

PRODUCT CATALOG

About Global Specialties

Company Profile

Introduction

Global Specialties is at the forefront of innovative electronic training solutions for education and industry. Basing its product offerings on the concept of *Education Through Application*, Global Specialties believes that relevant scientific and technical education is best when it permits students to learn by doing. Global Specialties products meet the highest standards for reliability, durability, and long life, designed to take the sustained use of educational, research, and prototyping environments.

History

Founded in 1973, Global Specialties earned its reputation by offering the world's finest breadboarding systems for prototyping and education. Acquired by Cal Test Electronics in 2009, Global Specialties took its place as a member of the B&K Precision Group. Its product line was expanded to include power supplies, robotics, educational kits, and electronics trainers.

Today

Always reaching to connect technology with education, Global Specialties offers innovative products such as its robotics line with full STEM curriculum support. In the United States, Global Specialties products are available from electronics distributors. See the "Where to Buy" tab on our website: globalspecialties.com. Internationally, Global Specialties partners with B&K Precision. Please refer to the "Where to Buy" tab on their site, bkprecision.com, for a complete list of distributors.



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New Products

Test Equipment

NEW



Ten New Power Supplies (see page 13)



Two New Signal Generators (see page 16)



Two New LCR Meters (see page 17)



LD-200P 200 W Electronic Load (see page 16)

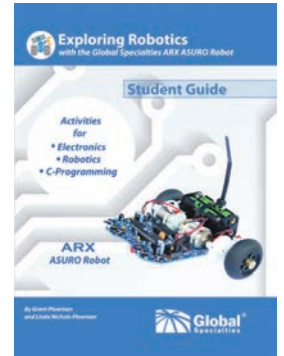


50 MHz Digital Storage Oscilloscope (see page 16)

Robotics

NEW

Video-Based Robotics Curriculum (see page 11)



RP6V2-C Robotics Kit (see page 10)



R700 Robot (see page 9)



Trainers

NEW



PB-507LAB New Courseware & Parts Kit (see page 4)

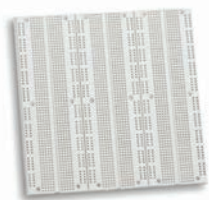
Electronics Trainers

Circuit Design Trainers Selection Table

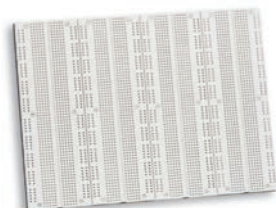
Model #	Trainer Type	Computer Interface	Fixed Power Supply	Variable Power Supply	Logic Input/LED Indicator	Logic Probe	Display	Function Generator	Pulse Generator	Counter
PB-500	Analog Circuits	NA	±12 VDC	0 to ±7.5 VDC	8/8	NA	NA	100 kHz	NA	NA
PB-501	Analog Circuits	NA	5 VDC	NA	10/8	NA	NA	1 kHz Clock	NA	NA
PB-502	Analog Circuits	NA	5 VDC	0 to ±12 VDC	10/8	NA	Two 7-segment displays	1 Hz, 1 kHz, 100 kHz Clock	NA	NA
PB-503	Analog and Digital Circuits	NA	5 VDC	0 to ±13.5 VDC	12/8	NA	NA	100 kHz	NA	NA
PB-505	Analog and Digital Circuits	NA	5 VDC 6.2/12.6 VAC	0 to ±13.5 VDC	12/8	Yes	Two 7-segment displays	1 MHz	NA	NA
PB-507	Analog and Digital Circuits	USB	5 VDC 6.2/12.6 VAC	0 to ±20 VDC	14/8	Yes	LCD and two 7-segment displays	1 MHz	1 MHz 10-90% Duty Cycle	Yes

Embedded Systems Design Trainers Selection Table

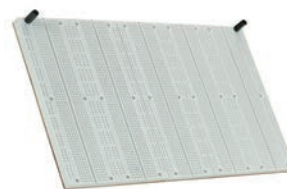
Model #	Trainer Type	Computer Interface	Fixed Power Supply	Logic Input/LED Indicator	Display	Counter
DL-010	Combinational Logic	NA	5 VDC	9/8	7-segment display	Yes
DL-020	Sequential Logic	NA	5 VDC	11/8	7-segment display	Yes
DL-030	FPGA/ Microprocessor Design	USB	5 VDC	19/16	Three 7-segment displays	NA



PB-3
(for PB-503
and PB-503C)



PB-4
(for PB-505)



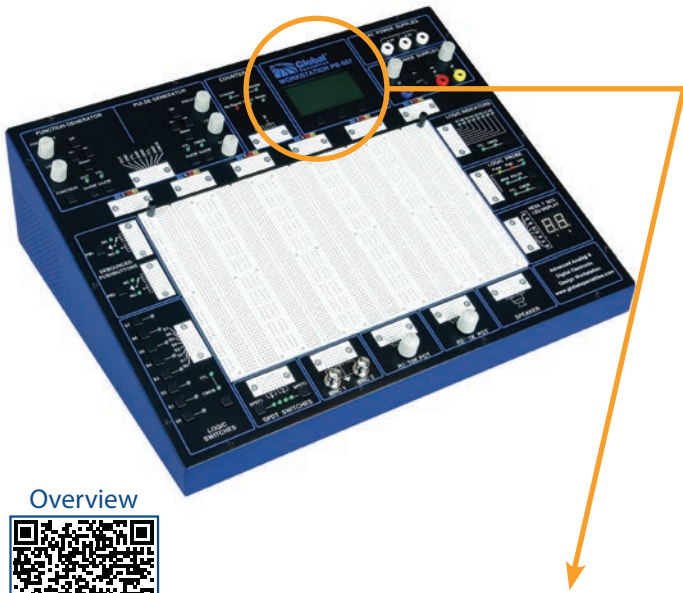
PB-5
(for PB-507)

PB-3, PB-4, & PB-5 Replacement Breadboards

The PB-3, PB-4, and PB-5 are replacement breadboard sockets for the PB-503, PB-503C, PB-505, and PB-507 trainers. Supported by an anodized aluminum back plate for strength and durability, the breadboards are secured to the trainer with Velcro.

Electronics Trainers

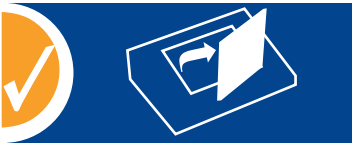
Analog and Digital Circuit Design



Overview



Video



Removable Breadboard



Digital Display

PB-507 Advanced Analog and Digital Electronic Design Trainer

The PB-507 is a powerful, versatile tool for circuit designers, engineers, technicians, students, and hobbyists. With all-digital controls, USB port, and a wide choice of built-in circuit accessories, the workstation allows for rapid and accurate construction of virtually any type of analog or digital circuit. Use the USB connection on the PB-507 and you can control or view the module's values from a PC. Using this feature you can project the controls to a large viewing screen for your classroom to observe and follow along.

Product Features

- ▶ Flush-mounted, removable circuit breadboard for multiple student lab usage
- ▶ LCD displays the settings from each active module
- ▶ USB connection enables viewing and controlling from a PC
- ▶ Choose your power source: 6.3/12.6 VAC, 5 VDC or variable ± 20 VDC
- ▶ Draw power from banana plug connections or the tie-point power supplies above each breadboard bus strip
- ▶ Powerful 1 MHz bandwidth function generator with sine, triangle, and square wave output

NEW



Courseware for Electronics Trainers

For Models PB-503, PB-503C, PB-505 and PB-507

GSC-2301	Electronics Fundamentals Student Text
GSC-2302	Electronics Fundamentals Instructor Guide
GSC-2311	Electronics Fundamentals Lab Manual
GSC-2311KIT	Electronics Fundamentals Lab Kit
GSC-2312	Electronics Fundamentals Lab Solutions Set
GSC-3200	Digital Electronics Student Text
GSC-3201	Digital Electronics Instructor Guide

PB-503LAB PB-503 Trainer Plus Courseware

PB-503CLAB PB-503C Trainer Plus Courseware

PB-505LAB PB-505 Trainer Plus Courseware

PB-507LAB PB-507 Trainer Plus Courseware

The Global Specialties labs kits teach a comprehensive course in analog and digital electronics. Students will learn the fundamentals of electricity all the way through combinational logic circuits and microcomputer concepts. They will engage in valuable hands-on breadboarding and experiment verification with the use of the selected trainer. Each kit listed above includes a trainer plus the items listed in the "Courseware for Electronics Trainers" table at right.

Product Features

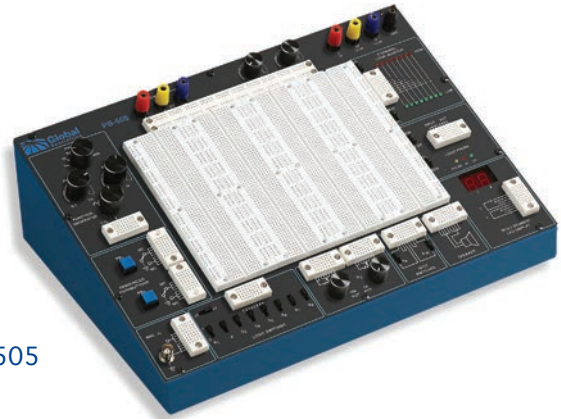
- ▶ All new 2nd Edition textbooks
- ▶ Includes a lab kit with all the small parts needed

Electronics Trainers

Analog and Digital Circuit Design

PB-505 Deluxe Analog and Digital Design Trainer

Ideal for analog, digital, and microprocessor circuits, the PB-505 is a robust electronics trainer engineered for electronics instruction and design and is. Students will learn valuable hands-on breadboarding techniques and build a solid foundation in circuit experimentation, construction, and analysis. The PB-505 can be used to construct basic series and parallel circuits, or the most complicated multi-stage microcomputer circuits incorporating new trends in industrial technology.



