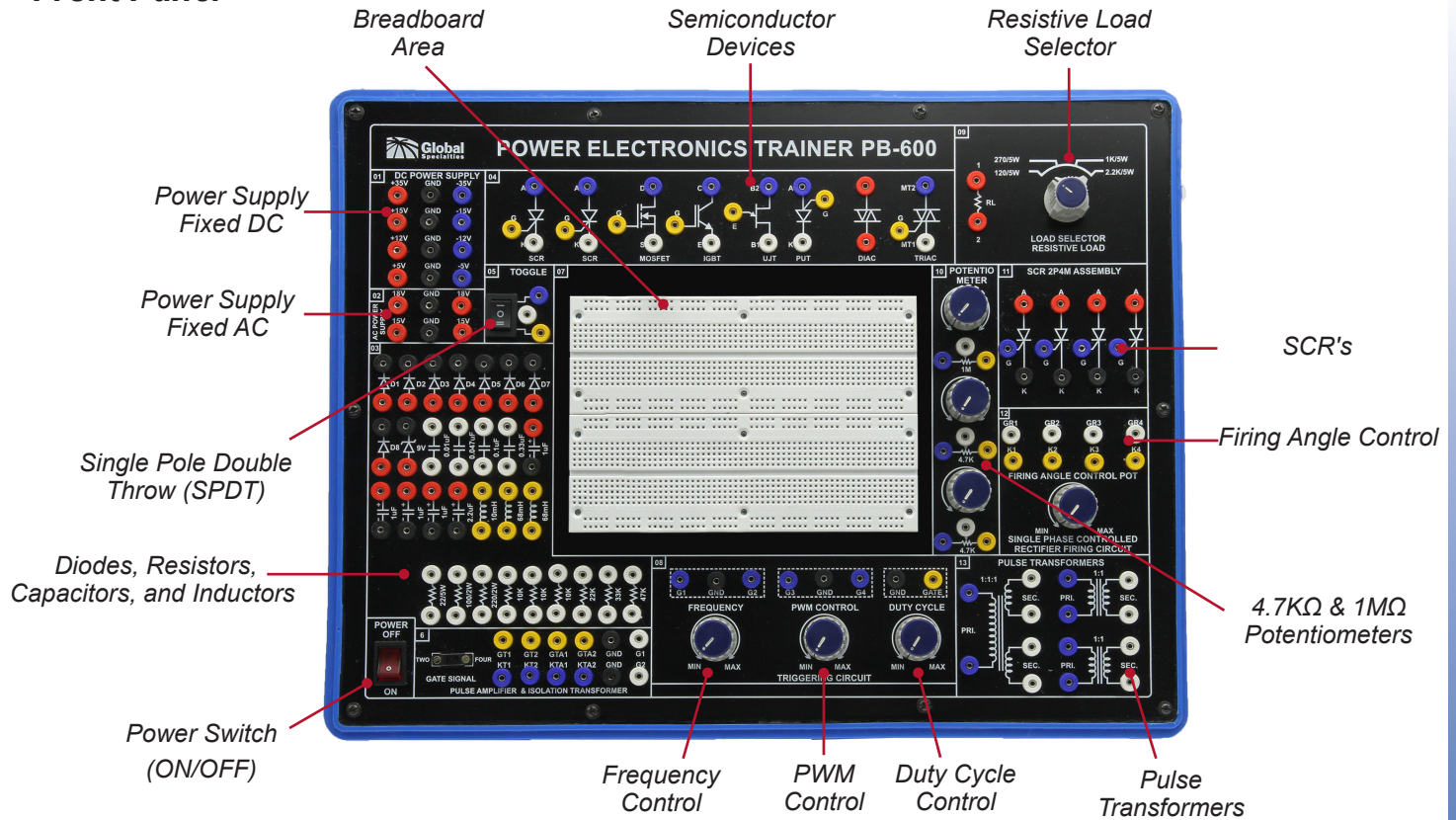
Device Characteristics  
Commutation Circuit  
Resistor Triggering Circuit  
Ramp and Pedestal Triggering  
Relaxation Oscillator  
Voltage Commutated Chopper

Inverter Circuit  
Half Wave Controlled Rectifier  
Full-Wave Controlled Rectifier  
Buck Converter  
Boost Converter  
Buck-Boost Converter

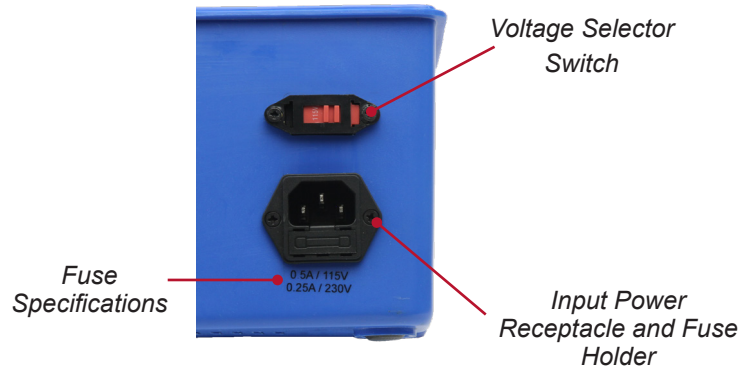
## Features:

