

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

The PB-2 board is removable for easy placement in the breadboarding area, which makes it suitable for multi-student use in a classroom environment.

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

### Applications

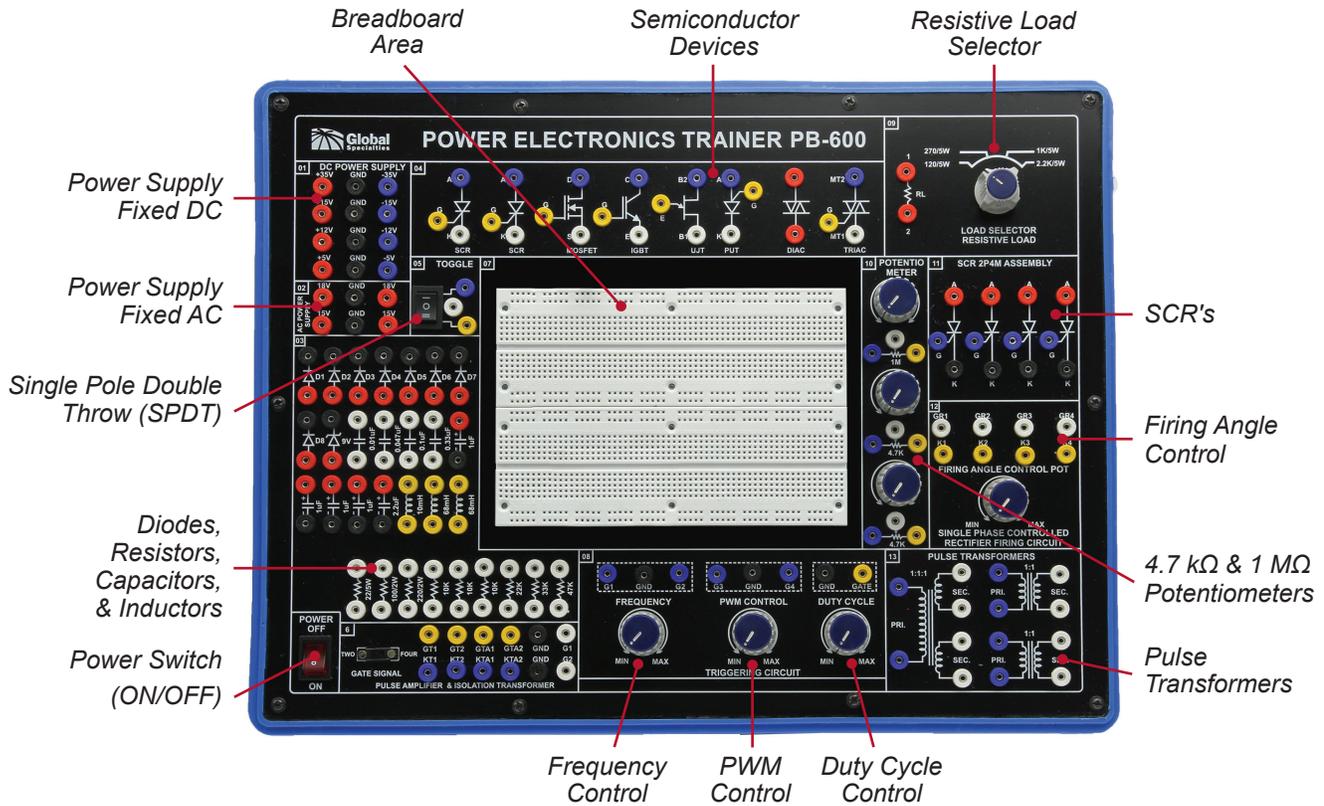
Device Characteristics  
Commutation Circuit  
Resistor Triggering Circuit  
Ramp and Pedestal Triggering  
Relaxation Oscillator  
Voltage Commutated Chopper

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

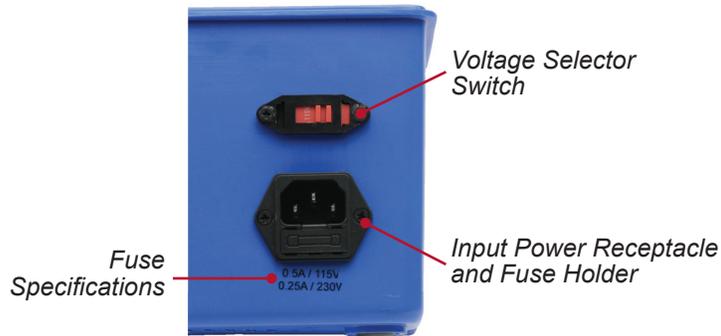
### Features

- Power Output:
  - 8 Fixed DC outputs
  - 4 Fixed AC outputs
- 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 - 120 V @ 60 Hz
  - 220 - 240 V @ 50 Hz
- 1-Year Warranty

