ELENCO ELECTRONICS, INC.

Trainers

Oscilloscopes

Educational Kits

Snap Circuits®

Multimeters

Solder Stations

Power Supplies

Tool Kits

TRAINERS

CALCULATORS

OSCILLOSCOPES

GENERATORS

MULTIMETERS

POWER SUPPLIES

LOGIC PROBES/PULSERS

NETWORK CABLE TESTERS

FIBER OPTICS

BREDBOARD AIDS

HVAC / ELECTRICAL

TOOLS / TOOL KITS

TEST LEADS

SOLDERING EQUIPMENT

KITS

SNAP CIRCUITS®

37 YEARS
1972 2009
ELENCO ELECTRONICS, INC.
WHEELING, IL

Catalog No. 54

XK-700 DELUXE DIGITAL / ANALOG TRAINER

DELUXE COMPLETE MINI-LAB FOR BUILDING, TESTING AND PROTOTYPING ANALOG AND DIGITAL CIRCUITS

Elenco's advanced designed Digital/Analog Trainer is specially designed for school projects. It is built on a single PC board for maximum reliability. It includes 5 built-in power supplies, a function generator with continuously variable sine, triangular and square waveforms. All power supplies are regulated and protected against shorts. The trainer is mounted in a professional technician tool case made of reinforced metal with heavy-duty handles and locks. The removable, dual-sided tool pallet has many pockets and elastic retainers to hold a broad line of tools and devices. A special ramp in the case will hold the meter of your choice.

Tools in Case

Model **XK-700T** (shown in photo) is a stock trainer with tools and includes tools shown below **(meter, logic probe, & calculator shown are sold separately)**.

- **ET-10** IC puller
- **SE-1** Solder ease kit
- **SH-1** Soldering iron holder
- **SP-4** Desoldering pump
- **SR-2B** Deluxe soldering iron
- **ST-1** Mini diagonal cutters
- **ST-2** Mini long nose pliers
- **LF-99** Lead-free solder tube
- **ST-20** Safety goggles
- **ST-30** Premium wire stripper
- **ST-75** 11 pc. screwdriver bit set
- **SW-3** Desoldering wick
- **TL-8** Precision screwdriver set

See page 3 for detailed specifications.

When ordering a meter to be used with the **XK-700 Trainer, specify the PSV-50 Kit**. It will provide you with the needed Velcro to hold the meter in place.

Deluxe Case

Dimensions: 13" (H) x 18" (W) x 6 1/2" (D)

- **Model XK-700 Trainer** - Available fully assembled without tools.

- **Model XK-700T Trainer** - Available with tools as shown - meter, calculator, and logic probe **sold separately**.

- **Model XK-700K Trainer** - Available as kit without tools.

- **Model XK-700TK** - Available as a kit with tools as shown - meter, calculator, and logic probe **sold separately**.

Available with Tools & Equipment of Your Choice! Call, Fax or E-mail for Quote.

XK-550 DIGITAL / ANALOG TRAINER

Same trainer as XK-700, except in our molded organizer case. The tools shown with the trainer are the most commonly used in the educational field or you can make your own selection of tools and meter to go with the trainer.

Dimensions: 12 1/4" (H) x 16 3/8" (W) x 5 1/4" (D)

Elenco® Electronics can supply the **XK-550 Trainer** complete with any combination of tools or any of the meters shown in our catalog. Call or write for more information.

Tools in Case

Model **XK-550T** (shown in photo) is a stock trainer with tools shown below **(meter shown is sold separately)**.

- **ET-10** IC puller
- **JW-140** Jumper wire kit
- **SP-4** Desoldering pump
- **ST-1** Mini diagonal cutters
- **ST-2** Mini long nose pliers
- **ST-3** Wire stripper
- **ST-5** Screwdriver slotted 3/16"
- **ST-6** Screwdriver #1 phillips
- Anti-static foam pad

- **When ordering a meter to be used with the XK-550 Trainer**, specify a PSV-50 kit which will provide you with velcro to hold the meter in place and an anti-static foam pad that fits below the meter for storage of ICs. This is supplied **FREE** with meter order.

- **When ordering tools, specify a TM-30 tool mounting kit. When four or more tools are ordered, the tool mounting kit is supplied FREE!**

- **Model XK-550 Trainer** - Available fully assembled without tools.

- **Model XK-550T Trainer** - Available with tools as shown - meter **sold separately**.

- **Model XK-550K Trainer** - Available as kit without tools.

- **Model XK-550TK** - Available as a kit with tools as shown - meter **sold separately**.

Specifications for XK-550 & XK-700 Trainers
on Pages 2 and 3

Power Supplies	Analog Section	Digital Section	Fast Track Construction
• Variable Power Supply • 0V to 20VDC @ 0.5A (0V to 15VDC @ 1A) • 0V to –20VDC @ 0.5A (0V to –15VDC @ 1A) • +12VDC @ 1A • –12VDC @ 1A • +5VDC @ 1A • +30VAC center-tapped to 15VAC @ 1A	• Function Generator - Sine, Triangular, Square Wave. • Frequency adjustable in five ranges from 1 to 100kHz. • Fine frequency adjust. • Amplitude adjust. • DC offset	• Eight data switches. • Two no bounce logic switches. • Eight LED readouts, buffered. • Clock amplitude 5Vpp square wave.	Most of the components are on one PC board, eliminating all wires between the PC board, pots, regulators and switches. Makes assembly easier and faster, eliminates errors.
	Potentiometers	**Bredboards**	
	• 2 undedicated potentiometers 1kΩ & 100kΩ.	• 2 bredboards, each containing 830 tie points (total 1,660).	

XK-150 DIGITAL / ANALOG TRAINER

A low cost, full-function digital/analog trainer that meets the needs of electronic training programs. Rugged construction, can be used as fixed lab equipment or be portable.

Specifications	
Digital Section	**Power Supplies**
• Eight data switches. • Two no bounce logic switches. • Eight LED readouts, buffered. • Clock frequency 1Hz, 60Hz, 1kHz, 100kHz. • Clock amplitude 5Vpp square wave.	• Variable power supply. • +1.25V to 15VDC @ 0.25A. • −1.25V to −15VDC @ 0.25A. • +5VDC @ 0.25A. • +30VAC center-tapped to 15VAC @ 0.25A.
Analog Section	**Case**
• Function generator - Sine, square wave. • Frequency adjustable in two ranges from 200 - 40kHz. • Amplitude Sine 4Vpp. • Square 12Vpp.	High impact molded case 2" (H) x 11" (W) x 11" (D). With flow-thru cooling to ventilate the power supply.
Potentiometers	**Bredboards**
• 2 undedicated potentiometers 1kΩ and 100kΩ.	• 1 bredboard, 830 tie points including two bus strips.

Model XK-150 Digital Trainer - Fully assembled

COMPUTER INTERFACE TRAINERS

Micro-Master®
A Basic Computer Training Kit to Learn the Fundamentals of Computers

Model MM-8000K

Starting from scratch, you build a complete computer system. Our Micro-Master® Trainer teaches you to write into RAMs, ROMs, and run an 8085 microprocessor. You will write the initial instructions in permanent memory in a 2816E^{2}PROM. Teaches all about input and output ports and computer timers. Complete with 128 page lesson manual, instructions, and experiments.

Microprocessor Training System
Model MP-Z80

The trainer and the manuals will guide the user through the studying and understanding of Z80 instruction sets and assembly language programming. The manuals were specifically designed as a learning tool for students and individuals who are interested in practical experiments of assembly language programming.

The manuals contain more than 15 hands-on experiments, covering essential microprocessor course contents. Theory is covered to understand the experiments.

Includes power pack, user manual, and experimentation manual.
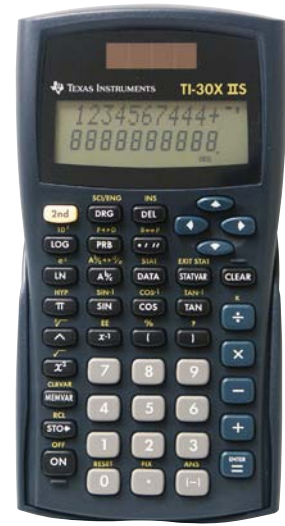
CALCULATORS

Texas Instruments®
Scientific Calculator
Model TI-30Xa

10 + 2 digit display, one variable statistic, three memories, fractions and fraction / decimal conversations, trigonometric functions in degrees, radians, grads and hyperbolics, common and natural logarithms, universal powers and roots, reciprocals and factorials, polar / rectangular conversions, degrees, minutes, seconds, seconds / decimal degrees, conversions. Automatic power down. Durable slide case.
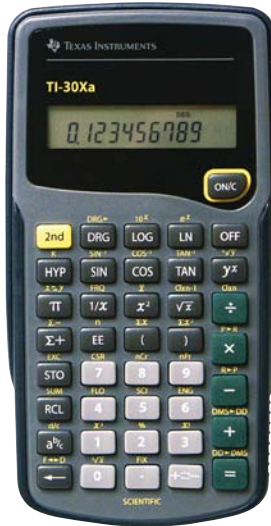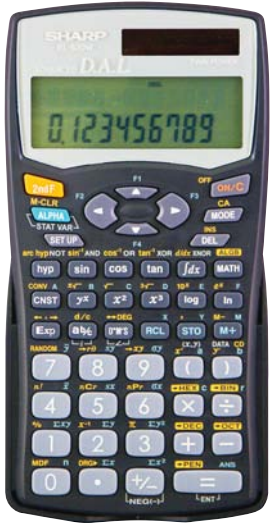
Texas Instruments®
Scientific Calculator
Model TI-30X IIs
Solar / Battery

Two-line display scientific calculator combines statistics and advanced scientific functions and is a durable and affordable calculator. The two-line display helps students explore math and science concepts in the class room. Automatic power down (APD™). Lithium battery included. Protective slide case.

Sharp®
Scientific Calculator
Solar/Battery
Model EL-520WBBK

Advanced solar scientific calculator Model EL-520WBBK. Ergonomic design; solar and battery powered, two-line, 12-digit display D.A.L. (Direct Algebra Logic). Multi-line playback, complex numbers and calculus functions; 238 total functions. Hard case included.

Texas Instruments®
Solar Scientific
Model TI-36X SLR

Advanced scientific calculator, 10 + 2 digit display, ideal for use in advanced algebra, trigonometry, geometry, computer science, chemistry, engineering, physics, calculus and statistics.
ANYLITE™ solar power.
Protective slide case.

Casio®
Scientific
Model FX-260

10 digit display with 12 digit accuracy, one variable statistic, random number generator, trigonometry functions, impact resistant slide-on case with quick reference card, fraction to decimal to mixed numeral to improper fraction toggle.
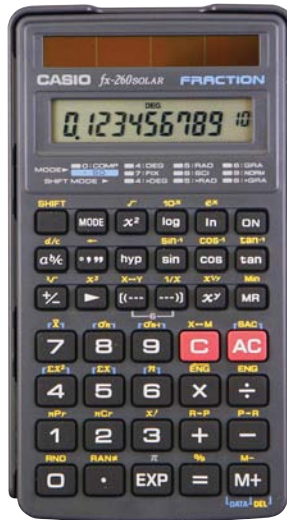
Casio®
Scientific Calculator
Solar/Battery
Model FX-115MS Plus

New advanced design with 2-line, 12-digit LCD display. Visually perfect algebraic method 1 and 2, variable statistics, boolean logic and number bases.
Preprogrammed scientific constants. Complex number calculations.
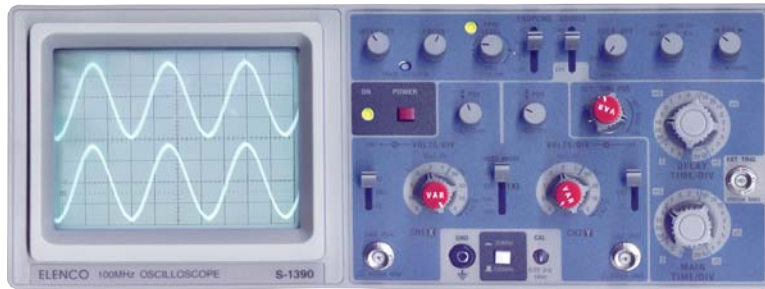Snap-on hard case included.
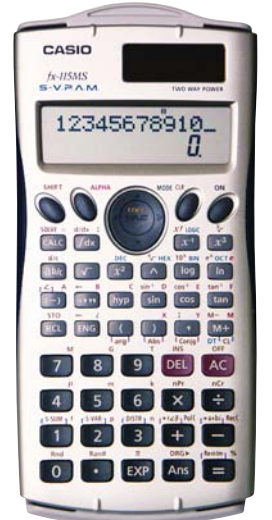
OTHER ADVANCED CALCULATORS ARE AVAILABLE . . .
CALL FOR INFORMATION & PRICING.

ANALOG OSCILLOSCOPES

100MHz   Model S-1390
Delayed Sweep & Dual Trace

60MHz   Model S-1360
Delayed Sweep & Dual Trace

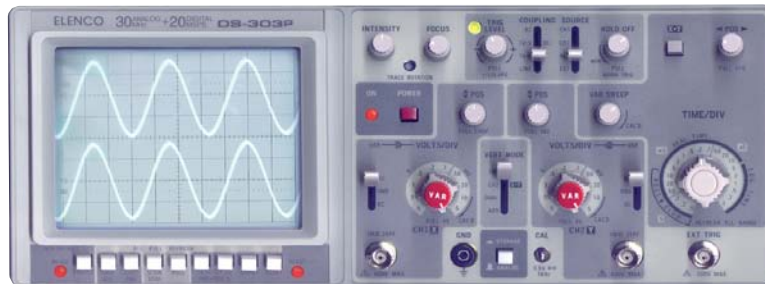**S-1390 Shown**

Features

- 1mV/DIV sensitivity
- Sweep to 2ns/DIV (S-1390), 10ns/DIV (S-1360)
- Component tester (S-1360 only)
- Z-axis input
- Single sweep
- Beam finder (S-1360)
- Dust cover included
- 2 free x1, x10 probes

FREE DUST COVER & PROBES

All Scopes UL, CSA, TUV, GS Approved

Specifications

Vertical Amplifiers (CH 1 and CH 2)

Sensitivity: 5mV/div - 5V/div (x1 mode)
1mV/div - 1V/div (x5 mode)

Attenuator: 1-2-5 sequence, 10 step attenuator, plus vernier control.