PB-505

Product Features

- ▶ Large removable breadboard area with 3360 tie-points
- ▶ Two open collector pulsers
- ▶ Built-in multi-waveform function generator
- ▶ Quad voltage power supply: three DC and one low voltage AC
- ▶ Built-in logic probe with pulse capture
- ▶ BCD to 7-segment decoder/display

PB-503 Desktop Analog and Digital Design Trainer

PB-503C PB-503 with Aluminum Carrying Case

The PB-503 is our time-tested workhorse designed for all levels of electronics instruction and prototyping. Utilizing the PB-503, students can create and implement their own circuits onto the breadboard, which is removable for multiple student usage in lab settings. For both series and parallel circuits, the PB-503 can also handle much more sophisticated multi-stage microcomputer circuits. Multiple features in one complete test instrument can save hundreds of dollars compared to purchasing individual units.



PB-503

Product Features

- ▶ Large removable breadboard area with 2520 tie-points
- ▶ Ideal for analog, digital, and microprocessor circuits
- ▶ 8 high and low buffered logic indicators & 8 logic switches
- ▶ Function generator with continuously variable sine, square, triangle waveforms, and TTL pulses
- ▶ Triple-output power supply offers two variable outputs, ± 1.3 to ± 15 VDC, plus a fixed 5 VDC supply
- ▶ Supplied with aluminum carrying case to provide additional protection, strength, and internal storage space



PB-503C

PB-505, PB-503, & PB503C feature



Removable Breadboard

Electronics Trainers

Analog Circuit and Logic Design

PB-502 Portable Advanced Logic Design Trainer

The PB-502 is a robust instrument capable of satisfying many requirements arising in the design and study of digital logic circuitry. The PB-502's selectable operating voltage further aids its versatility by allowing the trainer to be used in either TTL or CMOS operating mode. The trainer integrates three power supplies and input/output devices that simplify the construction of a wide range of circuits.

Product Features

- ▶ Two fully debounced push buttons with true logic outputs
- ▶ TTL/CMOS operation
- ▶ 8 SPST logic switches and buffered LED logic indicators
- ▶ Seven-segment LCD display
- ▶ UBS-100 breadboard with 840 tie-points
- ▶ Clock outputs and two BNCs connected to adjacent tie-points



PB-501 Portable Logic Design Trainer

The PB-501 is a low-cost portable trainer, which is capable of satisfying many requirements arising in the design and study of digital logic circuitry. The PB-501 can be powered up via batteries, optional wall-mount power adapter, or an external 5V power supply. The PB-501 can be utilized for the design and study of gates, counters, and multiplexers. It can even interface directly to a microprocessor. Housed in a tough molded plastic carrying case with an integral hinged cover, it stacks conveniently for storage.

Product Features

- ▶ 8 dual-function LED logic indicators
- ▶ Logic switches and input ports supplied
- ▶ Output ports
- ▶ UBS-100 breadboard with 840 tie-points
- ▶ Clock output and two debounced logic pulsers



PB-500 Portable Analog Circuit Trainer

The PB-500 is a compact portable analog circuit design trainer with built-in power supplies and a function generator. It can be used for analog circuit design and classroom training purposes. Its unique combination of built-in functions and uncommitted devices make it one of the most convenient breadboarding systems available. The trainer contains all of the functions required for studying and experimenting with active filters, operational amplifiers, and other analog circuitry. It is powered by a UL-approved wall-mount power adapter.

Product Features

- ▶ Compact analog trainer
- ▶ One UBS-100 breadboard with 840 tie-points and 8 power rails
- ▶ Two slide pots: 10 k Ω and 100 k Ω
- ▶ Two SPDT slide switches
- ▶ Two BNC connectors
- ▶ One speaker: 2", 8 Ω



Electronics Trainers

Embedded Systems Design

DL-010 Combinational Logic Trainer

Global Specialties' DL-010 is first in its series of Embedded Systems Design Trainers. The DL-010 enables students to learn the basics of combinational digital logic, a foundation for microprocessor/microcontroller design. With its included lab manual, the trainer is an ideal classroom solution enabling self-guided student learning. The step-by-step training manual features an overview of digital logic and hands-on labs enhancing any textbook currently in use.

Product Features

- ▶ 72-page lab manual with 11 hands-on labs
- ▶ Interactive downloadable version of the manual available at the iTunes store (search Global Specialties)
- ▶ Breadboard area allows the system to grow as students' knowledge increases
- ▶ Gate elements are pre-mounted, decoupled, debounced, and fully integrated
- ▶ Rugged, lightweight, blow-molded carrying case
- ▶ Complete kit with 9 V wall adapter and 100 machined-pin hookup wires



DL-020 Sequential Logic Trainer

The DL-020 is the perfect classroom solution enabling students to go right to work all on their own, implementing more than a dozen standard logic circuits plus many more custom circuits. A step-by-step training manual is included featuring an overview of digital logic and hands-on labs to enhance any textbook currently in use. The attractive and easy-to-use system is the mid-level model in the series of Embedded Systems Design Trainers.

Product Features

- ▶ 62-page lab manual with 12 hands-on labs
- ▶ Interactive downloadable version of the manual available at the iTunes store (search Global Specialties) Experiments using standard TTL logic
- ▶ Experiments using standard TTL logic
- ▶ Regulated 5 V power (Vcc) and ground (GND) points
- ▶ Commonly referenced truth table chart inside the case lid
- ▶ High quality machined sockets for input and output interconnections
- ▶ Gate elements presented in easy-to-visualize graphic form



DL-030 Microprocessor Design Trainer

The DL-030 enables students to learn the advanced concepts of embedded systems control via designing and implementing microprocessors/microcontrollers on an FPGA. Powerful enough for complex real-life projects, the DL-030 trainer provides the framework and structure needed for those new to FPGA programming.

Product Features

- ▶ 137-page lab manual with 11 hands-on labs
- ▶ Interactive downloadable version of the manual available on the iTunes store (search Global Specialties)
- ▶ Altera Cyclone® III FPGA and Nios® II embedded processor
- ▶ Software CD with powerful designing/implementing tools
- ▶ Works with any Windows XP or higher system (32-bit only)
- ▶ Breadboard area allows the system to grow as students' knowledge increases

Overview



Video



DL manuals authored by
university professor
Enoch Hwang, PhD

Robotics

Arduino

Robotics Selection Table

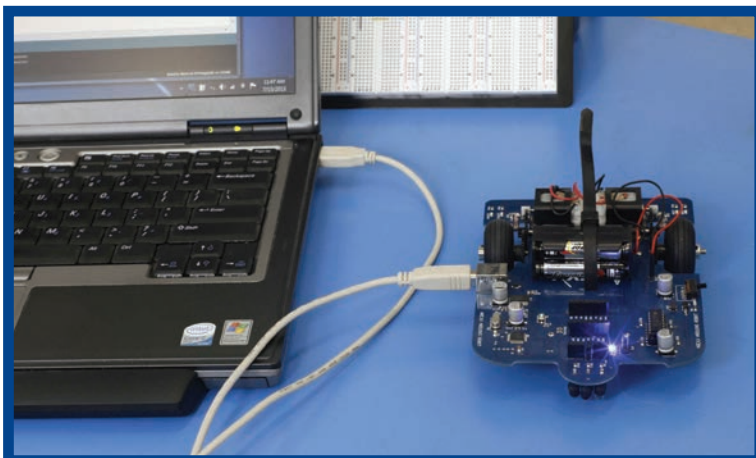
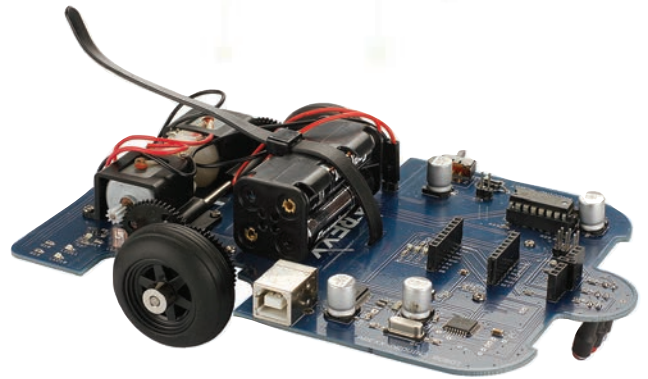
Model	Power	Programming Language	Assembly Required	Processor	Wireless Options
R680 Banshi Robotic Arm	AC Adapter	C	Yes	ATMEGA 64	Yes
R700 Vector Robotic Arm	AC Adapter	C	No	ATMEGA 64	Yes
RP6V2 Robotic Vehicle	6 AA Batteries On-board charging jack	C	No	ATMEGA 32	Yes
R500 Robotic Caterpillar	4 AAA Batteries	C	Yes	ATMEGA 16	Yes
AAR Arduino Robot	4 AAA Batteries	Arduino	No	ATMEGA 328P	Yes
ARX ASURO Robot	4 AAA Batteries	C	Yes	ATMEGA 8L	Yes

AAR Arduino Robot

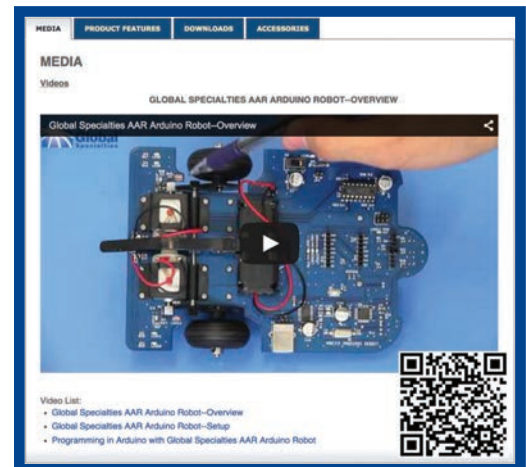
The AAR Arduino Robot is a fully-assembled autonomous mobile robot designed in the Arduino open-source prototyping platform. The AAR comes with all the software needed to write programs and upload them to the robot. If you prefer to just run a program without coding it yourself, many sample programs are already included. Use ARX Add-On Modules such as the ARX-SNK Infrared Sensor to customize your robot. Your creativity is the only limit to where your AAR Robot will go.