## Front Panel

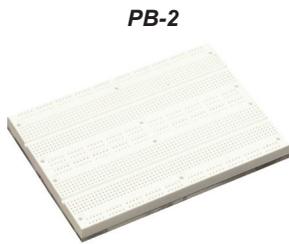


## Side Panel

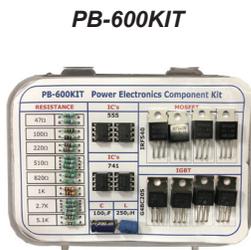


## Accessories

Many additional classroom parts are available (examples below):



Replacement Breadboard for multiple student use



Replacement Power Electronics Component Kit



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 °C ± 5 °C.

<b>Model</b>	<b>PB-600</b>
<b>Power</b>	3-wire AC Input with 115 V / 230 V (Selectable)
<b>DC Power Supply</b>	± 5 V at 100 mA, ± 12 V at 150 mA, ± 15 V at 50 mA & ± 35 V at 50 mA
<b>AC Power Supply</b>	18 V - 0 V - 18 V at 50 mA, & 15 V - 0 V - 15 V at 50 mA
<b>Breadboard</b>	1280 Tie Points and 4 Bus Strips with 100 Tie Points each, Totaling 1680 Tie Points. Size 112mm x 170mm (Approx.)
<b>Triggering Circuit</b>	5 Gate Signal Output, Frequency Range: 40 Hz to 900 Hz Variable, Amplitude: 12V PWM control of G1, G2, G3 and G4. Duty Cycle Control of "Gate" Signal is 0 to 100%
<b>Single Phase Rectifier</b>	Firing Angle Control 0°-180° Variable
<b>Firing Circuit/ Pulse Amplifier</b>	Four Gate-Signal Outputs with Isolation Transformer
<b>SCR Assembly</b>	2P4M (4 pieces) 600 V, 2 A
<b>Power Devices</b>	IGBT-G4BC20S; MOSFET-IRF540; UJT-2N2646, DIAC-DB3; TRIAC-BT136; PUT-2N6027; SCR-TYN612/02
<b>Circuit Components</b>	Capacitor: 0.01 uF, 0.047 uF, 0.1u F, 0.33 uF, 1 uF/63 V (4 pieces), 2.2uF / 50 V Diode: IN4007 (8 pieces), Zener Diode 9 V Inductor: 10 mH, 68 mH (2 pieces) Resistor: 22 Ω/5 W, 100 Ω/2 W, 220Ω/2 W, 10k Ω (3 pieces), 22 kΩ, , 47 kΩ,
<b>Potentiometer</b>	4.7 kΩ (2 pieces), 1 MΩ
<b>Power Resistors</b>	120 Ω, 270 Ω, 1 kΩ, 2.2 kΩ, (each 5 W)
<b>Rocker Switch</b>	Single Pole Double Throw (SPDT)
<b>Pulse Transformer</b>	1:1 (2 pieces), 1:1:1
<b>Dimensions</b>	16.3" x 4.7" x 12.3" (W x H x D)
<b>Weight</b>	9.25 lbs
<b>Included Accessories</b>	PB-2 Breadboard, PB-600KIT Power Electronics Component Kit , WK-3 Jumper Wire Kit (70 pc), Patch Cords (36 pc), Power Cord
<b>Warranty</b>	1 Year

## Contact Information

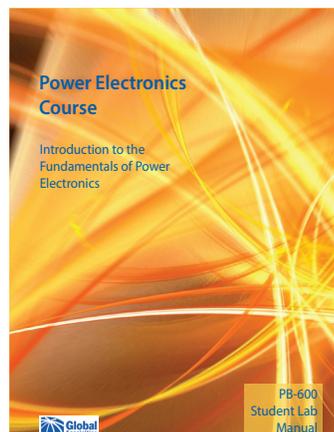
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**PB-600  
Student Lab Manual  
(PDF Download)**