Rise time: 5.8ns (S-1360), 3.5ns (S-1390)

Over shoot: Less than 5%

Input impedance: 1MΩ $\pm$2%, 25pF $\pm$10pF

Max. input voltage: 400V (DC + AC peak)

Operating modes: CH 1, CH 2, DUAL (ALT or CHOP) and ADD

Chop frequency: Approximately 500kHz

Algebraic addition: CH 1 + CH 2, CH 1 - CH 2

Polarity reversal: CH 2 only

Horizontal Amplifier

X-Y mode: Switch selectable using X-Y switch
CH 1: X-axis
CH 2: Y-axis

Accuracy: Y-axis $\pm$3% X-axis $\pm$6%

Horizontal Amplifier (continued)

Bandwidth: DC - 1MHz (–3dB)

X-Y phase difference: Approximately 3° at 50kHz

Sweep System

Sweep display mode: Main, Mix, Delay

Hold off time: 5:1 continuously variable

Main Sweep

Sweep speed:
S-1360: 0.1μs/div - 2s/div in 1-2-5 sequence, 23 steps.
S-1390: 20ns/div - 0.5s/div in 1-2-5 sequence, 23 steps.

Accuracy: $\pm$3%

Variable time control:
5:1, uncalibrated, continuously variable between steps.

Sweep magnification:
10X, $\pm$10%, extend sweep speed up to 10ns/div (S-1360).
10X, $\pm$10%, extend sweep speed up to 2ns/div (S-1390).

Delayed Sweep

Sweep speed:
S-1360: 0.1μs/div - 2s/div in 1-2-5 sequence, 23 steps.
S-1390: 20ns/div - 0.5s/div in 1-2-5 sequence, 23 steps.

Accuracy: $\pm$3%

Delay time position: Variable control to locate desirable waveform for extending.

Trigger

Trigger coupling: AUTO, NORM, TV-V, TV-H (S-1360)
AC, TV-V, TV-H, LINE (S-1390)

Trigger source: CH 1, CH 2, ALT (V MODE), LINE, EXT.

Slope: $\pm$

Trigger Sensitivity (S-1360 / S-1390)

Coupling	Bandwidth	Internal	External
TV-V	DC - 1kHz	1.0 div	0.1Vpp
TV-H	1kHz - 100kHz	1.0 div	0.1Vpp
AUTO	100Hz-60/100MHz	1.5 / 2.0 div	0.1 / 0.2Vpp
NORM	100Hz-60/100MHz	1.5 / 2.0 div	0.1 / 0.2Vpp

Component Tester (S-1360 only)

Test voltage: Max. 6Vrms (open circuit)
Test current: Max. 11mA (shorted)
Test frequency: Line frequency
Components: Capacitor, inductor, diode, transistor, zener, etc.

CH 2 Output

Output Level: 100mV/DIV (no load). 50mV/div (50Ω load).

Bandwidth: 20Hz - 20MHz (–3dB).

Other Specifications

CRT: Type: Rectangular with internal graticule.
Display area: 8 x 10 div (1 div = 1 cm)
Accelerating voltage: 12kV (S-1360), 14kV (S-1390)
Phosphor: P31

Z modulation: Positive TTL signal, low level blank intensity at any intensity, high level unblank any intensity.

Trace rotation: Adjustable front panel

Calibrator: Square wave 1kHz, 2.0Vpp $\pm$3% (S-1360)
Square wave 1kHz, 0.5Vpp $\pm$3% (S-1390)

Power requirements: 115, 230VAC $\pm$10%, 50/60Hz

Power consumption: Approximately 55 watts

Dimensions: 5 1/4" (H) x 12 3/4" (W) x 15 5/8" (D)

Net weight: S-1360: 17.2 lbs. (7.8kgs.) S-1390: 18.7 lbs. (8.5kgs.)

Accessories supplied: Two x1, x10 probes, schematic diagram & parts list, AC power cord, spare fuse, and dust cover.

DIGITAL STORAGE OSCILLOSCOPES

DS-303 Shown

FREE DUST COVER & PROBES

20MHz, 10Ms/s   Model DS-203
30MHz, 20Ms/s   Model DS-303

Digital Storage / Analog Oscilloscopes

All Scopes UL, CSA, TUV, GS Approved

Features

- 2-channel
- 2k Memory per channel
- Internally backed-up memory (**DS-303**)
- 1mV sensitivity
- RS-232 output (**DS-303**)
- Dust cover included
- 2 free x1, x10 probes

Specifications

Vertical Amplifiers (CH 1 and CH 2)

Sensitivity: 5mV-5V/DIV $\pm$3% (x1 mode)
1mV-1V/DIV $\pm$5% (x5 mode)

Attenuator: 1-2-5 sequence, 10-step attenuator, plus vernier control.

Bandwidth: DS-203: DC to 20MHz within –3dB
DS-303: DC to 30MHz within –3dB

Rise time: DS-203: 17.5ns
DS-303: 11.7ns

Over shoot: 3% or less

Input impedance: 1MΩ shunted by 25pF $\pm$10pF

Max. input voltage: 400V (DC + AC peak)

Operating modes: CH 1, CH 2, DUAL (ALT or CHOP) and ADD.

Chop frequency: Approximately 500kHz

Polarity selection: CH 2 only

Horizontal Amplifier

X-Y mode: Switch selectable using X-Y switch
CH 1: X-axis   CH 2: Y-axis
Accuracy: Y-axis $\pm$3% X-axis $\pm$6%
Bandwidth: DC - 2MHz (–3dB) (DS-603)
DC - 1MHz (–3dB) (DS-203 & 303)
X-Y phase difference: Approximately 3° at 50kHz

Main Sweep

Sweep speed: 0.1μs/div - 0.5s/div in 1-2-5 sequence, 21 steps.

Accuracy: $\pm$3%

Sweep magnification: 10X $\pm$6% (DS-203 & 303)
10X $\pm$10% (DS-603)

Hold off time: Variable up to 5 times sweep

Trigger

Trigger coupling: AC, TV-V, TV-H, LINE

Trigger source: CH 1, CH 2, ALT (V-MODE), EXT

Slope: $\pm$

Trigger Sensitivity (DS-203 / DS-303 / DS-603)

Coupling	Bandwidth	Internal	External
AC (203)	30Hz - 30MHz	1.0 div	0.5Vpp
AC (303)	30Hz - 40MHz	1.0 div	0.5Vpp
TV-V	20Hz - 30kHz	0.5 div	0.5Vpp
TV-H	3kHz - 100kHz	0.5 div	0.5Vpp
LINE	DC - 30MHz	1.5 div	1.0 Vpp

Digital Storage Facilities

Memory: 2k words per channel (2 x 2048 x 8-bit). Internally backed-up memory (DS-303/603).

Realtime sampling rate: DS-203: 10Msample/s
DS-303: 20Msample/s

Vertical resolution: 8-bit (25 level/div)

Horizontal resolution: 2,048 points for 10 div

Digital Storage Facilities (continued)

Operating mode: Roll, save ALL, save CH-2, X-Y, single, pre-trig (0%, 25%, 50%, 75%), plot out.

Bandwidth: Same as analog

Output: DS-203: CH1/CH2 0.2V/div.
DS-303: RS-232: 4800, no parity, 8-bit, 1 stop.

Plot: Epson (24-pin) compatible printer (DS-203,303)

Other Specifications

CRT: Type: Rectangular with internal graticule
Display area: 8 x 10 div (1 div = 1 cm)
Accelerating voltage: 2.1kV (DS-203/303)
12kV (DS-603)
Phosphor: P31
Trace rotation: Adjustable front panel
Calibrator: Square wave 1kHz, 0.5Vpp $\pm$3%
Power requirements: 115, 230VAC $\pm$10%, 50/60Hz
Power consumption: Approximately 60 watts
Dimensions: 5 1/4" (H) x 12 3/4" (W) x 15 5/8" (D)
Net weight: 18 lbs. 11.2 oz. (8.5kgs.)
Accessories supplied: User manual, Two x1, x10 probes, AC power cord, spare fuse, and dust cover.

ANALOG OSCILLOSCOPES

30MHz Model S-1330
2-Channel - Delayed Sweep
Component Tester, Beam Find, Dual Time Base
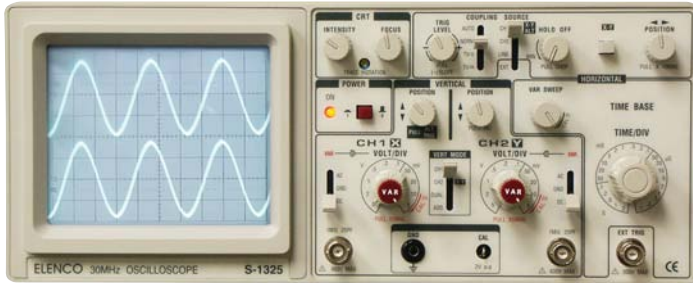
30MHz Model S-1325
2-Channel - Oscilloscope

Features
- Dual or single trace operation
- Calibrated 20-step time base with x10 magnifier
- AUTO/NORM triggered sweep operation with AC, TV-H, TV-V and line coupling.
- 1mV/DIV sensitivity
- Z-modulation (S-1330 only)
- Y (CH 2) output (S-1330 only)
- Dust cover included
- 2 free x1, x10 probes
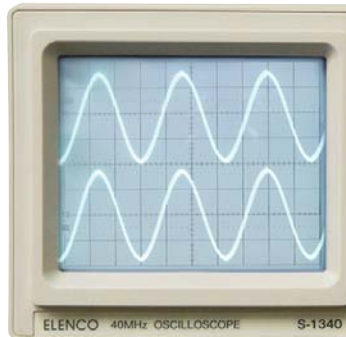
FREE DUST COVER & PROBES

S-1325 Shown

Specifications

Vertical Amplifiers (CH 1 and CH 2)

Sensitivity: 5mV/div - 5V/div (x1 mode). 1mV/div - 1V/div (6MHz, –3dB) (x5 mode).

Attenuator: 1-2-5 sequence, 10-step attenuator, plus vernier control.

Rise time: About 14ns.

Over shoot: Less than 5%.

Input impedance: 1MΩ ±2%, 25pF ±10pF.

Max. input voltage: 400V (DC + AC peak).

Operating modes: CH 1, CH 2, DUAL (ALT or CHOP) and ADD.

Chop frequency: Approximately 500kHz.

Algebraic addition: CH 1 + CH 2, CH 1 - CH 2.

Inverter: CH 2 only.

Horizontal Amplifier

X-Y mode: Switch selectable using X-Y switch
CH 1: X-axis.
CH 2: Y-axis.

Accuracy: Y-axis ±3%. X-axis ±6%.

Horizontal Amplifier (continued)

Bandwidth: DC - 1MHz (–3dB)

X-Y phase difference: Approximately 3° at 50kHz

Sweep System

Sweep display mode: Main, Mix, Delay (S-1330 only).

Hold off time: 5:1 continuously variable.

Main Sweep

Sweep speed: 0.1µs/div - 0.2s/div in 1-2-5 sequence, 20 steps.

Accuracy: ±3%.

Variable time control: 5:1, uncalibrated, continuously variable between steps.

Sweep magnification: 10X, ±10%, extend sweep speed up to 10ns/div.

Delayed Sweep (S-1330 only)

Sweep speed: 0.1µs/div - 0.2s/div in 1-2-5 seq., 20 steps.

Delayed Sweep (S-1330 only) (continued)

Accuracy: ±3%

Sweep magnification: 10X, ±10%, extend sweep speed up to 10ns/div.

Delay time position: Variable control to locate desirable waveform for extending.

Trigger

Trigger coupling: AUTO, NORM, TV-V, TV-H

Trigger source: CH 1, CH 2, LINE, EXT

Slope: ±

Trigger Sensitivity

Coupling	Bandwidth	Internal	External
TV-V	20Hz - 1kHz	0.5 div	0.05Vpp
TV-H	1kHz - 100kHz	0.5 div	0.05Vpp
AUTO	100Hz - 30MHz	1.5 div	0.1Vpp
NORM	DC - 30MHz	1.5 div	0.1Vpp

Component Tester (S-1330 only)

Test voltage: Max. 6Vrms (open circuit)
Test current: Max. 11mA (shorted)
Test frequency: Line frequency
Components: Capacitor, inductor, diode, transistor, zener, etc.

CH 2 Output (S-1330 only)

Output level: 100mV/div (no load) 50mV/div (50Ω load)

Bandwidth: 20Hz - 30MHz (–3dB)

Other Specifications

CRT: Type: Rectangular with internal graticule. Adjustable graticule illumination (S-1330 only).
Display area: 8 x 10 div (1 div = 1 cm)
Accelerating voltage: 2.1kV
Phosphor: P31
Z modulation (S-1330 only): Positive TTL signal, low level blank intensity at any intensity, high level unblank any intensity.
Trace rotation: Adjustable front panel
Calibrator: Square wave 1kHz, 2Vpp ±3%
Power requirements: 115, 230VAC ±10%, 50/60Hz
Power consumption: Approximately 40 watts
Dimensions: 5 1/4" (H) x 12 3/4" (W) x 15 5/8" (D)
Net weight: 16 lbs. 12 oz. (7.6kgs.)
Accessories supplied: Two x1, x10 probes, schematic diagram & parts list, AC power cord, spare fuse, and dust cover.