Product Features

- ▶ Line tracker sensor
- ▶ ATmega328P, 8-bit AVR-RISC processor with 16 MHz clock
- ▶ Includes firmware and hardware selftest
- ▶ Delivered fully assembled (no soldering needed)
- ▶ CD with software, manual, and many extras
- ▶ Arduino open-source software



AAR Arduino Robot connection setup



Product overview video

Robotics

C-Programmable

R700 Vector Robotic Arm

The R700 Vector Robotic Arm is a high quality robot made of heavy gage aluminum. The robot offers wireless options and is I2C based so that you can build on it using other modules. The R700 enables students and hobbyists alike to learn about mechatronics and C language programming. The Vector is run by an agile ATMEGA64 chip and can be maneuvered using the included keyboard or RACS software, which equips you to record the robot's actions and play them back.

NEW

Overview



Video

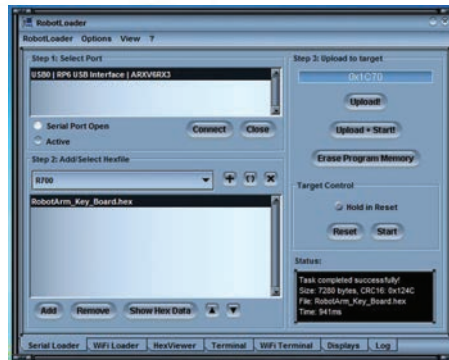


Capabilities

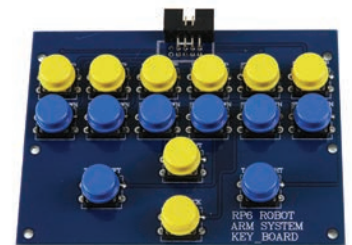
- ▶ Programmable in C via open source WinAVR and RobotLoader software
- ▶ Controllable from keyboard
- ▶ Controllable via included RACS software
- ▶ Memory playback of arm motion using RACS
- ▶ Expandable via the I2C interface
- ▶ Wireless control options available

Product Features

- ▶ Comes fully assembled
- ▶ Current-overload protected servos
- ▶ Base (.87 lbs) may be removed for mounting the arm to another robot like the RP6V2
- ▶ Download programs onto the robot with the included RobotLoader software
- ▶ Control with keyboard or computer via included RACS software
- ▶ ATMEGA64 processor



RobotLoader software



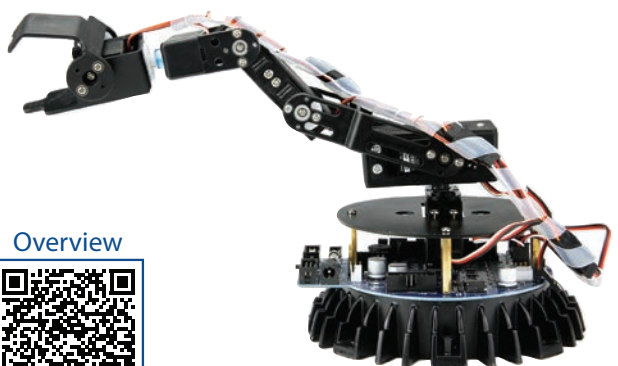
Keyboard

R680 Banshi Robotic Arm

The Banshi Robotic Arm is an affordable robot for the hobbyist and educator. Since it is programmable and comes unassembled, it is ideally suited as a project to learn electronics, mechatronics, and computer programming. The Banshi is controlled by a powerful ATMEGA64 microcontroller that is programmable via open source tools in C. You can actuate the robot using the included keyboard or RACS software. Using the software, you can record the movements of the Banshi and play them back.

Product Features

- ▶ Plastic arm and metal chassis
- ▶ Download sample programs or your own custom programs with the included USB programmer and RobotLoader software
- ▶ 6 degrees of freedom
- ▶ ATMEGA64 processor
- ▶ Various available I/Os
- ▶ I2C bus



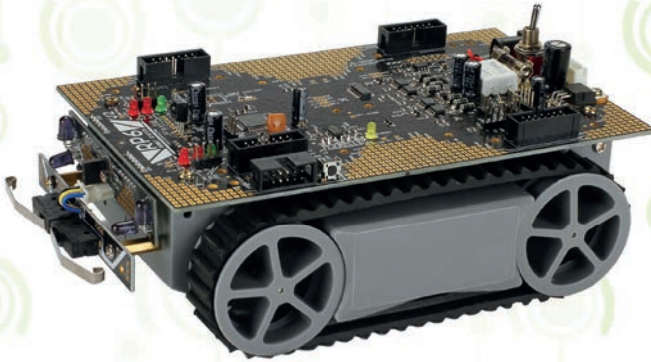
Overview



Video

Robotics

C-Programmable



Overview



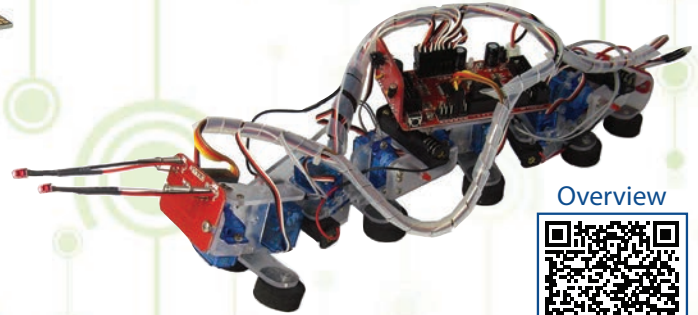
Video

RP6V2 RP6V2 Robotic Vehicle

The RP6V2 is an autonomous robotic vehicle (ARV) designed for fun as well as serious mechatronic experimentation using C programming language. Its very comprehensive 138-page manual covers software setup, sample programs, uploading instructions, schematics, and even a C programming primer that can get you on your way to custom writing your own code with the included IDE software package.

Product Features

- ▶ Light, collision, speed, and IR obstacle sensors integrated
- ▶ Optional RC5 remote control available (RP6V2-RMT)
- ▶ Powerful tank drivetrain can negotiate steep ramps and obstacles
- ▶ Large payload capacity encourages stacking of expansion boards as needed
- ▶ Advanced wireless option available (RP6V2-WIFI)
- ▶ Delivered fully assembled (no soldering needed)



Overview



Video

R500 Robotic Caterpillar

The R500 Robotic Caterpillar is a fascinating robot kit that looks and moves like a real caterpillar. The IR receiver allows for control with the optional RP6V2-RMT remote control. The transparent body is fitted with LEDs and looks great in the dark. Add on other sensors and modules using the I2C bus system. This one-of-a-kind robot will make learning electronics, robotics, and programming a world of fun!

Product Features

- ▶ Moves like a caterpillar on the floor
- ▶ Retreats when objects touch the antenna sensor
- ▶ Rights itself using the tilt sensor when the caterpillar falls over
- ▶ Antenna LEDs change color when making contact with objects
- ▶ 8 degrees of freedom
- ▶ Programmable in C and comes with many sample programs



Overview








Video

RP6V2-C Autonomous Robotic Vehicle Kit

The RP6V2-C is a kit including the RP6V2 Robotic Vehicle, a NiMH battery charger (RP6V2-CHG), and RC5 remote control (RP6V2-RMT). The battery charger makes it very easy to charge the batteries without having to remove them from the robot.

ADD-ON MODULES FOR RP6V2 & RP6V2-C

 RP6V2-CHG RP6V2 Battery Charger	 RP6V2-RMT Robot IR Remote Control Also works with R500
 RP6V2-DSP RP6V2 DISPLAY	 RP6V2-EXP RP6V2 Expansion PCB
 RP6V2-M32 RP6V2-M32 Control Module	 RP6V2-WIFI RP6V2-WIFI

ARX-STSSP

NEW

ARX Student Self-Study Package

The ARX curriculum is a 10 week STEM course for the ARX. Students will learn the basics of soldering, basic electronics, mechatronics, and programming in the C language. No need for teachers to have previous robotics experience. The curriculum is so complete students can learn by following the video series and on-line help tools. Teachers can learn right along with them. The ARX-STSSP is the complete package of the ARX STEM Curriculum for one self-study student. It includes the checked items on pages 11-12.



Overview



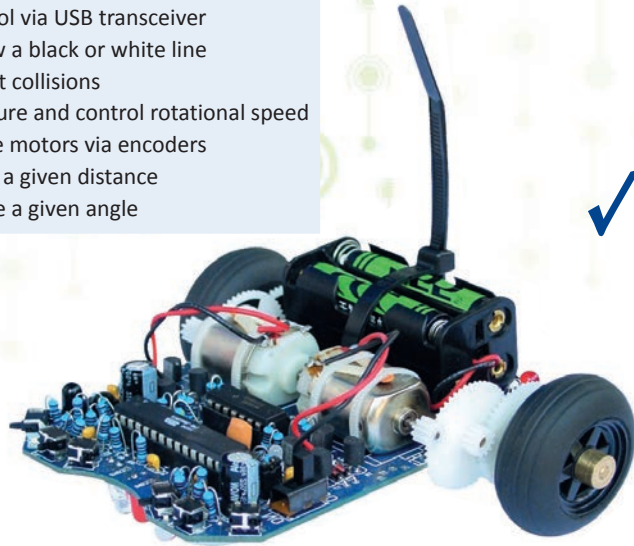
Video

ARX ASURO Robot

The ARX is a quick, autonomous, multi-sensored robot with line-following and collision detection abilities. The ARX comes unassembled and requires soldering, making it an exceptionally suitable introduction into processor controlled hobby electronics for projects in schools, universities, and technical education.

Product Features

- ▶ Cruise around wirelessly with PC control via USB transceiver
- ▶ Follow a black or white line
- ▶ Detect collisions
- ▶ Measure and control rotational speed of the motors via encoders
- ▶ Move a given distance
- ▶ Rotate a given angle



✓ Included in ARX-STSSP

ADD-ON MODULES FOR MODEL ARX



ARX-XTD
ARX-CGM
ARX Robot shown with
Compass &
Gyro Module

NEW



ARX-WRL
ARX Advanced
Wireless Kit



ARX-SNK
ARX IR Heat
Sensor



ARX-MSP
ARX Metal
Searching Probe



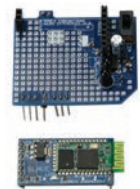
ARX-EXP
ARX
Experiment PCB



ARX-ULT
ARX Ultrasound
Distance
Measurement



ARX-DSP
ARX Display



ARX-BT3
ARX
Wireless Kit

A

R

X

Robotics

STEM Video-Based Curriculum



ARX-BBKT ARX Starter Breadboard Kit

The ARX-BBKT is housed in a 12-inch tool box, with electronics storage areas for storing your ARX Robot and breadboard under construction. These items are required for the first 2 sections of ARX STEM Curriculum. Kit can be purchased once and used with multiple classes. One ARX-BBKT per ARX Robot is recommended.



