

# Trainer Series

## Electronic Trainers

### PB-503 Analog & Digital Design Workstation



Use the PB-503 to construct a wide variety of experiments, including but not limited to:

- Opto-Device Circuits
- Clocks
- Multivibrators
- Oscillator Circuits
- Timers
- Function Generator Circuits
- Logic Circuits
- Gates
- Counters
- Flip-Flops
- Analog-to-Digital Converters
- Digital-to-Analog Converters
- Medium Scale Integration Circuits
- Phase Lock Loops
- Operational Amplifier

#### Features:

- Ideal for analog, digital and microprocessor circuits
- Includes built-in Function Generator with continuously variable waveforms
- Triple output power supply for a variety of DC voltage levels
- Two Digital Pulsers for logic test circuits
- High & low buffered logic indicators
- 8 channel logic monitor
- Audio experimentation speaker
- Removable breadboard plate allows the flexibility of building circuits away from the lab
- Analog & Digital optional courseware available
- 3-year warranty on all parts and workmanship.

Global Specialties Model PB-503 is an Analog & Digital Design Workstation. The PB-503's newly updated, robust design makes it a trainer suitable for all levels of electronics instruction and design.

The PB-503's breadboarding area is comprised of Global's "Premium" solderless breadboards and is backed by an industry leading 3-year warranty.

The PB-503 can be used to construct basic series and parallel circuits up to the most complicated multi-stage microcomputer circuits, incorporating the latest in industrial technology.

The PB-503 allows students to learn valuable hands-on lab experience by employing necessary breadboarding techniques, which provide a solid foundation in circuit experimentation, analyzing and troubleshooting.

Experienced designers will also find the PB-503 an invaluable, capable and reliable instrument, suitable for the most advanced and demanding design applications.

Global Specialties trainers provide the most complete platform required to enable engineers and technicians to train for careers in the rapidly growing field of electronics technology.



*Innovative Training Solutions*

# Analog & Digital Design Workstation

## Specifications

Model	PB-503
<b>Input power Source</b>	AC Line: 115VAC @ 60Hz (typical)
<b>Power Supplies</b>	Fixed DC: +5VDC 1.0A max, current limited Ripple, <5mV Variable + DC: +1.3V @150mA to +15VDC @ 500mA , Ripple < 5mV Variable - DC: -1.3VDC @ 150mA to -15VDC @ 500mA, Ripple < 5mV
<b>Binding Posts</b>	(4) Ground, +5 VDC, Variable + DC & Variable - DC Power Supply Outputs
<b>Pulsers</b>	(2) Pushbutton-operated, open-collector output pulsers. Each with 1 normally-open, 1 normally- closed output. Each output sinks up to 250 mA
<b>Function Generator</b>	Frequency Range: 0.1Hz to 100KHz, six ranges Output Voltage: 0 to $\pm 10$ Vp-p into 50 $\Omega$ Load (20Vp-p in open circuit), short circuit protected Output Impedance: 600 $\Omega$ except TTL Output waveforms: Sine, Square, Triangle & TTL Sine Wave Distortion: <3% @ 1KHz Typical TTL Pulse: Rise & fall time: <25ns, drive 100 TTL Loads (TTL is available when the function generator is set to Square Wave Mode) Square Wave: Rise and fall times <0.5 $\mu$ s
<b>Logic Switches</b>	(8) Logic Switches select Logic High and Logic Low Logic Low Level: Ground Logic High Level: Switchable between +5V and the variable positive power supplies.
<b>Switches</b>	(2) Single Pull Double Throw (SPDT) - uncommitted
<b>Logic Indicators</b>	LEDs: 16 LEDs; (8) red to indicate logic high and (8) green to indicate logic low Logic High Threshold: 2.2V (nominal) in TTL/+5V mode, 70% (nominal) of selected operating voltage in CMOS mode Logic Low Threshold: 0.8V (nominal) in TTL/+5V mode, 30% (nominal) of selected operating voltage in CMOS mode
<b>Connectors</b>	2 ea BNC - uncommitted
<b>Potentiometers</b>	2: 1 k $\Omega$ and 10 k $\Omega$ - uncommitted
<b>Speaker</b>	8 $\Omega$ , 0.25 W - uncommitted
<b>Breadboards</b>	Removable Plexiglas Socket Plate (PB-3) with 2520 Tie points with 200 additional buss strip tie points internally connected to power supply outputs and ground
<b>Weight</b>	7 lbs (3.2 kg)
<b>Dimensions</b>	6.5 x 16 x 11.5" (165 x 406 x 292 mm)

Technical data subject to change without notice.



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## Optional Accessories

**Courseware:** Available separately or as a package (Model PB-503 Lab).

**WK-1:** Jumper Wire Kit, 350 pieces

**WK-2:** Jumper Wire Kit, 140 pieces

**WK-3:** Jumper Wire Kit, 70 pieces

**WK-4:** Wire Jumper Kit, 100 wires with machined tips

**GSPA Series:** Prototyping adapters

**GSPA-K1:** Surface mount to DIP adapter kit, 6 adapter boards

**GSPA-K2:** Surface mount to DIP adapter kit, 11 adapter boards

**GSA-3185:** Minipro Test Clip Set

**PRO-50A:** Digital Multimeter

The **PB-503 Lab** package offers comprehensive course instruction covering the following areas:

### Electronic Fundamentals

Fundamentals of Electricity

Ohm's Law

Series Circuits, Parallel Circuits

Combinational Circuits

Current Control

Closed, open, shorts

Switches

Thevenin's Theorem

Wheatstone Bridge

Capacitors, Inductors

Phase Shift Circuits

Impedance

Resonant Circuits

Transformers

Rectifiers & Filtering

Integrated Circuits

Transistor Amplifiers

Oscillators

Power Control Circuits

### Digital Electronics

Number Systems & Codes

Binary, Decimal, Hexadecimal, Octal & ASCII

Logic Gates & Boolean Algebra

Combinational Logic Circuits

Flip-Flops

Digital Arithmetic

Counters & Registers

Integrated Circuit Logic Families

TTL Logic

MOSFETS

CMOS

Interfacing CMOS & TTL

Medium Scale Integration

Decoders

Encoders

Data Conversion & Acquisition

Microcomputer Concepts