40MHz Model S-1340
2-Channel - Oscilloscope

40MHz Model S-1345
2-Channel - Delayed Sweep Component Tester, Beam Find, Dual Time Base

S-1340 Shown

General Features
- 1mV/DIV sensitivity
- Variable hold off
- X-Y operation
- TV sync
- Beam finder (S-1345 only)
- Sweep mix (S-1345 only)
- Z modulation (S-1345 only)
- Component tester (S-1345 only)
- Dust cover included
- 2 free x1, x10 probes

Specifications

Vertical Amplifiers (CH 1 and CH 2)

Sensitivity: 5mV/div - 5V/div (x1 mode) 1mV/div - 1V/div (6MHz, –3dB) (x5 mode)

Attenuator: 1-2-5 sequence, 10-step attenuator, plus vernier control.

Rise time: About 8.8ns

Over shoot: Less than 5%

Input impedance: 1MΩ ±2%, 25pF ±10pF

Max. input voltage: 400V (DC + AC peak)

Operating modes: CH 1, CH 2, DUAL (ALT or CHOP) and ADD.

Chop frequency: Approximately 500kHz

Algebraic addition: CH 1 + CH 2, CH 1 - CH 2

Inverter: CH 2 only

Horizontal Amplifier

X-Y mode: Switch selectable using X-Y switch
CH 1: X-axis
CH 2: Y-axis

Accuracy: Y-axis ±3% X-axis ±6%

Horizontal Amplifier (continued)

Bandwidth: DC - 1MHz (–3dB)

X-Y phase difference: Approximately 3° at 50kHz

Sweep System

Sweep display mode: Main, mix, delay (S-1345 only)

Hold off time: 5:1 continuously variable (0.1µs/div)

Main Sweep

Sweep speed: 0.1µs/div - 2s/div in 1-2-5 sequence, 23 steps.

Accuracy: ±3%

Variable time control: 5:1, uncalibrated, continuously variable between steps.

Sweep magnification: 10X, ±10%, extend sweep speed up to 10ns/div.

Delayed Sweep (S-1345 only)

Sweep speed: 0.1µs/div - 2s/div in 1-2-5 seq., 23 steps.

Delayed Sweep (S-1345 only) (continued)

Accuracy: ±3%

Sweep magnification: 10X, ±10%, extend sweep speed up to 10ns/div.

Delay time position: Variable control to locate desirable waveform for extending.

Trigger

Trigger coupling: AUTO, NORM, TV-V, TV-H

Trigger source: CH 1, CH 2, ALT, LINE, EXT

Slope: ±

Trigger Sensitivity

Coupling	Bandwidth	Internal	External
TV-V	DC - 1kHz	1.0 div	0.1Vpp
TV-H	1kHz - 100kHz	1.0 div	0.1Vpp
AUTO	100Hz - 40MHz	1.5 div	0.1Vpp
NORM	100Hz - 40MHz	1.5 div	0.1Vpp

Component Tester (S-1345 only)

Test voltage: Max. 6Vrms (open circuit)
Test current: Max. 11mA (shorted)
Test frequency: Line frequency
Components: Capacitor, inductor, diode, transistor, zener, etc.

CH 2 Output (S-1345 only)

Output level: 100mV/div (no load) 50mV/div (50Ω load)

Bandwidth: 20Hz - 20MHz (–3dB)

Other Specifications

CRT: Type: Rectangular with internal graticule. Adjustable graticule illumination (S-1345 only).
Display area: 8 x 10 div (1 div = 1 cm)
Accelerating voltage: 2.1kV (S-1340), 12kV (S-1345)
Phosphor: P31
Z modulation (S-1345 only): Positive TTL signal, low level blank intensity at any intensity, high level unblank any intensity.
Trace rotation: Electrical, adjustable front panel.
Calibrator: Square wave 1kHz ±10%, 2Vpp ±3%
Power requirements: 115V, 230VAC ±10%, 50/60Hz
Power consumption: Approximately 40 watts
Dimensions: 5 1/4" (H) x 12 3/4" (W) x 15 5/8" (D)
Net weight: 17 lbs. 3.2 oz. (7.8kgs.)
Accessories supplied: Two x1, x10 probes, schematic diagram & parts list, AC power cord, spare fuse, and dust cover.
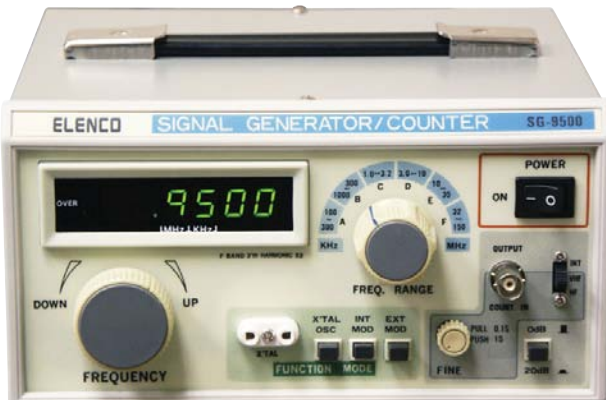
RF & AUDIO GENERATORS

Models **SG-9500** and **SG-9000** are stable high frequency generators capable of AM modulation. They are primarily designed for work on AM and FM radio receivers, but can be used in any project requiring a modulated RF signal.

Model **SG-9200** is a low cost audio generator featuring very low distortion sine wave and a rapid-rise square wave. All models have vernier frequency control for easy tuning and switchable high-low output levels.

Model **SG-9500** has built-in frequency counters which are switchable to measure external frequencies up to 150MHz.

Wide Band RF Signal Generators

Model SG-9500
RF Generator with Frequency Counter

Model SG-9000 RF Generator

Audio Generator

Model SG-9200 Audio Generator

Features SG-9000 / SG-9500
• RF frequencies continuously variable 100kHz to 450MHz in 6 ranges.
• Output RF voltage variable and has 20dB attenuator switch.
• Internal AM modulation of 1kHz.
• Audio 1kHz signal available at output.
• External crystal locks oscillator to your frequency between 1-15MHz.
• 455kHz, 4.5MHz and 10.7MHz specially noted for easy setting.

Specifications: SG-9500 Frequency Counter

Frequency range:	10Hz - 150MHz in 2 ranges
Accuracy:	$\pm$1 count, $\pm$reference time
Resolution:	1Hz or 10Hz
Gate time:	0.1 sec, 1 sec
Input sensitivity:	Less than 50mVrms
Input impedance:	HF 1MΩ VHF 50Ω
Reference time frequency:	10MHz
Reference time accuracy:	5 x 10-5 (50ppm) 0° - 40°C
	1 x 10-5 (10ppm) 23°C $\pm$3°C
Operation temp:	0-40°C
Digital display:	6 digit 0.56" LED

Specifications: SG-9000 / SG-9500

Frequency on 6 ranges 100kHz to 150MHz (450MHz on harmonics):

Band A	100kHz - 300kHz	Band D	3MHz - 10MHz
Band B	300kHz - 1000kHz	Band E	10MHz - 35MHz
Band C	1MHz - 3.2MHz	Band F	32MHz - 150MHz
Harmonics 96MHz - 450MHz			

Frequency accuracy:	(SG-9000) $\pm$ 3% dial accuracy
	(SG-9500) $\pm$ count accuracy, $\pm$ 1 digit
RF output approximate:	100mV to 35MHz
Crystal output:	1-15MHz uses HC 6/U holder (not included)
Output attenuator:	Hi-Lo Sw with fine adjustment
Modulation internal:	1kHz (AM) 30% approximate
Modulation external:	50Hz - 20kHz at less than 1Vrms input
Audio output:	1kHz min. at 1Vrms
Power:	120V/220V, 50/60Hz
Dimensions:	(SG-9000) 7" (H) x 10" (W) x 6" (D)
	(SG-9500) 5" (H) x 8 1/2" (W) x 8 1/2" (D)
Weight:	(SG-9000) 5 lbs., 14 oz.
	(SG-9500) 5 lbs., 12.2 oz.

Accessories: Detachable line cord, BNC to insulated clip output cable, instruction manual.

Specifications: SG-9200

Sine Wave

Frequency range:	10Hz - 1MHz (5 decade bands)
Frequency accuracy:	$\pm$3% +2Hz
Output distortion:	500Hz - 50kHz less than 0.05%
	50Hz - 500kHz less than 0.5%
Output voltage:	8Vrms 600Ω impedance
Output flatness:	$\pm$1dB (1kHz)

Square Wave

Frequency range:	10Hz - 10kHz
Output voltage:	10Vpp max.
Rise time:	0.5 μsec.
Power:	120/220VAC, 50/60Hz
Dimensions:	7" (H) x 10" (W) x 6" (D)
Weight:	5 lbs., 14 oz.

5MHz SWEEP FUNCTION GENERATOR

Model GF-8056 with Built-in 60MHz Frequency Counter

Decimal point Hz/kHz LED auto select

Rotary switch 4 range

4 function waveform

Linear/log sweep

Sweep rate from 10ms to 5s

5 digit red LED autorange counter

Auto gatetime

Amplitude with –20dB attenuator

EXT TRIG'D LED
Light - Trig level too high
Dark - Trig level too low
Flashing - Triggering

Output level from 0.1Vpp to 20Vpp

Frequency: X0.05 - X3.0

AC/DC, HF/LF, 100kHz filter switch

EXT counter trigger level control and input attenuator –26dB

0.200Hz to 60MHz 250 Vrms max. input

Sweep output 10Vpp

Main Output			Sync Output			Counter	
Frequency range	0.5Hz to 5MHz in 8 ranges		Output impedance	50Ω <2% accuracy		Display	5 digit 0.36" red LED display with autorange
Waveforms	4 waveforms (sine, square, triangle, DC)		Output level	TTL level, >3Vpp fixed amplitude		Resolution	0.001Hz
Stability	0.1% for 15 minutes, 0.2% for 24 hours		Fanout	>20		Time base	20MHz
DC offset	Continuously variable ±10V no load		Rise time	<60ns		Accuracy	<0.002%
Symmetry	50% (positive and negative half)		**VCF Input**			Max. input voltage	250Vrms
Linearity	<1% 1Hz-100kHz for triangle wave		Input voltage	0-10V		Input impedance	1MΩ <2%
Distortion	<1%, 1Hz to 100kHz		Input frequency	DC-1kHz variance 1:1, 1:1,000		Input frequency	0.2Hz - 60MHz
Rise / fall time	<90ns for square wave		**Sweep**			Attenuator	0dB, –26dB
Output impedance	50Ω <2% accuracy		Output amplitude	10Vpp (no load) or 5Vpp (1kΩ load)		Gate time	0.25s - 10s, auto-setting
Max. output	20Vpp no load, 10Vpp 50Ω load		Output frequency	Continuous adjustment 0.2Hz - 100Hz		Sensitivity	<30mVrms (1MHz)
Min. output	0.1Vpp no load, 0.05Vpp 50Ω load		Sweep speed	10ms - 5s, continuously variable		**General**	
Attenuator	X20: –26dB (±2% accuracy), X1: 0dB		Sweep width	1:1 - 1:100 continuously variable		Power source	AC 115V / 230V +10%, 50/60Hz, 25W
			Output waveform	Linear or log sweep ramp wave		Dimensions	10 13/16" (W) x 3 1/2" (H) x 11 13/16" (D)
						Weight	5 lbs. 8 oz.
						Safety approvals	UL, CUL, GS, TUV, CE, IEC1010, EN61010

20Hz - 150kHz Low Distortion Sine/Square Wave Audio Generator
Model GF-800/555

- Sine and square wave generator
- 20Hz to 150kHz in 46 steps
- Low distortion R-C oscillator
- Variable output control
- Low battery indicator
- Compact portable, lightweight

Specifications

Frequency range: x1 range 20Hz to 1.5kHz (23 steps), x100 range 2kHz to 150kHz (23 steps)
Accuracy: 20Hz through 100kHz (±3% or less), 120kHz and 150kHz (±5% or less)
Output control: 0dB/-20dB attenuator switch and variable amplitude control
Output impedance: approximately 600Ω

SINEWAVE CHARACTERISTICS
Output voltage: ≥1.2V rms at max. setting (no load)
Output flatness: (short term) 20Hz to 150kHz +0.5dB (reference frequency 1kHz)
Distortion: 200Hz - 15kHz <0.05% 15kHz-150kHz <0.3%

SQUARE WAVE CHARACTERISTICS
Output voltage: ≥5V p-p at maximum setting
Rise & fall time: Less than 0.5μs
Sag: Less than 5% at 20Hz (DC coupled)
Over shoot: <2% from maximum output
Duty ratio: 50% ±5%

SYNCHRONIZATION CHARACTERISTICS
Output voltage: ≥1.2 rms (no load)
Output impedance: 1kΩ ±5%
Other specifications same as sinewave characteristics

1MHz Function Generator
Model FG-500

Available in Kit FG-500K

Specifications

OUTPUT:
Waveforms: Sine, square, triangle
Frequency: 1Hz - 1MHz
Impedance: 600Ω ±10%
Amplitude: Sine/triangle 0-3V at 12VDC input squarewave 8V (no load)
Frequency variable range: 10:1 or more
Frequency multiplier: 6 decade steps

SINE WAVE
Distortion: Less than 1%
Flatness: ±0.5 dB 1Hz-100kHz

SQUARE WAVE
Symmetry: Less than 5% (at 1kHz)
Rise & Fall time: Less than 300ns (at 1kHz)

TRIANGLE WAVE
Linearity: Less than 1% (up to 100kHz)
Power requirements: 9 to 18VDC at input

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DIGITAL MULTIMETERS

Compact Multimeter
Model M-1000D

Features
- 3 1/2 digit, 2,000 count display
- Transistor test
- Audible continuity
- Diode test
- Signal injector
- Overload protection
- Pocket-size
- Low cost

Available as a kit (M-1007K)

Specifications

AC + DC volts	200mV, 2V, 20V, 200V, 1000V, 200VAC, 750VAC
Accuracy	DC: 200mV $\pm$(0.25% rdg + 2 dgts), 2V-1,000V: $\pm$(0.5% rdg + 2 dgts)
	AC: $\pm$(1.2% rdg + 10 dgts) Resolution 0.1mV
Input impedance	1MΩ
DC current	200μA, 2mA, 20mA, 200mA, 10A
Accuracy	200μA, 2mA: $\pm$(1.0% rdg + 2 dgts), 200mA: $\pm$(1.2% rdg + 2 dgts),
	10A: $\pm$(2.0% rdg + 2 dgts) Resolution 0.1μA
Resistance	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ
Accuracy	$\pm$(0.8% rdg + 2 dgts), 2MΩ: $\pm$(1.0% rdg + 2 dgts) Resolution 0.1Ω
Accessories	Test leads, manual, 9V battery included
Dimensions / weight	5" (H) x 2 29/32" (W) x 1" (D) / 4.5 oz.