GSK-109 ARX Robot Soldering Practice Kit

For use with the ARX STEM Curriculum, those new to electronics can learn soldering and practice their skills on this low-cost kit before attempting it on the ARX ASURO Robot.



ARX-SSB ARX Student Book

For use with the ARX STEM Curriculum, this is the student textbook only, without access to the online instruction. Use this option to order additional hard copies of the textbook.



ARX-PARTS ARX Robot Spare Parts Kit

The ARX Spare Parts Kit contains all the parts of a ARX ASURO Robot without the extras like the USB cable. The ARX-PARTS is a must when the ARX STEM Curriculum is being used in a classroom setting as small parts are easily lost. One ARX-PARTS per 10 ARX Robots is recommended.



ARX-TLKT ARX Robot Tool Kit

The ARX-TLKT is a complete tool kit for use in assembling the ARX Robot while working along with the ARX STEM Curriculum. Includes a soldering iron and all other necessary tools such as a very handy third-hand tool with magnifying glass. The kit is housed in a sturdy 19-inch tool box. One ARX-TLKT per every 4 ARX Robots is recommended.



ARX-SSBL ARX Student Book, Single-User License

For use with the ARX STEM Curriculum, this is a student text book with a single-user license giving you full access to the online video instruction. Ideal for independent learning and hobbyists.



PRO-50A Handheld Digital Multimeter

The PRO-50A is a highly versatile, economically-priced DMM with a large, 3 1/2-digit LCD backlit display for comfortable viewing. A key portion of the ARX STEM Video Curriculum centers on how to use this meter and some of its basic applications for robotics.



ARX-TP1 ARX Teacher Pack, Single-User License

For use with the ARX STEM Curriculum, this is a teacher package with a single-user license to the online video content including teacher answer keys. For multiple-user licensing, please order the ARX-TPLAB.

ARX-TPLAB ARX Teacher Pack, Multiple-User License

For use with the ARX STEM Curriculum, this is a teacher package with site license. The site license is good for any number of users at your school-site. This is not a district license, however it covers every student in your school.

✓ Included in ARX-STSSP

Test Equipment

Power Supplies

Power Supplies Selection Table

Power	Model #	Power Supply Type	Outputs	Output 1	Output 2	Output 3	Display	Ripple & Noise	Remote Interface(s)
80 W	I412	DC, Switching	1	0.1-16.4 V/0.1-5.1 A 0.1-27.6 V/0.1-3.1 A 0.1-36.8 V/0.1-2.3 A	NA	NA	Dual 4-digit LED	≤30 mVp-p	None
90 W	I410	DC, Linear	1	0-30 V 0-3 A	NA	NA	Dual 3-digit LED	≤3 mVrms	None
90 W	I425	DC Linear Programmable With Data Logging	1	1-18 V 0-5 A	NA	NA	Dual 4-digit LED	3 mV	USB, RS-485
90 W	I430	DC, Linear Programmable With Data Logging	1	1-30 V 0-3 A	NA	NA	Dual 4-digit LED	3 mV	USB, RS-485
105 W	I415	DC, Linear	2	0-30 V 0-3 A	5 V (fixed) 3 A	NA	Dual 3-digit LED	<0.4 mVrms	None
115 W	I403	DC, Switching	3	1-20 V 0-5 A	3.3/5 V 1 A	12 V (fixed) 800 mA	Dual 4-digit LCD	≤5 mVrms ≤80 mVp-p	None
115 W	I405	DC, Switching	3	1-36 V 0-3 A	3.3/5 V 1 A	12 V (fixed) 800 mA	Dual 4-digit LCD	≤5 mVrms ≤80 mVp-p	None
207 W	I320	DC, Linear	3	0-32 V 0-3 A	0-32 V 0-3 A	5 V (fixed) 3 A	Quad 4-digit LED	<0.4 mVrms	None
207 W	I350	DC, Linear Programmable	3	0-32 V 0-3 A	0-32 V 0-3 A	5 V (fixed) 3 A	Quad 4-digit LED	≤2 mVrms ≤6 mVp-p	USB
600 VA	I420	AC, Variable Isolated	1	0-150 VAC 0-4 A	NA	NA	Analog	Leakage 0-5000 ≤A	None



Test Equipment

Power Supplies

NEW



1412 Triple Range Switching DC Power Supply

The 1412 provides 80 W of reliable power in a compact package which is perfect where bench space is limited.

Product Features

- ▶ Three selectable ranges
- ▶ Master and slave operation of up to 5 power supplies
- ▶ Front and rear output terminals
- ▶ Separate bright and easy to read displays for voltage and current
- ▶ Remote sense

NEW



1425 & 1430 Programmable DC Power Supplies

The 1425 and 1430 are linear mode power supplies with built-in USB and RS-485 interface. Control and data log up to 31 units at once.

Product Features

- ▶ List mode with 20 steps (100 steps with PC control)
- ▶ Coarse and fine voltage controls
- ▶ Application software, command sets, and LabVIEW drivers included

NEW



1410 DC Power Supply

The 1410 features a master and slave configuration. Connect two supplies in parallel to double the current output, or connect two supplies in series to double the voltage output. The master unit will control the other.

Product Features

- ▶ Constant voltage (CV) and constant current (CC) operation
- ▶ Very low ripple and great regulation
- ▶ Coarse and fine voltage controls
- ▶ Overload protection
- ▶ Dual 3-digit LED displays

NEW



1415 Dual Output DC Power Supply

This 1415 is a reliable and durable linear power supply with great regulation and very low ripple. Operate in constant voltage (CV) or constant current (CC).

Product Features

- ▶ Continuously monitor voltage & current output on 2 digital meters
- ▶ Connect two supplies in parallel to double the current output
- ▶ Connect two supplies in series to double the voltage output
- ▶ Fixed output overload indicator
- ▶ Indicator for CC and CV modes

Specifications

Model	Power	Voltage	Current	Ripple and Noise	Weight	Dimensions
1412	80 W	0.1 - 16.4 V 0.1 - 27.6 V 0.1 - 36.8 V	0 - 5.1 A 0 - 3.1 A 0.1 - 2.3 A	≤30 mVp-p	4.2 lbs (1.9 kg)	2 x 5 x 13 in (5.1 x 12.7 x 33.0 cm)
1410	90 W	0-30 V	0-3 A	≤3 mVrms	11.0 lbs (5.0 kg)	8 x 4.5 x 10.8 in (20.3 x 11.4 x 27.4 cm)
1425	90 W	1-18 V	0-5 A	3 mV	11.0 lbs (5.0 kg)	8 x 4.5 x 10.8 in (20.3 x 11.4 x 27.4 cm)
1430	90 W	1-30 V	0-3 A	3 mV	11.0 lbs (5.0 kg)	8 x 4.5 x 10.8 in (20.3 x 11.4 x 27.4 cm)
1415	105 W	0-30 V (CH 1) 5 V (CH 2)	0 - 3 A (CH 1) 3 A (CH 2)	<0.4 mVrms	14.7 lbs (6.7 kg)	9 x 6.5 x 11.75 in (22.9 x 16.5 x 29.8 cm)

Test Equipment

Power Supplies

NEW



1403 & 1405 Triple Output Switching DC Power Supplies

The 1403 and 1405 are compact power supplies delivering a total of 115 W through one variable and two fixed outputs.

Product Features

- ▶ Constant voltage (CV) and constant current (CC) operation
- ▶ Low ripple/noise for a switching supply
- ▶ Coarse/fine voltage and current controls
- ▶ Bright easy-to-read 4-digit LCDs for both voltage and current
- ▶ Overvoltage protection

NEW



1320 Triple Output High Resolution DC Power Supply

The 1320 is a quad display, triple output DC power supply that provides two variable outputs and one fixed output.

Product Features

- ▶ Variable outputs operate in independent, series, or parallel modes
- ▶ Independent controls for voltage/current settings of variable outputs
- ▶ Constant voltage (CV) and constant current (CC) operation
- ▶ Separate 4-digit voltage and current displays for variable outputs
- ▶ LED indication for CV/CC modes and for overload on fixed output

Overview



Video

NEW



1350 Triple Output Programmable DC Power Supply

The 1350 features programmable control via USB with 10 mV and 1 mA resolutions. Double the output voltage to 64 V by operating in series tracking mode.

Product Features

- ▶ Data storage/recall and list mode with 9 steps
- ▶ Constant voltage (CV) and constant current (CC) operation
- ▶ Separate 4-digit voltage and current displays for variable outputs
- ▶ LED indication for CV/CC modes and for overload on fixed output
- ▶ Overvoltage (OVP) and overcurrent (OCP) protection

Overview



Video

NEW



1420 Variable Isolated AC Power Supply

The 1420 variable isolated AC power supply is great for testing AC line variations or any product requiring AC power.