- Power Output:
  - 8 Fixed DC output options
  - 4 Fixed AC output options
- Removable circuit breadboard with 1,680 contact points
- Variety of semiconductor devices to choose from
- PWM and frequency controls
- Firing angle control, variable  $0^{\circ}$ - $180^{\circ}$
- Pulse transformer 1:1 and 1:1:1
- Duty cycle control 0 to 100%
- Potentiometer 4.7 K $\Omega$  and 1 M $\Omega$
- Power Electronics courseware available (Model PB-600 Student Lab Manual--PDF Download)
- Input power source, AC line switchable between:
  - 110 - 120V @ 60 Hz
  - 220 - 240 V @ 50 Hz
- 1-Year Warranty

## Front Panel



## Side Panel



## Accessories

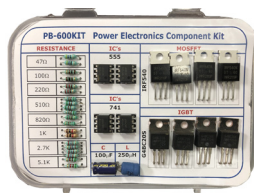
Many additional classroom parts are available (examples below):

**PB-2**



Replacement Breadboard  
for multiple student use

**PB-600KIT**



Replacement Power  
Electronics Component Kit

**Included with PB-600**



Specifications and appearance subject to change without notice  
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## Specifications:

All specifications apply to the unit after a temperature stabilization time of 20 minutes over an ambient range of  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ .

Model	PB-600
Power	3-wire AC Input with 115 V / 230 V (Selectable)
DC Power Supply	$\pm 5\text{V}$ at 100mA, $\pm 12\text{V}$ at 150mA, $\pm 15\text{V}$ at 50mA & $\pm 35\text{V}$ at 50mA
AC Power Supply	18V - 0V - 18V at 50mA, & 15V - 0V - 15V at 50mA
Breadboard	1280 Tie Points and 4 Bus Strips with 100 Tie Points each, Totalling 1680 Tie Points. Size 112mm x 170mm (Approx.)
Triggering Circuit	5 Gate Signal Output, Frequency Range: 40Hz to 900Hz Variable, Amplitude: 12V PWM control of G1, G2, G3 and G4. Duty Cycle Control of "Gate" Signal is 0 to 100%
Single Phase Rectifier	Firing Angle Control $0^{\circ}$ - $180^{\circ}$ Variable
Pulse Amplifier	Firing Circuit Four Gate Signal Output with Isolation Transformer
SCR Assembly	2P4M (4 pieces) 600V, 2A
Power Devices	IGBT- G4BC20S; MOSFET- IRF540; UJT- 2N2646, DIAC- DB3; TRIAC- BT136; PUT- 2N6027; SCR- TYN612/02
Circuit Components	Capacitor: 0.01uF, 0.047uF, 0.1uF, 0.33uF, 1uF/63V (4 pieces), 2.2uF/50V Diode: 1N4007 (8 pieces), Zener Diode 9V Inductor: 10mH, 68mH (2 pieces) Resistor: 22 $\Omega$ /5W, 100 $\Omega$ /2W, 220 $\Omega$ /2W, 10K $\Omega$ (3 pieces), 22K $\Omega$ , 33K $\Omega$ , 47K $\Omega$ ,
Potentiometer	4.7K $\Omega$ (2 pieces), 1M $\Omega$
Load Resistance	120 $\Omega$ , 270 $\Omega$ , 1K $\Omega$ , 2.2K $\Omega$ , (each 5W)
Rocker Switch	Single Pole Double Throw (SPDT)
Pulse Transformer	1:1 (2 pieces), 1:1:1
Dimensions	16.3" x 4.7" x 12.3" (W x H x D)
Weight	9.25 lbs
Included Accessories	PB-2 Breadboard, PB-600KIT Power Electronics Component Kit , WK-3 Jumper Wire Kit (70 pc), Patch Cords (36 pc), Power Cord
Warranty	1 Year

## Contact Information:

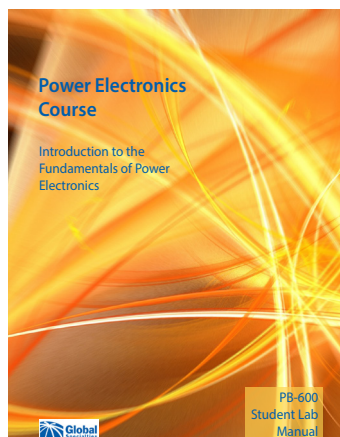
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**PB-600**  
**Student Lab Manual**  
**(PDF Download)**



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