Autoranging Digital Multimeter
Model M-2625

Features
- 3 3/4 digit, 4,000 count display
- Frequency 5Hz to 10MHz
- Temperature to 752°F
- Rel. / reset mode
- Audible continuity / diode test
- Temperature probe included
- Capacitance to 100μF
- Holster included
- Auto power off
- Data hold

Specifications

AC + DC volts	400mV, 4V, 40V, 400V, 600V
Accuracy	DC: 400mV-400V: +(0.5% rdg + 5 dgts), 600V: $\pm$(0.8% rdg + 5 dgts)
	AC: 400mV: $\pm$(1.5% rdg + 8 dgts), 4V-400V: $\pm$(0.8% rdg + 5 dgts),
	600V: $\pm$(1.2% rdg + 5 dgts) Resolution 0.1mV
AC + DC current	40μA, 400μA, 40mA, 400mA, 4A, 10A
Accuracy	DC: $\pm$(2.0% rdg + 5 dgts), 40mA, 400mA: $\pm$(1.5% rdg + 5 dgts)
	AC: 40mA, 400mA: $\pm$(2.5% rdg + 3 dgts), 40mA, 400mA: $\pm$(2.0% rdg + 5 dgts),
	4A, 10A: $\pm$(2.5% rdg + 5 dgts) Resolution 0.1mA
Resistance	400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ
Accuracy	400Ω-4MΩ: $\pm$(1.0 rdg + 5 dgts), 40MΩ: $\pm$(2.0 rdg + 5 dgts) Res. 0.1Ω
Temperature	−58°F - 752°F, probe included
Accessories	Test leads, manual, holster, and two (2) "AA" batteries included
Dimensions / weight	6" (H) x 3" (W) x 1 1/2" (D) / 9.9 oz.

Model M-1750

Features
- 3 3/4 digit, 4,000 count display
- Frequency to 10MHz
- Capacitance to 200μF
- Diode and transistor test
- Audible continuity
- AC/DC current to 10A
- 3-Way overload protection
- Holster included
- Relative measurement

Specifications

AC + DC Volts	400mV, 4V, 40V, 400V, 600V
Accuracy	DC: $\pm$(0.5% rdg + 3 dgts), 600V: $\pm$(0.8% rdg + 2 dgts)
	AC: 400mV, 600V: $\pm$(1.2% rdg + 3 dgts), 4V-400V: $\pm$(0.8% rdg + 3 dgts) Res. 100μV
AC + DC Current	400μA, 4,000μA, 40mA, 400mA, 10A
Accuracy	DC: 400μA, 4,000μA: $\pm$(1.2% rdg + 3 dgts), 40mA, 400mA: $\pm$(1.5% rdg + 3 dgts)
	AC: 400μA, 4,000μA: $\pm$(1.5% rdg + 5 dgts), 40mA, 400mA: $\pm$(2.0% rdg + 5 dgts) Res. 0.1μA
Resistance	400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ
Accuracy	400Ω-4MΩ: $\pm$(1.0% rdg + 3 dgts), 40MΩ: $\pm$(2.0% rdg + 3 dgts) Resolution 0.1Ω
Capacitance	4nF, 40nF, 400nF, 4μF, 40μF, 200μF
Accuracy	4nF: $\pm$(5.0% rdg + 10 dgts), 40nF: $\pm$(3.0% rdg + 10 dgts),
	400nF-40μF: $\pm$(2.0% rdg + 5 dgts), 200μF: $\pm$(4.0% rdg + 5 dgts) Resolution 10pF
Frequency	10Hz - 10MHz autoranging
Accuracy	$\pm$(0.1% rdg + 2 dgts) Resolution 1Hz
Accessories	Test leads, manual, holster, and 9V battery included
Dimensions / weight	6 3/8" (H) x 3" (W) x 1 3/4" (D) / 10.56 oz.

Model LCM-1950

Features
- Large 1", 3 3/4 digit, 4,000 count display
- Autoranging frequency to 4MHz
- Capacitance to 400μF
- Inductance to 40H
- Resistance to 4000MΩ
- Logic test
- Diode and transistor test
- Audible continuity test
- Holster included

Specifications

AC + DC volts	400mV, 4V, 40V, 400V, 1,000V, 750VAC
Accuracy	DC: $\pm$(0.5% rdg + 1 dgt); AC: $\pm$(1.0% rdg + 4 dgts) on 400mV - 400V ranges,
	$\pm$(2.0% rdg + 4 dgts) on 750V range Resolution 100μV
AC + DC current	40mA, 400mA, 10A
Accuracy	DC: $\pm$(1.0% rdg + 1 dgt) on mA range, $\pm$(3.0% rdg + 1 dgt) on 10A range
	AC: $\pm$(1.5% rdg + 4 dgts) on mA range, $\pm$(3.5% rdg + 4 dgts) on 1A range Resolution 10μA
Resistance	400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ, 4,000MΩ
Accuracy	$\pm$(0.8% rdg + 4 dgts) on 400Ω range, $\pm$(0.8% rdg + 2 dgts) on 4kΩ to 4MΩ ranges,
	$\pm$(3.0% rdg + 4 dgts) on 40MΩ range, $\pm$[(5.0% rdg – 20 dgts) + 10 dgts] on 4,000MΩ range Res. 0.1Ω
Capacitance	4,000pF, 40nF, 400nF, 4μF, 400μF
Accuracy	$\pm$(5.0% rdg + 10 dgts) on all ranges, $\pm$(8.0% rdg + 10 dgts) above 100μF Resolution 1pF
Inductance	4mH, 40mH, 400mH, 4H, 40H
Accuracy	$\pm$(5.0% rdg + 20 dgts) on 4mH range, $\pm$(5.0% rdg + 10 dgts) on other ranges Resolution 1μH
Frequency	4kHz, 40kHz, 400kHz, 4MHz
Accuracy	$\pm$(0.1% rdg + 1 dgt) Resolution 1Hz
Accessories	Test leads, manual, and 9V battery included
Dimensions / weight	7 3/4" (H) x 3 1/2" (W) x 1 1/2" (D) / 10.88 oz.

DIGITAL MULTIMETERS

Model M-1700

Features
- 3½ digit, 2,000 count display
- Frequency to 20MHz
- Capacitance to 20μF
- Diode and transistor test
- Audible continuity
- AC/DC current to 10A
- 3-way overload protection
- Low cost
- Holster included

Specifications

AC + DC volts Accuracy	200mV, 2V, 20V, 200V, 600V DC: ±(0.5% rdg +1dgt); AC: ±(1% rdg +4dgts) Resolution 100μV
AC + DC current Accuracy	2mA, 20mA, 200mA, 10A DC: mA: ±(1.0% rdg + 1 dgt), 10A: ±(3.0% rdg + 1 dgt) AC: mA: ±(2.0% rdg + 4 dgts), 10A: ±(3.5% rdg + 4 dgts) Res. 100μA
Resistance Accuracy	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ 200Ω: ±(0.8% rdg +3dgts), 2kΩ-2MΩ: ±(0.8% rdg +1dgt), 20MΩ: ±(3.0% rdg +3 dgts) Resolution 0.1Ω
Capacitance Accuracy	2nF, 20nF, 200nF, 2μF, 20μF ±(2.0% rdg + 10 dgts) Resolution 1pF
Frequency Accuracy	10Hz - 20MHz autoranging ±(0.1% rdg + 1 dgt) (10Hz - 15MHz) Resolution 1Hz
Accessories	Test leads, holster, manual, 9V battery included
Options	C-90 Case, C-17 Holster
Dimensions / weight	6" (H) x 2 ½" (W) x 1 ¼" (D) / 7.4 oz.

Model M-2795

Features
- 3¾ digit, 4,000 count display
- Audible continuity test
- Data hold / rel. value
- Frequency to 15MHz
- Capacitance to 200μF
- Transistor / diode / logic test
- AC/DC current to 10A
- Auto power off
- Holster included

Specifications

AC volts Accuracy	400mV, 4V, 40V, 400V, 750V 4V, 40V, 400V: ±(0.8% + 3 dgts) 400mV, 750V: ±(1.2% + 3 dgts)
DC volts Accuracy	400mV, 4V, 40V, 400V, 1000V 400mV, 4V, 40V, 400V: ±(0.5% + 3 dgts) 1000V: ±(0.8% + 3 dgts)
AC current Accuracy	40μA, 400μA, 4000μA, 40mA, 400mA, 10A 40μA, 400μA, 4000μA: ±(1.5% + 5 dgts) 40mA, 400mA: ±(2% + 5 dgts) 10A: ±(2.5% + 5 dgts)
DC current Accuracy	40μA, 400μA, 4000μA, 40mA, 400mA, 10A 40μA, 400μA, 4000μA: ±(1.2% + 3 dgts) 40mA, 400mA: ±(1.5% + 3 dgts) 10A: ±(2% + 5 dgts)
Resistance Accuracy	400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ, 400MΩ 400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ: ±(1%+3dgts) 40MΩ: ±(2%+3dgts) 400MΩ: ±(3%+10 dgts)
Capacitance Accuracy	4nF, 40nF, 400nF, 4μF, 40μF, 200μF 4nF: ±(5%+10 dgts) 40nF: ±(3%+10 dgts) 400nF, 4μF, 40μF: ±(2%+5 dgts) 200μF: ±(4%+5 dgts)
Frequency Sensitivity	10Hz - 15MHz ±(0.1% + 5) Sine wave 0.6Vrms
Accessories	Heavy-duty test leads, holster, manual, & 9V battery included
Dimensions / weight	7 ½" (H) x 3 ½" (W) x 1 ¾" (D) (without holster) / 10.56 oz. (without holster)

Bench Digital Multimeter
Model M-5500R

Features
- Large 3 3/4 digit, 3999 count LCD backlighted display
- Auto / manual ranging
- Capacitance & frequency
- Data hold, min./max
- True rms. / relative display
- Storage data display recall
- 42 segment bargraph display
- Diode / continuity test
- AC or DC power source
- **Includes RS-232C interface and software**

Specifications

AC + DC volts Accuracy	400mV (DC only), 4V, 40V, 400V, 1,000V, 750VAC (True rms) DC: ±(0.3% rdg + 2dgts), 400mV: ±(0.3% rdg + 5dgts) AC: ±(0.8% rdg + 5dgts) Resolution 0.1mV (DC), 1mV (AC)
AC + DC current Accuracy	4mA, 40mA, 400mA, 10A DC: ±(0.8% rdg + 5 dgt), ±(1.5% rdg + 10 dgt) (10A); AC: ±(1.5% rdg + 5 dgt), 10A: ±(2.0% rdg + 10 dgt) Resolution 1μA
Resistance Accuracy	400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ 400Ω: ±(0.5% rdg + 5 dgts), 4kΩ - 400kΩ: ±(0.5% rdg + 3 dgts), 4MΩ: ±(1.0% rdg + 5 dgts), 40MΩ: ±(1.5% rdg + 10 dgts) Resolution 0.1Ω
Capacitance Accuracy	4nF, 40nF, 400nF, 4μF, 40μF 4nF: ±(2% rdg + 40 dgts), 40nF - 40μF: ±(2% rdg + 5 dgts) Resolution 1pF
Frequency Accuracy	100Hz, 1kHz, 10kHz, 100kHz, 1MHz ±(0.1% + 4 dgts) Resolution 0.01Hz
Power	AC: 120VAC DC: 9V battery & 6 "AA" batteries (not incl.)
Dimensions	3 ¼" (H) x 9 5/16" (W) x 9" (D)
Weight	2 lbs. 11 oz.

DIGITAL MULTIMETERS

Model M-2785

Features

- 3 1/2 digit, 2,000 count display
- Audible continuity test
- Data hold / peak hold
- Frequency to 15MHz
- Capacitance to 200µF
- Transistor / diode / logic test
- AC/DC current to 10A
- Auto power off
- Holster included

Specifications

AC + DC Volts / Accuracy	200mV / 0.25% DC. 1% AC; 2V, 20V, 200V / 0.8% DC, 1% AC; 1000VDC / 0.8%; 750VAC / 1.5%	Resolution 0.1mV
AC + DC Current / Accuracy	20µA, 200µA, 2mA, 20mA / 0.8% DC, 1.2% AC; 200mA / 1% DC, 1.5% AC; 10A / 1.5% DC, 2% AC	Resolution 0.01µA
Resistance / Accuracy	200Ω, 2kΩ, 20kΩ, 200kΩ / 0.8%; 2MΩ / 1.5%; 20MΩ, 200MΩ / 2%	Resolution 0.1Ω
Capacitance / Accuracy	2nF, 20nF, 200nF, 2µF, 20µF, 200µF / 3%	Resolution 1pF
Frequency / Accuracy	12kHz, 20kHz, 200kHz, 2MHz, 15MHz / 0.25%	Resolution 1Hz
Accessories	Heavy-duty test leads, holster, manual, and 9V battery included	
Dimensions	7 1/2" (H) x 3 1/2" (W) x 1 13/32" (D) without holster	
Weight	1 lb., 6 oz. including holster, 12 oz. without holster	

Digital Capacitance Meter
Model CM-1555

Features

- 3 1/2 Digit, 2,000 count LCD readout with unit indicator.
- Measures capacitors from 0.1pF to 20,000µF.
- Zero control for test lead compensation.
- Banana jack and special insertion jack included.
- Compact size with tilt stand and holster.