Product Features

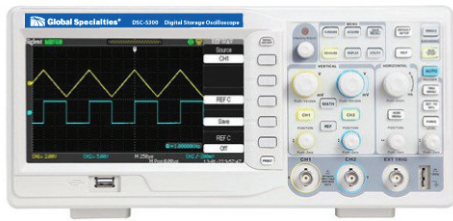
- ▶ Variable isolated 0 to 150 VAC and 3 A continuous output
- ▶ Displays voltage or current readings
- ▶ Isolation transformer to eliminate shock hazard while servicing "hot chassis" equipment
- ▶ Built-in soldering iron temperature control
- ▶ Expanded leakage scale and circuit breaker overload protection

Specifications

Model	Power	Output 1	Output 2	Output 3	Ripple and Noise	Weight	Dimensions
1403	115 W	1-20 V, 0-5 A	3.3/5V, 1 A	12 V, 800 mA	≤5 mVrms, ≤80 mVp-p	4.4 lbs (2.0 kg)	2.8 x 6 x 9.8 in (7.1 x 15.2 x 24.9 cm)
1405	115 W	1-36 V, 0-3 A	3.3/5V, 1 A	12 V, 800 mA	≤5 mVrms, ≤80 mVp-p	4.4 lbs (2.0 kg)	2.8 x 6 x 9.8 in (7.1 x 15.2 x 24.9 cm)
1320	207 W	0-32 V, 0-3 A	0-32 V, 0-3 A	5 V, 3 A	<0.4 mVrms	16.3 lbs (7.4 kg)	9 x 6.5 x 11.75 in (22.9 x 16.5 x 29.8 cm)
1350	207 W	0-32 V, 0-3 A	0-32 V, 0-3 A	5 V, 3 A	≤2 mVrms, ≤6 mVp-p	16.3 lbs (7.4 kg)	9 x 6.5 x 11.75 in (22.9 x 16.5 x 29.8 cm)
1420	600 VA	0-150 VAC 0-4 A	-	-	-	22 lbs (10 kg)	10.5 x 5.7 x 12 in (26.7 x 14.5 x 30.5 cm)

Test Equipment

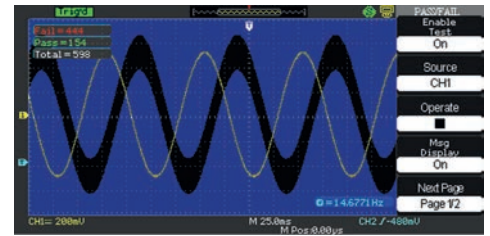
Oscilloscopes, Signal Generators, and Electronic Loads



NEW

DSC-5300 2-Channel Digital Storage Oscilloscope

The DSC-5300 delivers essential features and reliable performance at a price you can afford. Analog style knobs and controls combined with a smart Auto set function make this oscilloscope easy to use. Advanced triggering, automatic measurements, and FFT functions provide you with many options to debug your circuits. Educators can appreciate the ability to disable the Auto button that would automatically setup the scope to display a signal, requiring the user to learn how to set up scope parameters manually. Additionally, the instrument comes with PC software that lets you easily capture, analyze, and document waveforms and measurement results. The DSC-5300 is an ideal education and training tool, and also well-suited for applications in service and repair.



DSC-5300 Pass/Fail Test

Product Features

- ▶ 50 MHz bandwidth, 500MSa/s sample rate
- ▶ 5.7" color display
- ▶ One touch Auto set button
- ▶ Long waveform memory up to 32k point record length for each channel
- ▶ 32 automatic measurements
- ▶ FFT plus four additional math functions
- ▶ Extensive trigger capabilities including pulse width and line-selectable video trigger
- ▶ Save/recall setup and waveform data
- ▶ Transfer waveform data, screenshots, and measurement results to a Windows PC via USB port.

NEW

Overview



Video



LD-200P 200 W Programmable Electronic Load

The LD-200P can be used for testing and evaluating a variety of DC power sources. Reliably test up to 200 W. The load can operate in CC, CV, CP, or CR mode while voltage/current or resistance/power values are measured and displayed in real time. Overvoltage (OVP) and overcurrent (OCP) protection will help protect your valuable prototypes and circuits.

Product Features

- ▶ Operates between 1-63 V, 10 mA-15 A (200 W maximum)
- ▶ High resolution: 20 mV, 1 mA, 0.1 W, 0.1 Ω
- ▶ List mode with 9 steps for increased throughput
- ▶ CV, CC, CP and CR operating modes
- ▶ Built in USB interface and downloadable software
- ▶ Overvoltage (OVP) and overcurrent (OCP) protection

NEW



SFG-205 and SFG-210 DDS Function/Arbitrary Waveform Generators

The SFG-205 (5 MHz) and SFG-210 (10 MHz) Function/Arbitrary Waveform Generators come with 48 built-in predefined arbitrary waveforms. With easy-to-read color displays and an intuitive user interface with numeric keypad, these instruments offer plenty of features including linear/logarithmic sweep, built-in counter, extensive modulation and triggering capabilities, a continuously variable DC offset, and a high performance 14-bit, 125 MSa/s arbitrary waveform generator. The main output voltage can be varied from 2 mV to 10 Vp-p into 50 ohms (up to 20 Vp-p into open circuit).

Product Features

- ▶ Adjustable duty cycle
- ▶ Store/recall up to 10 instrument settings and 10 arbitrary waveforms
- ▶ USB device port (USBTMC-compliant) with front panel USB host port
- ▶ GPIB connectivity with optional USB-to-GPIB adapter (model AK40G)
- ▶ SCPI-compliant command set
- ▶ Short circuit protection on outputs
- ▶ LabVIEW drivers available

Test Equipment

Meters

Overview



Video

NEW



LCR-600 100 kHz High Precision LCR Meter

The LCR-600 is a high accuracy test instrument used for measuring inductors, capacitors and resistors with a basic accuracy of 0.3%. It offers fast, reliable, and versatile testing at low cost. With a frequency range of 100 Hz to 100 kHz, the meter is designed for both component evaluation on the production line and fundamental impedance testing for benchtop applications. Using the SORT function, you can run a PASS/FAIL tests on components. The included 4-wire test clip gives a convenient connection to larger components and assemblies with the accuracy of 4-wire testing.

Product Features

- ▶ Measures: Z, L, C, DCR, ESR, D, Q, and \emptyset
- ▶ Dual LCD Display
- ▶ Auto detect function
- ▶ Open circuit/short circuit compensation



PRO-1000 Benchtop Digital Multimeter

The PRO-1000 is a versatile and dependable bench-top digital multimeters suitable for applications in education, service and repair and manufacturing requiring basic and reliable measurements. The PRO-1000 takes typical multimeter measurements such as volts, ohms, and amps with great accuracy and stability. The PRO-100 is designed for cost conscious users requiring a basic and dependable meter with a broad range of extra features offered at a value price.

Product Features

- ▶ Basic VDC accuracy of 0.05%
- ▶ Audible continuity and diode testing
- ▶ Overload protection on all ranges
- ▶ AC/DC voltage measurement up to 1000 VDC and 750 VAC
- ▶ AC/DC current measurement up to 10 A
- ▶ Resistance measurement up to 20 M Ω

Overview



Video

NEW



LCR-58 Tweezer LCR Meter with ESR

The LCR-58 is a highly versatile, economically-priced, digital Tweezer LCR Meter. Small enough for one-hand operation, it is perfect for use on surface mount devices (SMD). It features ESR (Equivalent Series Resistance) measurement capability, a display of 6000 counts, 2 times-per-second sampling, automatic polarity with negative indication (-), battery status, and over-range indication. The LCR-58 can measure inductance, capacitance and resistance, with a basic accuracy of 1% - 3% depending on the range. It also has a diode test function, and measures DC Resistance (DCR).

Product Features

- ▶ ESR, DCR, and diode test
- ▶ Parallel or series mode
- ▶ Overload protection and data hold
- ▶ Low battery indication and auto power-off
- ▶ Ergonomic one-hand operable design

Overview



Video

NEW



PRO-57 Tweezer Digital Multimeter

The PRO-57 is a powerful digital multimeter with many of the features of a benchtop DMM, delivered in a pocket-sized tweezer package. Perfect for use on surface mount devices (SMD), the PRO-57 has a display of 3000 counts, 4 times per second sampling, automatic polarity with negative indication (-), battery status, and over-range indication. It can measure continuity, capacitance, and resistance, with an accuracy of 3% - 5%.

Product Features

- ▶ 3% - 5% basic accuracy depending on the range selected
- ▶ Diode test
- ▶ Overload protection and data hold
- ▶ Low battery indicator and auto power-off
- ▶ Ergonomic one-hand operable design

Test Equipment

Decade Boxes & Meters



RDB-10 Resistance Decade Box

The RDB-10 is a handheld resistance decade box that creates a specific resistance value using a combination of switches. It offers 7 decades of resistance ranges, from 1 Ω to over 11 M Ω in 1 Ω steps.

Product Features

- ▶ 1% accuracy, suitable for basic test equipment calibration
- ▶ 28 switches organized in a clean 4 x 7 grid for easy use



CDB-10 Capacitance Decade Box

The CDB-10 is a handheld capacitance decade box that creates a specific capacitance value by using a combination of switches. Designed with 5% accuracy to meet the needs of industry and education alike.

Specifications

- ▶ Five decades ranges from 100 pF to over 11 μ F in 100 pF steps
- ▶ Easy-to-use slide switches allow for straightforward addition and subtraction of capacitor values



RC-10 Resistance/Capacitance Decade Box

The RC-10 is a high quality resistor and capacitor substitution box. It provides a convenient selection of standard resistor and capacitor values available either separately or in series/parallel RC combinations. Typical applications for the RC-10 include component substitution in servicing and circuit design applications, and establishing RC circuits for checking impedance, reactance, and frequency characteristics. The unit is also useful for classroom applications to demonstrate Ohm's Law, capacitive reactance, and other circuit effects caused by introducing various resistance and capacitance combinations. The RC-10 comes with plug-in test leads with convenient alligator clip connectors.

Product Features

- ▶ 36 resistor ranges in values from 15 Ω to 10 M Ω .
- ▶ 18 capacitor ranges in values from 100 pF to .22 μ F
- ▶ Resistors rated up to 1 W
- ▶ Capacitors rated up to 600 V
- ▶ Both resistors and capacitors have a tolerance of 10%



PRO-50A Handheld Digital Multimeter

The PRO-50A is a highly versatile, economically-priced DMM that meets CAT III (1000 V) and CAT IV (600 V) safety standards. Engineers, technicians, electricians, and students can use the PRO-50A in confidence with its rugged design and non-contact AC voltage (NCV) detection feature. The PRO-50A has a large 3^{1/2} digit LCD backlit display for comfortable viewing. Housed in a protective rubber boot, the PRO-50A is fused and fully overload-protected. Its many functions include measuring voltage, resistance, amperage, capacitance, frequency, transistors and temperature.