Specifications

Range	200pF, 2,000pF, 20nF, 200nF 2µF, 20µF, 200µF, 2,000µF, 20mF
Resolution	0.1pF, 1pF, 10pF, 100pF, 1nF, 10nF, 100nF, 1µF, 10µF
Accuracy	200pF: ±(0.5% rdg + 1 dgt + 0.5pF), 2,000pF - 200µF: ±(0.5% rdg + 1 dgt); 2,000µF: ±(2.0% rdg + 1 dgt); 20mF: ±(4.0% rdg + 1 dgt)
Accessories	Test leads, manual, holster, and 9V battery included
Dimensions / Weight	6 3/8" (H) x 3" (W) x 1 3/4" (D) / 10.56 oz.

ANALOG MULTIMETERS

Compact VOM
Model M-105

Features

- 10,000Ω/V DC, AC
- Reads volts, amps, ohms
- 15 ranges
- Pocket size
- Battery test
- Fuse protected
- Safety test leads

Specifications

DC volts	2.5, 10, 50, 250, 1000 DC volts ±5% Full Scale Reading (FSR)
AC volts	10, 50, 250, 1000, AC volts ±5% Full Scale Reading (FSR)
DC current	10mA, 250mA, DC ±5% Full Scale Reading (FSR)
Ohmmeter	x10, x1k (3.6kΩ Mid Scale) ±5% Full Scale Reading (FSR)
Battery test	1.5V (250mA), 9V (10mA)
Accessories	Test leads, manual, 1.5V "AA" battery included
Dimensions / weight	4 1/2" (H) x 2 1/2" (W) x 1 5/16" (D) / 4.2 oz.

20k/V VOM
Model M-1250

Features

- 20,000Ω/V
- 23 ranges
- 3 1/2" meter
- Mirrored scale
- Audible continuity
- Checks transistors/diodes
- 10A DC current
- dB scale
- Battery test
- Safety test leads

Available as kit Model M-1250K

Specifications

DC volts	.1, .5, 2.5, 10, 50, 250, 1000, 3% Full Scale Reading (FSR)
AC volts	10, 50, 250, 1kV, 4% Full Scale Reading (FSR)
DC current	50µA, 2.5mA, 25mA, 250mA, 10A 3% Full Scale Reading (FSR)
Resistance	x1, x10, x100, x1k, x10k
Transistor h$_{FE}$ 0-1000	ICEO 150µA, 1.5mA, 15mA, 150mA
Accessories	Test leads, manual, 9V & (2) 1.5V AA batteries included
Dimensions / weight	5 29/32" (H) x 3 23/32" (W) x 1 1/4" (D) / 9.9 oz.

Digital AC Clamp Meter
Model ST-1012

This meter has been designed according to IEC-1010-2-032 concerning safety requirement for handheld current clamps for electrical measurement and test.

Features

- 3½ digit display
- AC current to 1,000A
- AC voltage to 750VAC
- DC voltage to 1,000VDC
- Temperature type K
- Resistance to 2MΩ
- Audible continuity
- Data hold
- Diode test
- Zippered case included

Specifications

AC volts Accuracy	200V, 750V 200V: ±(1.0% rdg + 5dgts) 750V: ±(1.2% rdg + 5dgts)
DC volts Accuracy	200mV, 2V, 20V, 200V, 1,000V 200mV: ±(0.5% rdg + 1dgt); 2V - 200V: ±(0.5% rdg + 3dgts) 1,000V: ±(0.8% rdg + 3dgts)
AC current Accuracy	20A, 200A, 1,000A 20A: ±(4.0% rdg + 5dgts); 200-400A: ±(2.5% rdg + 5dgts); 400-1,000A: ±(3.0% rdg + 10dgts)
Resistance Accuracy	200Ω, 2kΩ, 20kΩ, 200kΩ, 20MΩ 200Ω: ±(1.0% rdg + 5dgts); 2kΩ-20MΩ: ±(1.0% rdg + 5dgts)
Temperature	32°F-753°F: ±(1.0%rdg + 3dgts); 754°F-1,382°F: ±(2.0%rdg + 3dgts)

Digital AC/DC Clamp Meter
Model ST-3030

CE/LVD CAT III 600V

Specifications

AC volts	4V, 40V, 400V: ±1.0%; 400mV/600V: ±0.8%
DC volts	400mV, 4V, 40V, 400V: ±0.5%; 600V: ±0.8%
AC current	400A: ±2.0%; 1,000A: ±2.5%
DC current	400A: ±1.5%; 1,000A: ±2.0%
Resistance	400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ: ±1.0%; 40MΩ: ±2.0%
Capacitance	40nF ±3.0%; 400nF/4µF ±2.5%; 40/100µF ±5.0%
Frequency	10Hz - 10MHz: ±1.0%
Duty cycle	0.1% - 99.9% ±2.0%
Temperature	−58°F - 302°F ±(5% + 2°F) 302°F - 1292°F ±(3% + 2°F)

Features

- 3¾ digit, 4,000 count display
- AC/DC clamp-on meter
- Auto/manual range
- Capacitance
- Diode check/continuity buzzer
- Relative measurement
- Temperature type K
- Frequency
- Data hold
- Back light
- Auto power off
- Zippered case included

This meter has been designed according to IEC-1010-2-032 concerning safety requirement for handheld current clamps for electrical measurement and test.

Halogen Leak Detector
Model WJL-6000

Features

- Detect all kinds of halogen refrigerants.
- Sensitivity adjusted at any time and it can be adjusted automatically to the best state of detecting.
- Audible and visual leak indicators
- Inner precise IC with Ultra-Low consume circuit design, more stable, longer battery time.
- Tri-color visual display of battery voltage
- Excellent sensor, high sensitivity, longer use time
- Storage pouch included

Digital Clamp Meter
Model DL-379

Features

- Dual display
- 3¾ digit, 4,000 count display
- AC current - 400A
- AC voltage - 750VDC
- DC voltage - 1,000VDC
- AC/DC microamps - 2,000µA
- Resistance - 40MΩ with continuity buzzer
- Capacitance - 4,000µF
- Temperature Type K - −40°F - 752°F
- Frequency - 10Hz to 100kHz
- Diode test
- Data hold
- Auto power off
- Zippered case included

Other models available

VARIABLE VOLTAGE POWER SUPPLIES

Triple Output Power Supply
Model XP-770

The XP-770 is a triple-output regulated power supply providing two variable outputs (0-20VDC @ 2A) and one fixed (5VDC @ 3A). Four LCD displays allowing the output voltages and currents to be displayed simultaneously. The variable outputs can work independently, in series, or in parallel modes. The highest output voltage is the sum of twice the voltage value in series mode and the highest output current is the sum of twice the current value when in parallel mode.

Specifications	
Input voltage	120/220VAC, 50/60Hz
Output voltage	Dual 0-20VDC @ 2A
Output voltage	5V @ 3A
Dimensions / weight	10¼" (H) x 6½" (W) x 14" (D) / 12 lbs. 14 oz.

0-50VDC @ 3A Power Supply
Model XP-752

The **XP-752** has an output of 50VDC @ 3A. Its features include fine and coarse controls for voltage and current, and contains two 3 digit LED Volt / Current meters.

The supply incorporates an externally controlled current cutoff circuit with an LED indicating current overload. Protected against short circuits and overloads.

Specifications	
Input voltage	120/220VAC, 50/60Hz
Output voltage	0-50VDC @ 3A
Dimensions	5 13/32" (H) x 11½" (W) x 6½" (D)
Weight	13 lbs.

0-30VDC @ 5A Power Supply
Model XP-605

The **XP-605** has an output of 30VDC @ 5A. Its features include fine and coarse controls for voltage and current, and contains two analog Volt / Current meters.

The supply incorporates an externally controlled current cutoff circuit with an LED indicating current overload. Protected against short circuits and overloads.

Specifications	
Input voltage	120/220VAC, 50/60Hz
Output voltage	0-30VDC @ 5A
Dimensions	5 13/32" (H) x 11½" (W) x 6½" (D)
Weight	13 lbs.

POWER SUPPLIES

4 Fully Regulated Power Supplies in One Unit
Model XP-581A

The **XP-581** is our most popular power supply. It is ideally suited for laboratories, classrooms, and hobbyist use.

It features 3 fixed DC voltages: +5V @ 3A, +12V @ 1A, –12V @ 1A and variable DC voltage: 0V - 20V @ 2A. Housed in a rugged steel case, it is the perfect combination of versatility and high value.

Features
- 4 DC voltages:
  - 3 Fixed: +5V @ 3A
  - +12V @ 1A
  - –12V @ 1A
  - 1 Variable: 0 - 20V @ 2A
- Fully regulated and short protected
- Voltage and current meters
- All metal case
- Ideal for laboratory, service shops and hobbyists
- Low cost and high value

Specifications

Input voltage	120VAC 60Hz			
Current protection	2A fuse			
Output voltage	Fixed +5V	Fixed +12V	Fixed –12V	Variable 0 - 20V
Output current	3A	1A	1A	2A
Load regulation	.1V	.1V	.1V	.1V
Line regulation	.1V	.1V	.1V	.1V
Ripple rms	.01V	.01V	.01V	.01V
Current protection	Thermal	Thermal	Thermal	Current limit
Dimensions	3 5/8" (H) x 10 3/8" (W) x 10 1/4" (D)			
Weight	7 lbs. 11.2 oz.			

AC/DC Variable Power Supply
Model XP-625

The **XP-625** is an ideal power supply for your school lab. It contains three voltages: 0-30VDC @ 5A, 0-40VAC @ 5A, and 0-110VAC @ 2.5A. All three supplies are controlled by the voltage adjust knob on the front panel. The unit contains a voltmeter and an ammeter. The voltmeter is used for both 30VDC and 40VAC output voltages. The ammeter only registers the DC output current. The outputs are fuse protected from overload or shorting.

Specifications

Input voltage	120VAC
Output voltage DC	0-30VDC, 5A max.
Output voltage AC	0-40VAC, 5A max.
Output voltage	0-110VAC, 2.5A max.
Dimensions / weight	5 3/8" (H) x 7 3/4" (W) x 9 1/2" (D) / 14 lbs. 14 oz.

Fixed Voltage Supply
Model XR-38

Model XR-38 is a 13.8VDC regulated power supply capable of delivering up to 3A of continuous current.

It is ideal for mobile radio, cellular phones, CB or ham radio equipment.

Specifications

Input voltage	120VAC
Output voltage DC	13.8VDC
Output current	3A continuous, 5A surge
Dimensions	4 5/16" (H) x 6" (W) x 8 3/16" (D)
Weight	5 lbs. 8 oz.

POWER SUPPLIES

Deluxe Battery Eliminator
Model XP-100

This power supply is an ideal bench top battery eliminator. Substitutes a wide variety of batteries including AA, AAA, C, D, and 9V types. The voltage is conveniently selected by a rotary switch. Advanced, solid-state electronics provide both LINE and LOAD regulation of the output voltage. The voltage selector switch is precision-designed so that the output voltage does not increase during adjustment between voltage ranges.

Made in USA

Specifications	
Input voltage	120VAC
Output voltage	1.5, 2.2, 3, 4.5, 5, 6, 7.2, 9, 10, 12, 13.8, 15VDC
Output current	1A max.
Accuracy	±5%
Dimensions / weight	3 ¾" (H) x 8 ¼" (W) x 7" (D) / 5 lbs.

Available in kit XP-100K

Triple Output AC/DC Power Supply
Model XP-720

Made in USA

The Model **XP-720** has 3 fully regulated supplies; 1.25-15V @ 1A, −1.25 to −15V @ 1A, or (3-30V @ 1A) and 5V @ 3A. It also has 6.3VAC @ 1A and 12.6VAC center-tapped @ 1A.

It features short circuit protection on all supplies.

Available in kit XP-720K

Specifications	
Input voltage	120VAC, 60Hz
Output voltage	1.25VDC - 15VDC @ 1A; −1.25VDC - −15VDC @ 1A; 5VDC @ 3A Dual 6.3VAC @ 1A, 12.6VAC @ 1A (center-tapped)
Dimensions / weight	3 ½" (H) x 8" (W) x 6 ½" (D) / 7 lbs.

Spectrum Tube Power Supply
Model STPS-1

This power supply provides safe and reliable operation for 10" spectrum tubes. The unique design supplies a voltage that prolongs the life of the spectrum tubes. Specially designed sockets eliminate electrical shock hazards. The unit operates at 120V @ 60Hz.

(Tube not included).

Made in USA

Specifications	
Input voltage	120VAC, 60Hz
Output voltage	5,000V without spectrum tube. 1,000V @ 10mA with spectrum tube.
Operating temperature	10°C to 50°C
Storage temperature	−20°C to 60°C
Dimensions / weight	13 3/4" (H) x 4 5/8" (W) x 3½" (D) / 4 lbs. 12.8 oz.

DIGITAL LOGIC & PULSER PROBES

Logic Probe & Pulser Combo
Model LP-900/625

A unique two-in-one logic probe & pulser that simplifies troubleshooting and analyzing digital circuits.

Specifications - Logic Probe

Frequency Response	50MHz
Detectable Pulse Width	10ns
Logic Threshold	TTL Hi 3V, Lo 0.75V
	CMOS Hi 60% Vcc, Lo 15% Vcc
Input Impedance	120kΩ
Operating Supply Voltage	4-18V
Max. Input Protection	±70VAC/DC @ 15 s.
Power Supply Protection	±20V

Specifications - Logic Pulser

Pulse Repetition Rate	0.5/400Hz
Pulse Width	10µs
Output Current:	
Pulser Mode @ 0.5Hz	100mA sink/source
Square Wave Mode @ 500Hz	5mA sink/source
Sync Input Impedance	1MΩ
Operating Supply Voltage	5-15V
Max. Sync Input Protection	±120VDC @ 30 s.
Output Protection	±35VDC @ 30 s.
Power Supply Protection	±20VDC @ 30 s.

Logic Probe   Model LP-560

The **LP-560** Logic Probe provides convenient and precise use in the measurement of logic circuits. It displays logic levels (high or low), pulses and voltage transients down to 25 nanoseconds. High intensity LED readouts provide instant response to the logic state.

Features
- Tests all logic families (TTL, LSI, CMOS, ECT)
- Captures pulses to 25ns (20MHz)
- Audio beeper, two sounds HI and LOW
- Memory function
- Colored LED's for different functions
- Input overload protection
- Logic probe is circuit powered
- Reverse polarity protection
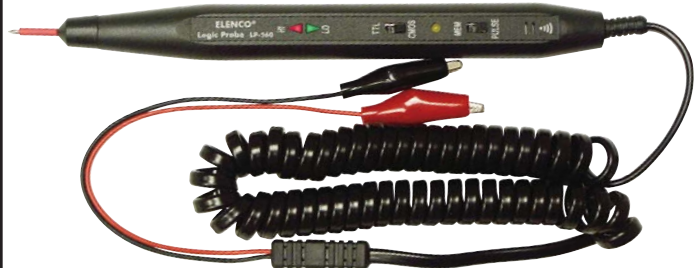
Specifications

Working voltage	4-18VDC
Frequency response	20MHz
Minimum detectable pulse width	25ns
Input impedance	1MΩ
Input overload protection	±220VAC/DC 15s
Supply voltage protection	±20VDC
Pulse indicator flash time	500ms
Operating temperature	32º - 122ºF (0º - 50ºC)

Logic Pulser Model LP-425K (kit)

The Logic Pulser Kit is a desirable device in the troubleshooting of logic circuits and compliments the logic probe in pulse tracing signals in complex circuits. It injects a signal directly into a circuit without having to disconnect components. It is circuit powered and has a switchable output of 0.5 or 400Hz at 100mA. Designed for easy construction.

Logic Probe Model LP-525K (kit)

Digital Logic Probe in kit form provides convenient and precise use in measurement of logic circuits. It displays logic levels (high or low), pulses and voltage transients down to 25 nanoseconds and a maximum input of 20MHz. Large PC board and detailed manual for fast construction.

Frequency Counter 1MHz - 3GHz
Model F-2800

Features
- 10-digit liquid crystal display
- Hold switch to lock display
- Ultra-sensitive, synchronous detector - 16-section bar graph to show RF signal strength.
- High-speed 300MHz direct counter with 0.1Hz resolution.
- Four selectable gate speeds
- Low power consumption (average 6 hour battery life).
- Supplied with NiCd pack, AC wall charger, 7-section telescopic antenna.
- Low battery indicator

Specifications

Frequency range	1MHz - 3GHz
Impedance	50Ω (BNC socket)
Case	Stamped aluminum w/ black anodized finish
Power	9VDC, 300mA
Battery	Internal 4 x "AA", 600mAH NiCd pack
Dimensions / Weight	3 3/16" (H) x 2 11/16" (W) x 1 1/4" (D) / 7.5 oz.

Frequency Counter 10Hz - 3GHz
Model F-2850

Features
- 10-digit liquid crystal display
- Ultra-sensitive, synchronous detector - 16-section bar graph to show RF signal strength.
- High-speed 300MHz direct counter with 0.1Hz resolution.
- Filter to prevent display of random noise.
- Hi-Z low range
- Automatic hold, LED back light, beeper.
- Four selectable gate speeds
- Low power consumption (average 6 hour battery life).
- Supplied with NiCd pack, AC wall charger, 7 section telescopic antenna.
- Low battery indicator

Specifications

Frequency range	10Hz - 3GHz
Impedance	One dual-purpose BNC socket 50Ω input for range 1MHz to 3GHz 1MΩ input for range 10Hz to 50MHz
Power	9VDC, 300mA
Battery	Internal 4 x "AA", 600mAH NiCd pack
Dimensions / Weight	3 15/16" (H) x 2 11/16" (W) x 1 1/4" (D) / 8.8 oz.

DATACOM TESTERS

Tone Generator / Probe Set
Model TPG-70

The Model TPG-70 includes both TP-20 (probe) and TG-50 (generator).

Technicians and installers can quickly locate wires in applications such as **TeleCom**, **Networking**, **CATV**, **HVAC**, **Electrical**, and **Automotive Circuits**.

Features
- Use to locate termination point of all types of communication cables.
- Single or dual tone with adjustable volume.
- Audible continuity on telco and bare wires.
- LED signal confirmation.
- Probe works with any tone generator.
- Non-conductive plastic tip for safety.
- Low battery indicator.

Carrying Case Included

Also Sold Separately (TP-20 Probe) (TG-50 Generator)

Probe

Generator

Telephone Test Set   Model BSM-200

The Model BSM-200 is a pocket-size test set used by telephone technicians and installers.

Features
- Mega ohm mW meter for testing insulation resistance and determining line conditions without help from the central office.
- High impedance monitor mode so not to disrupt conversation or data transfer.
- Other convenient functions include: Last number redial, hook and flash, speaker phone, mute, polarity check, battery check, touch tone, and pulse dialing.
- Model BSM-200 features ear microphone for hands-free operation.
- Made of high impact material for shock resistance.
- Tests cords use piecing pin and Angled Bed of Nails (ABN) connectors.
- 9V battery included.

Carrying Case Included

Multi-Network Cable Tester
Model TCT-355

The TCT-355 Cable Tester is a convenient instrument for testing different shielded/unshielded wiring schemed communication cable with RJ11 and RJ45 connectors and coax cables with F and BNC connectors.

Features
- Tests RJ45 TIA568A/B (AT&T 258A), 10 Base-T, token ring, RJ11/RJ12, USOC and coaxial BNC cable.
- Automatically check cable for continuity, shorted, open and crossed wire pairs.
- Coaxial cable port identifies cable conditions including shorts, shield opens, and center conductor breaks.
- Main unit and remote allow one person testing.
- Terminator and carrying case included.

Requires one (1) 9V battery (part # 590009)

Cable Tester   **Remote**   **Terminator**

Carrying Case

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Fiber Optics Voice & Data Kit

w/ training course Model FO-30K

Learn the basics of fiber optics communications while you build this exciting kit. Transmit your voice or a 1kHz signal through the fiber optic cable to a fiber optic receiver. Comes complete with all of the necessary components, including PC boards, microphone, speaker and fiber optic cable. Transmitter and receiver on separate boards, can be located hundreds of feet apart. Use for science projects.
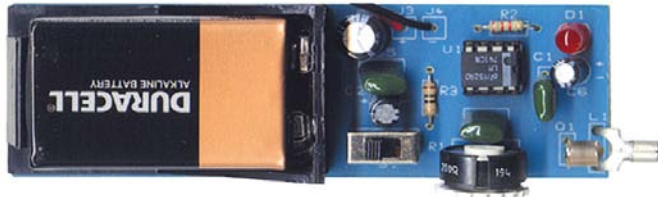
Requires two (2) 9V batteries (part # 590009).

P/N 810020 - **Fiber Optic Cable** - Sold in spools of 10 feet.

Fiber Optics Tool Kit

Model TK-5000

Includes

- **C-200** - Case
- **ST-92** - Viewing microscope
- **C-10** - Parts case
- **ST-90** - Fiber continuity tester
- **ST-88** - Fiber optical stripper
- **ST-91** - Carbide fiber scribe

- **ST-340** - Kevlar® scissors
- **ST-950** - Hex-type crimping tool
- **ST-86** - Polishing pad SC (37.8mm)
- **ST-87** - Polishing pad ST (32.8mm)
- **ST-89** - Foam swab cleaning kit

Fiber Continuity Tester
Model ST-90

Powerful Krypton light source provides long range over multimode fiber.

Requires two (2) "AA" batteries (included)

Fiber Optic Viewing Scope Kit
Model ST-92

This fiber optic viewing scope kit makes it simple to view ST/SC/FC - supplied with dual face plates.

Zoom lens: 160X, 180X, and 200X

Requires two (2) "AA" batteries (included)

Carbide Fiber Scribe
Model ST-91

Wide inclined carbide tip for easy cleaving. Lightweight, pen-size body clips to shirt pocket.
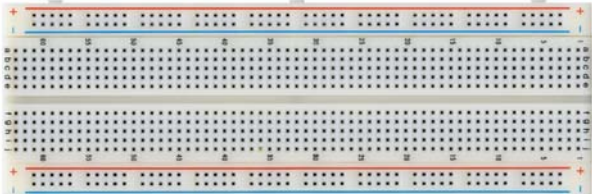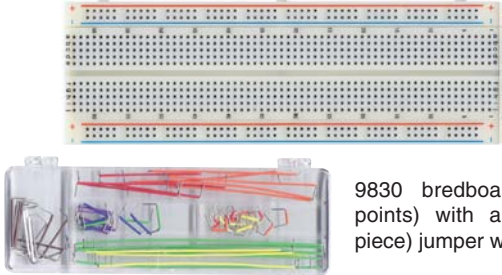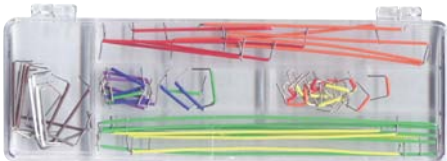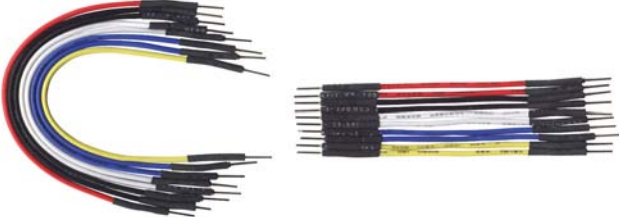
Fiber Optical Stripper
Model ST-88

Strips 125 micron fiber with 250 micron buffer coating without scratching or nicking fiber.

BREDBOARD - PROTOTYPE DESIGN AIDS

A broad array of bredboards that provide unlimited freedom in laying out circuits and prototyping. Bredboards are arrayed from 830 tie points up to 3,220 tie points with colored binding posts that simplify identification of voltage points. Base material heavy aluminum, black anodized.

Model 9440 *

Terminals: 3,220 tie points, 504 separate 5 point terminals, plus 14 horizontal bus lines.

Binding Posts: Four coded black, red, yellow, and green.

Dimensions: 8 1/4" wide, 9 1/2" long.

Model 9480WK - 9440 bredboard with a JW-350 Jumper Wire Kit.

Model 9438 *

Terminals: 2,390 tie points, 378 separate 5 point terminals, plus 10 horizontal bus lines of 50 test points each.

Binding Posts: Four coded black, red, yellow, and green.

Dimensions: 7" wide, 9" long.

Model 9488WK - 9438 bredboard with a JW-140 Jumper Wire Kit.

Model 9433 *

Terminals: 1,660 tie points, 252 separate 5 point terminals, plus 8 horizontal bus lines of 50 common tie points each.

Binding Posts: Three coded black, red, and green.

Dimensions: 5 1/4" wide, 8 1/2" long.

Model 9483WK - 9433 bredboard with a JW-70 Jumper Wire Kit.

Model 9425 *

Terminals: 830 tie points, 126 separate 5 point terminals, plus 4 horizontal bus lines of 50 tie points each.

Binding Posts: Three coded black, red, and green.

Dimensions: 7 1/4" wide, 3 3/4" long.

Model 9485WK - 9425 bredboard with a JW-70 Jumper Wire Kit.

Model 9830 *

Our top quality bredblox contains 830 tie points including four independent common bus lines for easy connections to common lines. Blox have interlocking features. **Dimensions:** 2 1/8" (H) x 6 1/2" (W).

Model 9880WK *

9830 bredboard (830 tie points) with a JW-70 (70 piece) jumper wire kit.

Jumper Wire Kits for Bredboarding

Model JW-350 *

Contains 350 lengths of pre-stripped, pre-formed #22 solid wire in various colors. 14 different lengths of 25 pieces each.
Contained in a large 14 compartment plastic case.

Dimensions: 5" (H) x 10 1/2" (W) x 1 1/4" (D).

Model JW-140 *

Contains 140 lengths of pre-stripped, pre-formed #22 solid wire in various colors. Contains 14 different lengths of 10 pieces each. Contained in a plastic case. **Dimensions:** 2" (H) x 6 1/2" (W) x 1/2" (D).

Model JW-70

Contains 70 lengths of pre-stripped, pre-formed #22 solid wire in assorted colors and lengths.
Dimensions: 2" (H) x 6 1/2" (W) x 1/2" (D).

Model JW-30

Contains 30 pieces of reinforced, male to male jumpers - 10 pieces each of 2", 4", and 6". Assorted colors.

As the primary manufacturer, we can design and manufacture Bredboards with an unlimited number of test points and special connectors. Call us for further information and cost.

* Available in retail packaging - See price sheet

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Basic Electronic Experiments   Model PK-101

Transforms any Standard Bredboard into an Electronic Learning Center!

Perform 50 Experiments
- Electronic keyboard
- Battery tester
- Water alarm
- Magnetic bridge
- Finger touch lamp
- Voltmeter
- Electronic kazoo
- Morse code

* And a Lot More! *

Ordering Information:
Model PK-101: Includes 72 page manual and all parts to perform 50 experiments.
Model PK-101B: Same as PK-101, but includes our 9830 Bredblox (shown on page 6 and a 9V battery).