Product Features

- ▶ Measures to 1000 VDC or 750 VAC
- ▶ Measures resistance to 200 M Ω
- ▶ Measures current to 10 A (AC and DC)
- ▶ Continuity and diode test
- ▶ Low battery indicator, auto-power off, and data hold

Solderless Breadboards

Powered



Breadboards
carry a
1-Year Warranty

PB-203A Triple Output ± 15 V Powered Breadboard

The PB-203A is a durable powered breadboard capable of being used to design a multitude of analog, digital, logic and microcomputer circuits. The PB-203A's on-board power supply eliminates the need for an external supply, adding more versatility to circuit design and experimentation. Due to its ample sized breadboarding area, the PB-203A is ideally suited for virtually any type of breadboarding circuitry, from TTL, CMOS and ECL, to op-amps, audio, comparators, video amps, microprocessor components, phase locks and more.

Product Features

- ▶ Current-limited, short-circuit-proof power supplies
- ▶ Up to 24, 14-pin DIP capacity
- ▶ Separate ± 15 V power supplies capable of 500 mA
- ▶ 5 V, 1 A power supply
- ▶ Combines the utility of a ProtoBoard® with highly capable regulated DC power supplies



PB-204 Triple Output ± 12 V Powered Breadboard

The PB-204 is a durable powered breadboard capable of being used to design a multitude of analog, digital, logic and microcomputer circuits. The PB-204's on-board power supply eliminates the need for an external supply, adding more versatility to circuit design and experimentation. Due to its ample sized breadboarding area, the PB-204 is ideally suited for virtually any type of breadboarding circuitry, from TTL, CMOS and ECL, to op-amps, audio, comparators, video amps, microprocessor components, phase locks and more.

Product Features

- ▶ Current-limited, short-circuit-proof power supplies
- ▶ Up to 24, 14-pin DIP capacity
- ▶ Separate ± 12 V power supplies capable of 250 mA
- ▶ 5 V, 1 A power supply
- ▶ Combines the utility of a ProtoBoard® with highly capable regulated DC power supplies



PRO-S-LAB Breadboard with Power Adapter & Jumper Wires

The PRO-S-LAB Station is an entry level prototyping package that is perfect for small analog and digital experiments. The PRO-S-LAB includes the Model PB-10 breadboard, PRO-S triple output DC wall adapter, power supply/breadboard connector, and wire pack. The PRO-S power supply has outputs of 5 VDC @ 500 mA and ± 12 V @ 250 mA.

Product Features

- ▶ PB-10 Solderless breadboard (also sold separately)
- ▶ Pro Power Supply (also sold separately)
- ▶ Output voltage: +5 VDC @ 2 A, +12 VDC @ 1 A, -12 VDC @ 0.2 A
- ▶ Input voltage: 100-240 VAC / 50-60 Hz
- ▶ Pro-PS Power Connector (also sold separately)

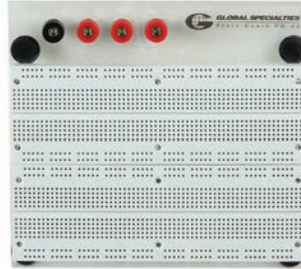


Solderless Breadboards

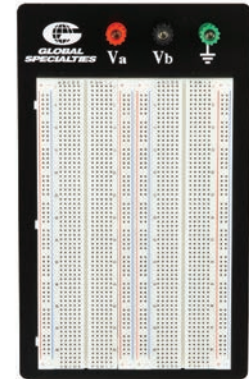
Mounted



PB-10



PB-60



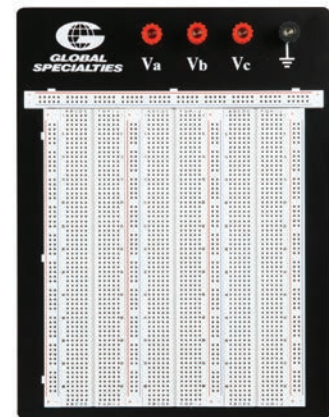
PB-70E



PB-83E



PB-10IT



PB-103E

Product Features

- ▶ Type: Externally Powered
- ▶ Spring Clip Material: Nickel plated phosphor bronze
- ▶ Current Capacity: 1.5 A, 36 V
- ▶ Stand: Rubber feet

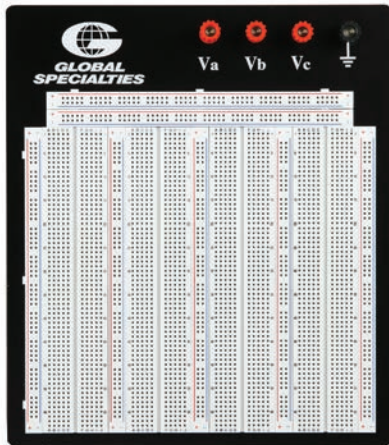
Breadboards
carry a
1-Year Warranty

Breadboards-Mounted

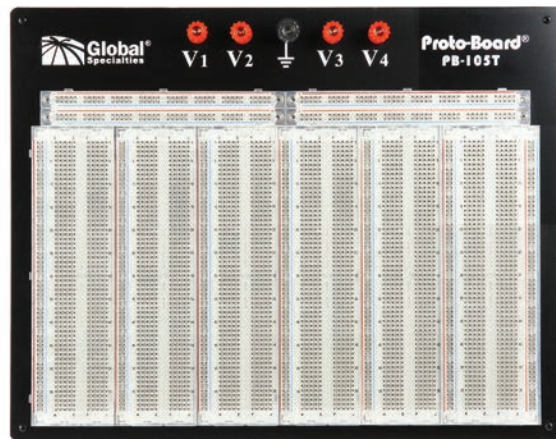
Model	Tie-Points	Terminal Clips	Breadboard Material	Length	Width	Depth	Weight	Assembly	Backplate	Binding Posts	16-Pin IC Capacity
PB-10	840	168	ABS	6.9 in 17.5 cm	3.9 10 cm	0.4 in 1.0 cm	0.3 lbs 141 g	NA	High-impact plastic	3	8
PB-60	1680	336	ABS	6.6 in 16.7 cm	6.1 in 15.4 cm	0.4 in 1.0 cm	0.5 lbs 248 g	NA	Plexiglas	4	15
PB-70E	1260	252	ABS	5.1 in 13 cm	8.5 in 21.5 cm	0.4 in 1.0 cm	0.7 lbs 326 g	Some required	Aluminum	3	12
PB-83E	830	166	ABS	7.2 in 18.3 cm	3.7 in 9.5 cm	0.4 in 1.0 cm	0.4 lbs 189 g	Some required	Aluminum	3	8
PB-10IT	1260	252	Transparent ABS	3.9 in 10 cm	8.5 in 21.5 cm	0.4 in 1.0 cm	0.5 lbs 247 g	Some required	High-impact plastic	2	14
PB-103E	2250	450	ABS	6.9 in 17.5 cm	9.1 in 23 cm	0.4 in 1.0 cm	1.0 lbs 467 g	Some required	Aluminum	4	21

Solderless Breadboards

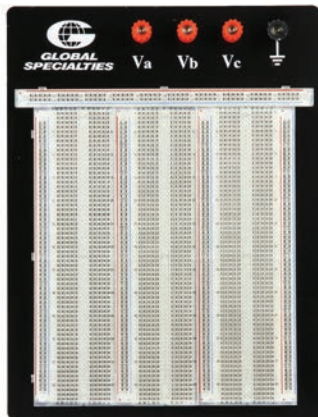
Mounted



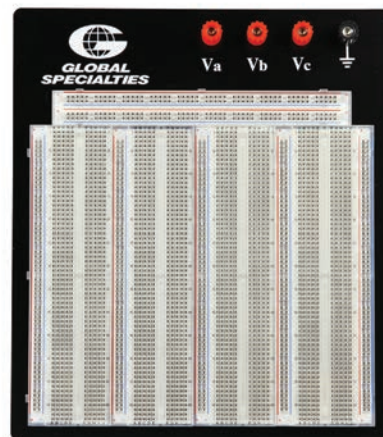
PB-104E



PB-105T



PB-242T



PB-326T

Product Features

- ▶ Type: Externally Powered
- ▶ Spring Clip Material: Nickel plated phosphor bronze
- ▶ Current Capacity: 1.5 A, 36 V
- ▶ Stand: Rubber feet



Breadboards
carry a
1-Year Warranty

Breadboards-Mounted

Model	Tie-Points	Terminal Clips	Breadboard Material	Length	Width	Depth	Weight	Assembly	Backplate	Binding Posts	16-Pin IC Capacity
PB-104E	3060	612	ABS	8.3 in 21 cm	9.4 in 24 cm	1.0 in 2.5 cm	1.3 lbs 595 g	Some required	Aluminum	4	32
PB-105T	4880	976	Transparent ABS	12.1 in 30.7 cm	9.5 in 24 cm	1.0 in 2.5 cm	2.0 lbs 888 g	NA	Aluminum	5	42
PB-242T	2390	478	Transparent ABS	6.9 in 17.5 cm	9.1 in 23 cm	1.0 in 2.5 cm	1.1 lbs 468 g	NA	Aluminum	4	21
PB-326T	3220	644	Transparent ABS	8.3 in 21 cm	9.5 in 24 cm	1.0 in 2.5 cm	1.3 lbs 606 g	NA	Aluminum	4	28

Solderless Breadboards

Singles



EXP-350E

GS-35I

QT-35S

GS-400

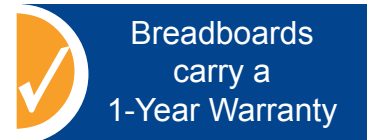
EXP-355

GS-470

EXP-300E

Product Features

- ▶ Type: Solderless Breadboards
- ▶ Spring Clip Material: Nickel plated phosphor bronze
- ▶ Current Capacity: 1.5 A, 36 V
- ▶ Assembly: NA