The experiments in Model PK-101 require a bredblox (version PK-101B) or can be done on the Elenco® XK-150, XK-550 or XK-700 Trainers.
No soldering or tools required, all parts included.

72 Page Manual Included

BASIC ELECTRONIC EXPERIMENTS MODEL PK-101
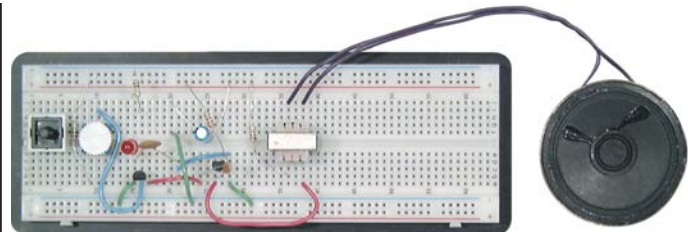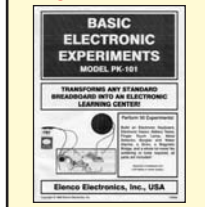
Basic Electronics with Computer Interface
Model PK-201

Over 50 Experiments
- Audio amplifiers
- Space gun
- Oscillators
- Burglar alarm
- Siren
- Speaker microphone

* And a Lot More! *

Requires one (1) 9V battery (part # 590009) or power supply.

Computer interface turns your PC into an oscilloscope and spectrum analyzer. See visually how oscillators and amplifiers work. Analyze your own voice on the monitor.
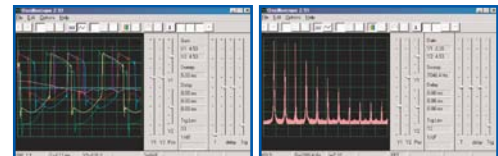
Sample Screen in Oscilloscope Mode.

Sample Screen in Spectrum Analyzer Mode.

Before You Learn Electronics, Learn About Electronic Components!

Model ECK-10

28 page manual with dozens of illustrations includes detailed descriptions of all parts, their functions in a circuit, color codes, and five self tests.

Resistors   Capacitors   Coils   Semiconductors   Others   Transformers
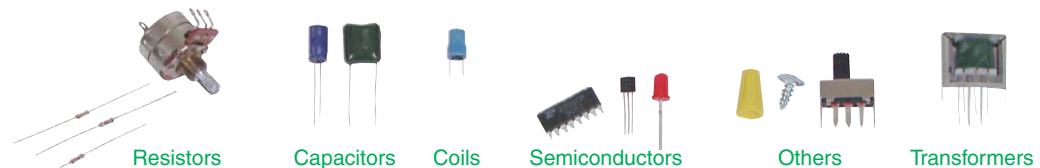
Over 50 Parts Come with the Course!

Basic Parts Kit
Model CK-1000
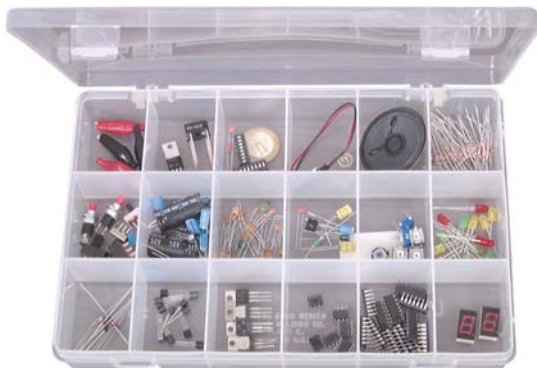
Plastic Parts Container
11" x 7" x 1 1/2" - 18 divisions

Resistors: 1/4W - 5 each
10Ω, 100Ω, 470Ω, 1kΩ, 2.2kΩ, 4.7kΩ, 8.2kΩ, 10kΩ, 18kΩ, 27kΩ, 47kΩ, 82kΩ, 100kΩ, 220kΩ, 330kΩ, 470kΩ, 1MΩ

Electrolytic Capacitors: 50V Radial - 2 each
1μF, 4.7μF, 10μF, 47μF, 100μF, 470μF, 1000μF

Mylar Capacitors: 100V Radial DIP - 2 each
.001μF, .0047μF, .01μF, .047μF, .1μF, .33μF

Ceramic Disc Capacitors: 500V - 2 each
2.2pF, 4.7pF, 10pF, 1pF, 22pF, 47pF, 100pF, 220pF, 470pF, 680pF

Inductors: 1 each
4.7μH, 10μH, 47μH, 100μH, 470μH, 1mH, 10mH, 33mH

Trimpots: Single Turn - 1 each
500Ω, 1kΩ, 5kΩ, 50kΩ, 100kΩ, 500kΩ, 1MΩ

Switches: 2 each
Push-button, SPDT slide, DPDT slide, 8-position DIP

LEDs: Standard T 1 3/4 size - 5 each
Red, green, yellow

Displays: 2 each
7-segment common cathode, 7-segment common anode

Integrated Circuits: 2 each
7805, 7812 regulators, LM386 audio amp, 555 timer, 741 Op-amp, 74LS00, 74LS02, 74LS08, 74LS10, 74LS47, 74LS74, 74LS86, CD4013, CD4017

Transistors: 2 each
PN2222, PN2907, 2N3055, 2N3904, 2N3906, 2N5457

Diodes: 2 each
1N4148, 1N4001, 1N34, 1N4728, 1N4733, 1N4739, 1N4743, 1N4747

Miscellaneous:
25' 22AWG Hook-up wire, Alligator lead sets (red and black), 5V DIP relay, Photo cell, Microphone, Speaker, Buzzer, 9V battery snap, 1.5A 100V bridge, 4A 200V SCR

Hook-Up Wire on Spools

#22 Gauge Solid 25ft.		#22 Gauge Stranded 25ft.	
Black	Part #: 884410	Black	Part #: 885210
Red	Part #: 884420	Red	Part #: 885220
Yellow	Part #: 884440	Yellow	Part #: 885240
Green	Part #: 884450	Green	Part #: 885250
White	Part #: 884490	White	Part #: 885290

Lead-free Solder - 99.3/.07 rosin core .032" dia.
1lb. spools part #: **551136** - 1LB

Wire in 1,000 and 5,000 ft. spools (20, 22, and 24 gauge) solid or stranded - all colors - available upon request.

Resistor Kit
365 Total Pieces Model RK-365

CARBON FILM RESISTOR

Contains five (5) each of 73 standard values from 1Ω to 1MΩ, 1/2W.

HVAC ELECTRICIAN TOOL KITS

Electricians General Purpose Tool Kit
Model TK-8000

A heavy-duty tool pouch, designed for electricians and maintenance people, made from a heavy-duty polypropylene material. Includes an adjustable quick-release belt.

Includes the following:

- **C-170** Tool pouch
- **ST-36** Electrician knife
- **ST-30Y** Wire stripper
- **ST-26** Diagonal pliers
- **ST-34** Long nose pliers
- **ST-71A** #2 phillips screwdriver
- **ST-72A** 1/4" slotted screwdriver
- **ST-70** Linesman pliers
- **ST-95** 8" groove pliers
- **ST-38G** AC receptacle tester

HVAC Electricians Master Tool Kit
Model TK-8200

A complete tool kit for the troubleshooting of HVAC systems includes two meters for making all critical voltage, current and temperature measurements. Also includes quality, heavy-duty, large durable tool bag featuring 18 pockets of every conceivable size. It is designed with an open top for ease of access, triple-bottom construction and sturdy handles.

Bag Dimensions: 7" (H) x 16" (W) x 9 1/2" (D)

Includes the following:

- **C-180** Portable tool bag
- **M-2625** Autoranging meter with temperature
- **ST-1012** Clamp meter
- **ST-95** 8" groove pliers
- **ND-3** Nut drivers 3/16", 1/4", 5/16"
- **ST-26** Diagonal pliers
- **ST-34** Long nose pliers
- **ST-125** 6 pc. Screwdriver set
- **ST-74** AC line splitter
- **ST-73** AC voltage detector probe
- **ST-32** Inspection flashlight
- **ST-38G** AC receptacle tester

AC Voltage Detector Probe
Model ST-73

Detect AC voltages 120/240VAC without contact. Visual and audible indicators. Excellent for voltage tracing circuits.

AC Line Splitter
Model ST-74

For measuring current in plug-in appliances and air conditioners. Splits two conductor line cord for reading at outlets under load. Permits voltage measurements at outlet under active conditions. Direct and 10X sensitivity.

AC Receptacle Tester w/ Built-in GFCI Tester
Model ST-38G

UL listed. Gives instant display of wiring conditions of any standard 3-wire 110VAC outlet. Also tests GFCI.

Circuit Tester
Model ST-37

AC/DC 80-500 volts. Bright neon indicator, pocket clip, insulated case.

NETWORK & COMPUTER TOOL KITS
For A+ Certification Programs

Network Service Tool Kit
Model TK-4000

A service and installation tool kit for networks, modems, and telephones. Includes quality, heavy-duty tools and a tester that will handle telephone cables with RJ-11 and RJ-45 connectors and coaxial cable with F or BNC connectors.

C-200 Large Zipper Case
(14 3/4" x 9" x 2 1/4")

Includes the Following:
- **TCT-355** Phone/coax cable tester
- **ST-38G** AC receptacle tester
- **TWT-1** Telephone line analyzer
- **ST-35** Coaxial cable stripper
- **ST-568** Modular crimping tool
- **ST-60** Hex-type crimping tool
- **ST-75** 11 pc. screwdriver bit set
- **ST-620** Punch down tool w/ blade
- **ST-211** Round cable cutter
- **C-30** Parts box
- **C-200** Carrying case

We will custom pack a tool kit to fulfill your certification program.

Deluxe 50pc. Computer Technician Service Tool Kit
Model TK-1700

A complete tool kit for the repairing and maintaining of computers and electronic devices. Included in this kit is a powerful mini vacuum with attachments and a pressurized canned-duster to remove debris or dust. **OVER 50 ITEMS**.

ST-75 11 pc. drive set   **SH-2** Soldering iron stand   **LF-99** Lead-free solder tube
SR-1N 25-watt soldering iron   **PR-3** Parts retriever
MSV-1 Mini vacuum w/ 3 attachments   **ET-10** IC puller
ST-44 Anti-static wipes
TL-8 Precision screwdriver set   **C-200** Large zipper case with handles
WS-1 Anti-static wrist strap   **ST-15** 9 pc. allen wrench set
ST-32 Inspection flashlight   **ST-43** 10 cotton swabs
ST-16 Crossover tweezers
ST-49 Precision duster 10 oz.   **ST-2** Mini long nose pliers
C-30 Spare parts container   **ST-3** Wire stripper
ST-1 Mini diagonal cutters
"AA" Batteries (2)   **ST-11** #0 phillips pocket screwdriver
SW-3 Desoldering wick   **ST-71** 3/16" slotted screwdriver (9" overall)
ST-72 #1 phillips screwdriver (9" overall)

C-200 Large Zipper Case
(14 3/4" x 9" x 2 1/4")

12pc. Computer Service Tool Kit
Model TK-1100

Includes the following:
- 3/16" nut driver
- 1/4" nut driver
- Driver handle - Fits all bits
- Reversible screwdriver bits T10 & T15.
- Reversible screwdriver bits 3/16" & 1/4"
- Reversible screwdriver bits #1 & #2 phillips
- **ST-17** Tweezers
- **ET-14** IC inserter 14-16 pin
- **ET-10** IC puller
- **ST-101A** 1/8" slotted screwdriver
- **ST-101B** #0 phillips screwdriver
- **PR-3** 3-prong parts retriever

Model TK-1100A - Same TK-1100 with spare parts tube, but without the IC inserter.

Dimensions: 8 3/8" x 6" x 1 3/8"

All contained in a black vinyl zippered case.

2-Year Warranty on all tools.

DELUXE ELECTRONIC TOOL KIT

Tool Kit Model TK-3000

A professional technician service tool kit in a metal reinforced tool case with heavy-duty handle and locks. A removable, double-sided pallet handles most of the tools listed below with more room for tools and parts in the lower half. A special ramp in the tool case will lock your meter of choice in place.

Dimensions: 13" (H) x 18" (W) x 6 ½" (D)

Tools Included in Case:
- **SR-2B** Deluxe 25W soldering iron
- **SH-1** Soldering iron holder
- **ST-1** Mini diagonal cutters
- **ST-2** Mini long nose pliers
- **ST-30** Premium wire stripper
- **SE-1** Solder ease kit (4 pc.)
- **TL-8** Precision screwdriver set
        (6 precision screwdrivers)
- **SW-3** Desoldering wick
- **ST-72** Screwdriver slotted 3/16"
- **ST-71** Screwdriver #1 phillips
- **ET-10** IC puller
- **SP-4** Desoldering pump
- **ST-20** Safety goggles
- **ST-9** Pocket screwdriver
- **LF-99** Lead-free solder tube
- **ST-75** 11 pc. screwdriver bit set
        (3 nut drivers, 2 slotted, 2 phillips, & 3 star bits)
- **Meter and calculator shown are sold separately.**

Tool Kit Model TK-1001

New in the electronics educational field. A professional organizer tool kit at affordable prices. No technician should be without this unique tool kit that holds all of the tools you need (meter, experiments, etc.).

Tools Included in Case:
- **C-800** Deluxe heavy-duty large zipper case
- **ET-10** IC puller
- **SE-1** Solder ease kit (4 pc.)
- **SH-3** Soldering iron holder
- **SP-4** Desoldering pump
- **SR-2B** Deluxe 25W soldering iron
- **ST-1** Mini diagonal cutters
- **ST-2** Mini long nose pliers
- **ST-3** Wire stripper
- **LF-99** Lead-free solder tube
- **ST-20** Safety goggles
- **ST-75** 11 pc. screwdriver bit set
        (3 nut drivers, 2 slotted, 2 phillips, & 3 star bits)
- **SW-3** Desoldering wick
- **TL-8** Precision screwdriver set
        (6 precision screwdrivers)
- **Meter shown is sold separately.**

Dimensions: 12" (H) x 17" (W) x 4" (D)

2-YEAR WARRANTY ANY TOOL IN THESE KITS

Other Tool Kit packages available - custom made to your specifications at the same low prices.