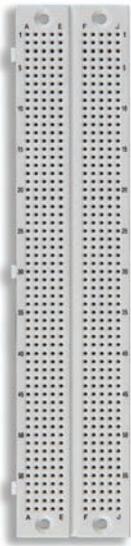


Breadboards Singles

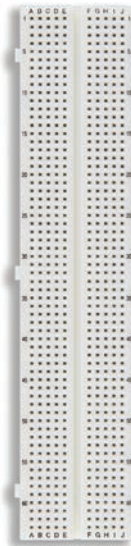
Tie-Points	Model	Terminal Clips	Breadboard Material	Length	Width	Depth	16-Pin IC Capacity
270	EXP-350E	54	ABS	3.3 in 8.4 cm	1.75 in 4.4 cm	0.33 in 8 mm	3
350	GS-35I	70	ABS	4 in 10.2 cm	1.4 in 3.6 cm	0.33 in 8 mm	4
350	QT-35S	70	ABS	4.1 in 10.4 cm	1.3 in 3.4 cm	0.33 in 8 mm	5
400	GS-400	80	ABS	3.3 in 8.4 cm	1.4 in 3.6 cm	0.33 in 8 mm	3
470	EXP-355	94	ABS	4.1 in 10.4 cm	2.3 in 5.8 cm	0.33 in 8 mm	5
470	GS-470	94	ABS	5.3 in 13.3 cm	1.4 in 3.6 cm	0.33 in 8 mm	5
550	EXP-300E	110	ABS	6.5 in 16.5 cm	1.75 in 4.4 cm	0.33 in 8 mm	5

Solderless Breadboards

Singles



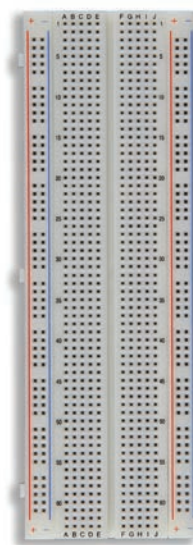
GS-590



GS-630



GS-630T



GS-830



GS-830T



UBS-100

Product Features

- ▶ Type: Solderless Breadboards
- ▶ Spring Clip Material: Nickel plated phosphor bronze
- ▶ Current Capacity: 1.5 A, 36 V
- ▶ Assembly: NA



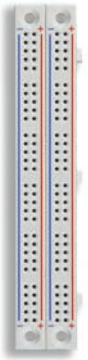
Breadboards
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Breadboards Singles

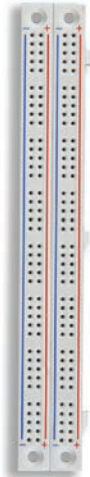
Tie-Points	Model	Terminal Clips	Breadboard Material	Length	Width	Depth	16-Pin IC Capacity
590	GS-590	118	ABS	6.5 in 16.5 cm	1.4 in 3.6 cm	0.33 in 8 mm	7
630	GS-630	126	ABS	6.5 in 16.5 cm	1.4 in 3.6 cm	0.33 in 8 mm	7
630	GS-630T	126	Transparent ABS	6.5 in 16.5 cm	1.4 in 3.6 cm	0.33 in 8 mm	7
830	GS-830	166	ABS	6.5 in 16.5 cm	2.1 in 5.3 cm	0.33 in 8 mm	7
830	GS-830T	166	Transparent ABS	6.5 in 16.5 cm	2.1 in 5.3 cm	0.33 in 8 mm	7
840	UBS-100	168	ABS	6.5 in 16.5 cm	2.2 in 5.6 cm	0.33 in 8 mm	7

Solderless Breadboards

Bus Strips



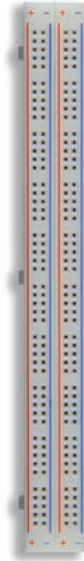
GS-060



GS-080



GS-090



GS-100



GS-100T



QT-59B

Product Features

- ▶ Type: Bus Strip
- ▶ Spring Clip Material: Nickel plated phosphor bronze
- ▶ Current Capacity: 1.5 A, 36 V



Breadboards
carry a
1-Year Warranty

Breadboards-Bus Strips

Model	Tie-Points	Terminal Clips	Breadboard Material	Length	Width	Depth	Current Capacity	16-Pin IC Capacity
GS-060	60	12	ABS	4 in 10.2 cm	.687 in 1.7 cm	0.33 in 8 mm	1.5 A, 36 V	NA
GS-080	80	16	ABS	5.25 in 13.3 cm	.687 in 1.7 cm	0.33 in 8 mm	1.5 A, 36 V	NA
GS-090	90	18	ABS	6.5 in 16.5 cm	.687 in 1.7 cm	0.33 in 8 mm	1.5 A, 36 V	NA
GS-100	100	20	ABS	6.5 in 16.5 cm	.687 in 1.7 cm	0.33 in 8 mm	1.5 A, 36 V	NA
GS-100T	100	20	Transparent ABS	6.5 in 16.5 cm	.687 in 1.7 cm	0.33 in 8 mm	1.5 A, 36 V	NA
QT-59B	100	20	ABS	6.5 in 16.5 cm	0.36 in 9 mm	0.33 in 8 mm	1.5 A, 36 V	NA

Educational Kits

Solar, LEDs & Switches

Our Educational Kits are a fun and inexpensive way to learn a variety of fascinating circuits and controllers. They may be assembled without soldering on any Global Specialties trainer or Proto-Board® (not included), or by soldering to the included mini PCB. Parts and assembly instructions included.



GSK-10 Touch Control Switch Kit

The GSK-10 is a kit which incorporates a touch switch and a touch plate in the same package. The kit is perfect for use along with Global Specialties trainers. The touch switch will activate when two leads are shorted together by the touch of a finger. The touch plate will activate merely by touching the plate. AC or DC voltage must be applied to the kit for full operation.



GSK-109 LED Flashing Lights Kit

This is an excellent kit for introducing basic electronic principles. Two LEDs will alternatively blink and the blinking speed is adjustable. Kit is easy to assemble with minimal components.



GSK-184 UFO Chasing LED Lights

This is a chasing light circuit with multiple selectable patterns and adjustable chasing speeds. The small, low-voltage PC board makes for easy placement in any location.



GSK-444 Digital Multifunction Timer Switch Kit

The GSK-444 is a timer switch circuit used to control electronic equipment. It can be used for applications such as turning on/off a lamp or a fan.



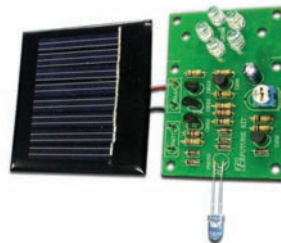
GSK-1001 Solar Fan Kit

This circuit converts sunlight into electrical energy. The fan speed is controlled by the intensity of the sun collected by the solar panel. This kit provides a rudimentary demonstration for how solar energy works.



GSK-409 Sound Activated Control Switch Kit

Classified as a remote controlled circuit, this product uses an audio signal (hand clap or voice, etc) to activate the on/off function of the switch. A sensitivity/volume controlled microphone picks up the audio signal activating a relay which in turn generates an electrical signal to the switch.



GSK-1004 Solar LED Night Light Kit

The GSK-1004 illuminates 5 LED's when there is insufficient sunlight for the solar panel to charge batteries. The LEDs will automatically turn on and draw voltage from the batteries when the solar panel can no longer convert sunlight to DC voltage. Kit includes parts to build recharging circuit, solar panel, and intensity adjust potentiometer.



GSK-1005 Solar LED Blinking Light Kit

This is a blinking light circuit powered by the energy of the sun. Utilizing a solar panel to convert the sun's energy, two LEDs will alternatively blink and the blinking speed may be adjusted. Easy to assemble.

Perfect for
Students
&
Hobbyists

Educational Kits

Control & Indicator Kits



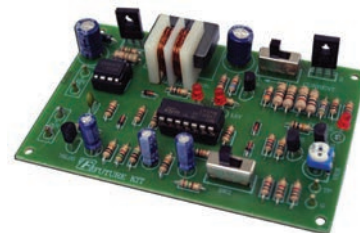
GSK-187 Bi-Polar Chopper Stepper Motor Driver Kit

The GSK-187 kit will drive bi-polar chopper stepper motors up to 2 A per phase with a 9-35 V supply. The kit features full and half stepping. All signals (Step, Direction, Enable) can be interfaced to external +5V logic or a micro-controller. Motor not included.



GSK-804 PWM DC Motor Speed Control Kit

This circuit allows the user to vary the speed of a DC motor from a stop position to maximum revolutions per motor specification using PWM.



GSK-819 LIPO Battery Charger Kit

This kit contains parts to assemble a lithium-ion polymer battery (LiPo) charger. These batteries are used with many radio controlled devices, phones, MP3 players, and laptop computers.



GSK-820 Voltage Booster Kit

This DC voltage booster circuit enables a 12 VDC source to be converted (stepped up) to a higher DC output voltage.



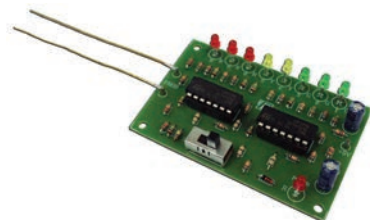
GSK-908 Soil Moisture Indicator Kit

This circuit utilizes four LEDs to indicate the level of moisture in the soil. An increase in the number of LEDs lit indicates an increase in the amount of moisture present.



GSK-918 Mosquito Repellent Kit

This circuit generates a 10-30 kHz frequency that creates a sonic zone disturbing to mosquitoes. A piezo board creates the frequency equal to the frequency generated by the mosquito during flight causing the mosquito to believe he/she is flying into a trap.



GSK-944 Water Resistance Analyzer Kit

This circuit utilizes resistance to measure dissolved solids in water. The more resistance the less conductive the water. And conversely, the less resistance the more conductive the water. Results are displayed by a series of 8 LEDs.



GSK-947 Automatic Sprinkler Controller

This circuit is used to control the sprinkler water valve for watering plants and flowers automatically. It can measure three distinct levels of soil moisture at preset delayed times and then activate the valve as needed.



GSK-4 Basic Power Supply Kit

The GSK-4 is an easy-to-assemble basic power supply kit that is based on the 7805 voltage regulator. The finished kit will yield a fixed 5 V supply at 1 A as well as a variable supply. The variable supply output is dependent upon the input voltage. The GSK-4 is perfect for learning basic power supply operation.

Accessories

Wires & Connectors



GSA-3736 Advanced Function Generator Kit

The GSA-3736 provides reliable interconnection for RF testing. The kit is comprised of high quality components with gold plated contacts and comes in a convenient storage pouch.

Kit Components

- ▶ (2) BNC male cable assemblies, 100 cm (40 in)
- ▶ (1) BNC male to miniature hooks cable assembly, 100 cm (40 in)
- ▶ (1) BNC feed thru terminator, 50 Ω
- ▶ (1) BNC tee female-male-female adapter
- ▶ (1) BNC tee female-female-female adapter
- ▶ (2) BNC to double banana plug adapters
- ▶ (1) BNC attenuator, 50 Ω , 20 dB



GSA-3743 Enhanced Oscilloscope Kit

The GSA-3743 provides reliable interconnection for RF measurements with oscilloscopes. This unique kit is comprised of various BNC cable assemblies with gold plated contacts allowing it to be used with all popular instruments up to 1 GHz. The GSA-3743 comes with a convenient storage pouch.

Kit Components

- ▶ (1) BNC male cable assembly, 100 cm (40 in)
- ▶ (1) BNC male to miniature hooks cable assembly, 100 cm (40 in)
- ▶ (1) BNC tee female-male-female adapter
- ▶ (1) BNC to double banana plug adapters
- ▶ (1) BNC male terminator, 50 Ω
- ▶ (1) 100 MHz switchable (1x/10x) oscilloscope probe set



GSA-2702A General Purpose BNC, N-Type Adapter Kit

Basic 50 Ω interconnect kit. Includes both BNC and N-Type connectors with both in-series and between-series adapters. Kit totals 9 pieces.

Kit Components

- ▶ BNC tee female-male-female
- ▶ N-Type female-to-female
- ▶ N-Type male-to-male
- ▶ N-Type tee female-male-female
- ▶ BNC female to N-Type male
- ▶ BNC male to N-Type female
- ▶ BNC female-to-female
- ▶ BNC male-to-male
- ▶ BNC female to N-Type female
- ▶ BNC tee female-female-female
- ▶ N-Type tee female-female-female
- ▶ N-Type male to female right-angle



GSA-3185 MiniPRO Test Clip Set, 10 Colors

10-piece MiniPRO Test Clip lead kit. All 10 colors of MiniPRO leads are 50 cm long. Convenient for all types of testing needs.

Kit Components

- ▶ Body material: Polyamide (Nylon)
- ▶ Contacts: BeCu equivalent, gold plated
- ▶ Kit consists of: 1 Black, 1 Brown, 1 Red, 1 Orange, 1 Yellow, 1 Green, 1 Blue, 1 Violet, 1 Grey, 1 White



GSA-3233-100 Lead Set, Stacking Banana Plugs, 100 cm, 6 Colors

Convenient 4 mm stacking banana plug lead set in 6 colors for all test bench hook-ups. Flexible PVC leads.

Kit Components

- ▶ Body material: Polyamide (Nylon)
- ▶ Contacts: BeCu equivalent, gold plated
- ▶ Kit Consists of: 1 white, 1 green, 1 black, 1 blue, 1 red, 1 yellow



GSA-3376A Advanced Power Supply Kit

This deluxe kit provides a complete range of test leads and connection points for your general-purpose bench-top AC or DC power supplies. Suitable for instruments from Keysight, B+K Precision, Xantrex and others, the kit features high capacity leads.

Kit Components

- ▶ (3) Retractable to fixed sheath leads (silicone), 100 cm (40 in), 36 A
- ▶ (3) Extra-large insulated alligator clips
- ▶ (6) 4/6 mm spade lugs
- ▶ (1) BNC male cable assembly, 100 cm (40 in)
- ▶ (1) BNC female to double banana plug adapters
- ▶ (1) BNC male to binding posts

Accessories

Jumper Wire & AC Adapters



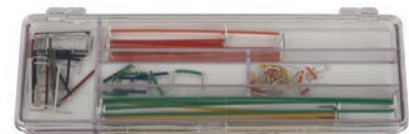
WK-1



WK-4



WK-2



WK-3

Jumper Wire Kits

Model	Pieces	Number of Sizes	Pieces per Size	Min Length	Max Length	Ending
WK-1	350	14	25	0.1 in 2.54 mm	5.0 in 127 mm	Right angle
WK-2	140	14	10	0.1 in 2.54 mm	5.0 in 127 mm	Right angle
WK-3	70	14	5	0.1 in 2.54 mm	5.0 in 127 mm	Right angle
WK-4	100	5	20	4.4 in 112 mm	10.4 in 264 mm	Straight

Product Features

- ▶ 22 AWG solid hookup wire
- ▶ Pre-cut, pre-stripped, and pre-formed wire
- ▶ Stored in a compartmentalized plastic case



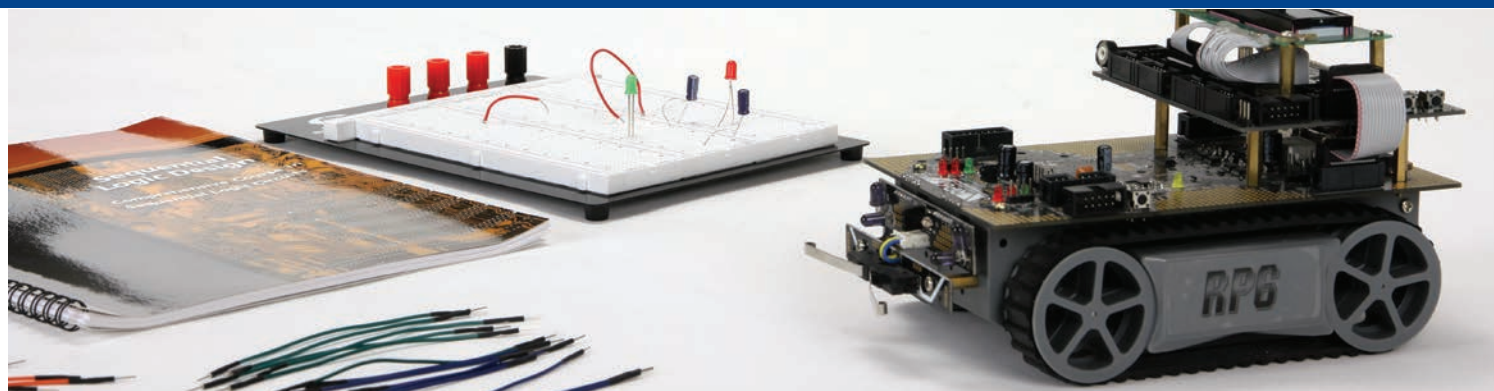
PRO-S-PS Replacement Power Supply for PRO-S-LAB

The PRO-S-PS is a UL approved triple output DC wall mount power adapter for use with the PRO-S-LAB. The PRO-S has input source: 100-240 VAC /50-60 Hz, outputs of 5 VDC @ 2A, +12 VDC @ 1 A, -12 VDC @ 0.2 A. The output is provided through a 5-pin DIN connector.



LD-1-PB-501 AC Adapter

9V AC to DC Adapter for use with Global Specialties Model PB-501.



Model	Page	Model	Page	Model	Page	Model	Page
I320	15	EXP-350E	22	GSK-804	26	PB-503LAB	4
I350	15	EXP-355	22	GSK-819	26	PB-505	5
I403	15	GS-060	24	GSK-820	26	PB-505LAB	4
I405	15	GS-080	24	GSK-908	26	PB-507	4
I410	14	GS-090	24	GSK-918	26	PB-507LAB	4
I412	14	GS-100	24	GSK-944	26	PRO-50A	12, 18
I415	14	GS-100T	24	GSK-947	26	PRO-57	17
I420	15	GS-351	22	GSK-1001	25	PRO-1000	17
I425	14	GS-400	22	GSK-1004	25	PRO-S-LAB	19
I430	14	GS-470	22	GSK-1005	25	PRO-S-PS	28
AAR	8	GS-590	23	LCR-58	17	QT-35S	22
ARX	11	GS-630	23	LCR-600	17	QT-59B	24
ARX-BBKT	12	GS-630T	23	LD-1-PB-501	28	R500	10
ARX-BT3	11	GS-830	23	LD-200P	16	R680	9
ARX-CGM	11	GS-830T	23	PB-3	3	R700	9
ARX-DSP	11	GSA-3	27	PB-4	3	RC-10	18
ARX-EXP	11	GSA-2702A	27	PB-5	3	RDB-10	18
ARX-MSP	11	GSA-3185	27	PB-10	20	RP6V2	10
ARX-PARTS	12	GSA-3233-100	27	PB-60	20	RP6V2-C	10
ARX-SNK	11	GSA-3376A	27	PB-70E	20	RP6V2-CHG	10
ARX-SSB	12	GSA-3736	27	PB-83E	20	RP6V2-DSP	10
ARX-SSBL	12	GSC-2301	4	PB-101T	20	RP6V2-EXP	10
ARX-STSSP	11	GSC-2302	4	PB-103E	20	RP6V2-M32	10
ARX-TLKT	12	GSC-2311KIT	4	PB-104E	21	RP6V2-RMT	10
ARX-TPI	12	GSC-2312	4	PB-105T	21	RP6V2-WIFI	10
ARX-TPLAB	12	GSC-3200	4	PB-203A	19	SFG-205	16
ARX-ULT	11	GSC-3201	4	PB-204	19	SFG-210	16
ARX-WRL	11	GSK-4	26	PB-242T	21	UBS-100	23
ARX-XTD	11	GSK-10	25	PB-326T	21	WK-1	28
CDB-10	18	GSK-109	12	PB-500	6	WK-2	28
DL-010	7	GSK-109	25	PB-501	6	WK-3	28
DL-020	7	GSK-184	25	PB-502	6	WK-4	28
DL-030	7	GSK-187	26	PB-503	5		
DSC-5300	16	GSK-409	25	PB-503C	5		
EXP-300E	22	GSK-444	25	PB-503CLAB	4		



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