ELECTRONIC TECHNICIAN TOOL KITS

Deluxe 25 pc. Electronic Technician Tool Kit
Model TK-2000

An electronic technician tool kit designed for the educational field. Heavy-duty deluxe tool box comes with two cantilever trays having 18 component trays. Deep bottom storage area for bulky items. 25 quality tools to meet most educational requirements.

2-Year Warranty

C-500 Case
13 ¾" (H) x
8 ¼" (W) x
6 ¾" (D)

Tools in Case

- **SR-2B** Soldering iron, 25W, 3-wire grounded plug
- **ST-1** 4 1/2" diagonal cutters, return spring, cushion grip
- **ST-2** 5" long nose pliers, return spring, cushion grip
- **ST-3** 5" adjustable wire strippers, cushion grip
- **SH-1** Soldering iron holder with sponge
- **SP-4** Desoldering vacuum pump
- **SE-1** Solder ease kit (4 pcs.)
- **TL-8** Precision screwdriver set (6 pcs.) in case
- **ST-5** Slotted 3/16" screwdriver, chrome vanadium
- **ST-6** Phillips #1 screwdriver, chrome vanadium
- **ND-3** 3-piece nut driver set, 3/16", 1/4", and 5/16"
- **ET-10** IC puller, stainless steel, vinyl grip
- **ST-20** Safety goggles
- **LF-99** Lead-free solder tube
- **SW-3** Desoldering wick

Deluxe 32 pc. Technician Tool Kit
Model TK-1500

C-200 Large Zipper Case
9" (H) x 14 ½" (W) x 3" (D)

Model TK-1600 - Same as above but without meter.

Includes the following:

- **M-1000D** Digital multimeter
- **SR-2B** Soldering iron, 25W, 3-wire grounded plug
- **SE-1** Solder ease kit (4 pcs.)
- **SP-4** Desoldering vacuum pump
- **ST-1** 4 1/2" diagonal cutters, return spring, cushion grip
- **ST-2** 5" needle nose pliers, return spring, cushion grip
- **ST-30** Premium wire stripper, cutter, pliers, & crimper. Cushion grip.
- **ET-10** IC puller, stainless steel, vinyl grip
- **C-10** Parts box
- **SH-2** Soldering iron stand (wire form)
- **TL-8** 6 pc. precision screwdriver set
- **LF-99** Lead-free solder tube
- **SW-3** Desoldering wick
- **ST-75** 11 pc. screwdriver bit set (3 nut drivers, 2 phillips, 2 slotted, & 3 star bits)

15 pc. Basic Technician Tool Kit
Model TK-1350

Includes the following:

- **SR-2B** Deluxe soldering iron
- **ST-1** 4 1/2" diagonal cutters
- **ST-2** 5" needle nose pliers
- **ST-30** Premium wire stripper
- **ST-5** 3/16" slotted screwdriver
- **ST-6** #1 phillips screwdriver
- **SP-4** Desoldering pump
- **ST-101A** 1/8" slotted screwdriver
- **ST-101B** #0 phillips screwdriver
- **SH-2** Soldering iron stand (wire form)
- **LF-99** Solder tube
- **ND-3** Nut driver set, 3/16", 1/4", & 5/16"

High quality tools in black vinyl zippered case.

C-200 Case 9" (H) x 14 ¾" (W) x 2 ¼" (D)

PLIERS / TOOL KIT

Mini Diagonal Cutters
Drop forged steel, return spring, cushion grip. 4 ½" long.

ST-1 *

Mini Long Nose Pliers
Drop forged steel, return spring, cushion grip. 5" long.

ST-2 *

Diagonal Cutters
Drop forged steel, cushion grip. 6" long.

ST-26

Long Nose Pliers
Drop forged steel, cushion grip. Two sizes.

ST-34 - 6"
ST-145 - 8"

Wire Stripper
Adjustable wire stripper, return spring, cushion grip. 5" long.

ST-3

Premium Wire Stripper
7-in-1 all-purpose wire stripper, cutter, pliers, and crimper. Cushion grip. Strips AWG16 - 26. 6" long.

ST-30

Deluxe Wire Stripper
Knife-type blade cuts, strips AWG 12 - 24; cushion grip, return spring. 6" long.

ST-30Y

Professional Wire Stripper/Crimper
Multi-purpose wire stripper, cutter, crimper, & pliers. Cushion grip. Strips AWG 10-22. 8" long

ST-170

Linesman Pliers
Drop forged, fully polished, cushion grip. 8" long.

ST-70

Slip Joint Pliers
Drop forged steel, chrome plated, cushion grip. Three sizes.

ST-8 - 6 ½"
ST-127 - 8"
ST-148 - 10"

Locking Pliers
Drop forged, fully polished, cushion grip. Three sizes.

ST-200 - 6"
ST-95 - 8"
ST-97 - 10"

Wire Stripper/Cutter Romex
Used to strip, cut and loop 12 & 14 AWG Romex (NM-B non-metallic sheathed cable). Cushion grip, 8" long.

ST-153

Hand Tool Kit
Model ST-10 *

Includes
- **ST-1** 4 1/2" diagonal cutters
- **ST-2** 5" needle nose pliers
- **ST-3** Wire stripper
- **ST-5** 3/16" slotted screwdriver
- **ST-6** #1 phillips screwdriver

9 Piece Electronic Technician Starter Tool Kit
Model TK-14

Includes
- **SR-1N** Standard 25W soldering iron
- **SH-2** Soldering iron stand
- **ST-2** 5" needle nose pliers
- **ST-3** Wire stripper
- **LF-99** Lead-free solder tube
- **ST-5** 3/16" slotted screwdriver
- **ST-6** #1 phillips screwdriver
- **ST-23** Heat sink
- **SW-3** Desoldering wick

Solder Tool Kit
Model ST-12 *

Consists of:

SR-1N - Standard soldering iron

SP-4 - Desoldering pump

SW-3 - Desoldering wick

LF-99 - Lead-free solder tube

SH-2 - Soldering iron stand

* Available in retail packaging - See price sheet

SCREWDRIVERS & NUT DRIVERS

6 pc. Mechanics Screwdriver Set
Model ST-125

Hardened and tempered chrome vanadium steel shafts. Hex bolster for wrench assisted torque; magnetized tips.

⊖ Slotted - 3/16"
1/4"
5/16"
3/8"

⊕ Phillips - #1 & #2

7 pc. Professional Screwdriver Set
Model ST-121

Chrome vanadium steel shafts. Color line handles for comfort and identity; vapor blasted magnetized tips.

⊖ Slotted - 1/8"
5/32"
1/4"

⊕ Phillips - #0
#1
#2
#2

Pocket Screwdriver
Slotted 1/8" x 2" with clip. Overall 4 1/4".

⊖ **ST-9**

Screwdriver
Slotted 1/8" x 3". Overall 5 1/4".

⊖ **ST-101A**

Screwdriver
Slotted 3/16" x 3" chrome vanadium. Overall 6".

⊖ **ST-5**

Pocket Screwdriver
Phillips #0 x 2" with clip. Overall 4 1/4".

⊕ **ST-11**

Screwdriver
Phillips #0 x 3". Overall 5 1/4".

⊕ **ST-101B**

Screwdriver
Phillips #1 x 3" chrome vanadium. Overall 6".

⊕ **ST-6**

Screwdriver
Shock-proof, cellulose acetate plastic handles. Chrome vanadium blade. Overall 9".

ST-71: #1 Phillips x 6" ⊕

ST-71A: #2 Phillips x 6" ⊕

Screwdriver
Shock-proof, cellulose acetate plastic handles. Chrome vanadium blade. Overall 9".

ST-72: Slotted 3/16" x 6" ⊖

ST-72A: Slotted 1/4" x 6" ⊖

11 Piece Screwdriver Bit Socket Set
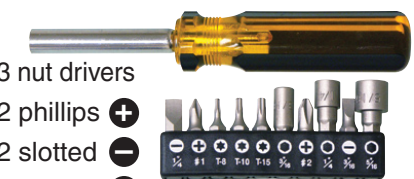
• 3 nut drivers
• 2 phillips ⊕
• 2 slotted ⊖
• 3 star ✪

ST-75

Six Piece Precision Screwdriver Set
Swivel heads, packaged in storage case.

TL-8

5-in-1 Driver Set
• 2 Phillips (#1 and #2)
• 2 Slotted (3/16" and 1/4")
• 1 Nut driver (5/16")

ST-85

Nut Driver Set
3 pc. set - 3/16", 1/4", and 5/16".

ND-3

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17 pc. Offset Ratchet & Socket Driver Set
Model ST-151

This screw and socket driver set comprises six hexagon sockets made from good quality carbon steel. The screwdriver has a 1/4" hexagon drive to accommodate ten 1/4" bits: slotted, phillips, and star.
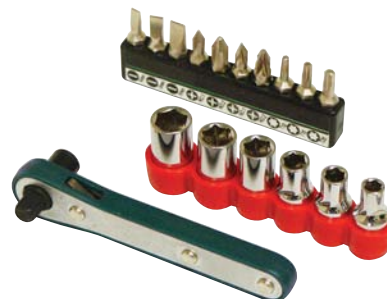
15 pc. Precision Quality Screwdriver Set
Model ST-152

• Vanadium blades, plastic handles

• **Star:** #T6, #T7, #T8, #T9, #T10, #T15, #T20 ⊕

• **Flat:** 0.08", 0.10", 0.12", 0.16" ⊖

• **Phillips:** #000, #00, #0, #1 ⊕

SPECIAL TOOLS

Crimping Tool/Wire Stripper
Cuts, strips, and crimps 10 - 22 gauge wire. Cushion grip. 8" long.

ST-24

Adjustable Wrenches
Drop forged, chrome plated, max. jaw opening. Three sizes:

ST-63 - 4"
ST-62 - 6"
ST-59 - 8"

PLCC Extractor
A spring-assisted extraction tool designed for the removal of PLCC's from sockets.

ST-96

IC Puller
Stainless steel construction for removing IC's. Insulated vinyl grip.

ET-10

IC Inserter
14/16-pin.

ET-14

Parts Retriever
3-prong. Pick up parts in hard-to-reach places.

PR-3

Tweezers Crossover
With pointed tip. 4 1/2" long.

ST-16

Tweezers
6" straight. Insulated with blunt serrated ends.

ST-17

Lighted Magnifier
Requires 2 "AAA" batteries.

ST-25

Electrician Knife
2 blades, spear and screwdriver with shackle at end.

ST-36

Allen Wrench Set
8 pc. Ring set with springs - Twist off, twist on.

ST-15

13 pc. Long Hex Key Wrench Set - SAE
Chrome vanadium steel. Hardened and tempered.

ST-67

6" Ruler
Etched metal. Inch and metric divisions with pocket clip.

ST-14

Inspection Mirror
All-angle, telescoping inspection mirror.

ST-55

Inspection Flashlight
6" Inspection light. Bright bulb. Requires 2 "AA" batteries, part # 590001.

ST-32

Deluxe Alignment Tool
Metal non-magnetic tip.

ST-41

Magnetic Pick-up Tool
Telescopic pick-up tool with pocket clip.

ST-45

Electricians Scissors
Hot forged - scraper and file on back edge of blade. Double stripping botch. 5" long.

ST-68

Hemostat
Straight 6" insulated handle Use as a clamp to hold parts in place.

ST-19

Mini-Vacuum Cleaner
Includes three attachments. Requires 4 "AA" batteries (part # 590001).

MSV-1

Precision Duster
Pressurized blaster removes microscopic dust, lint, and other particles.
Net weight: 10 oz.

ST-49

* Available in retail packaging - See Price Sheet

Universal Stripping Tool
Model ST-350

Strips outer jacket of UTP and STP cable and CAT 5 round. Strips RG 59/6/11/7 coaxial cable. Strips flat telephone cable. Cable cutter function.

Multi-Function Wire Stripper
Model ST-302

Cuts, strips RG-58, RG-59, and RG-62. Precision strips 16 to 26 gauge wire.

Coaxial Cable Stripper
Model ST-35

Three-step coaxial cable stripper. Strips RG/U 6, 58, 59, 62 and 3C2V, 5C2V. Replacement blade cartridge - part # ST-331.

Ceramic Kevlar® Cutter
Model ST-340

Easily trim Kevlar® strength member in fiber optic cable. The ceramic blades cut Kevlar® quickly and precisely.

Kevlar® is a registered trademark of the E.I. Dupont Company.

Cable Tie Gun
Model DCT-300V / ST-375

Speeds up cable tie applications. Insures correct tension and provides automatic cutoff.

Round Cable Cutter
Model ST-211

The 100 pair group cutter is rated for ethernet, 100 pair group telephone cable, and RG-174 / RG-9 coax. Spring return with safety lock.

Die Sets

The following die sets are for the Model ST-950 Crimp Tool.

DS-803 shown

Model DS-803:
For RG-59, RG-6, F-type CATV, BNC/TNC. 0.350", 0.320", 0.255".

Model DS-806:
For RG-58 & RG-59/62 AU BNC/TNC. 0.213", 0.255", 0.068".

Model DS-808:
For RJ-45 Eight-position Modular Plugs.

Model DS-810:
For RJ-45 10-position TeleCom Plug.

Universal Crimp Tool
Model ST-950

Ratchet crimp action provides repeatable and reliable terminations. Pressure adjustment for activation force. Dies change quickly - 10 dies available (sold separately). Cushion grip; length 9".

Hex-Type Crimping Tool
Model ST-60

For use on RG-58 and RG-59 connectors. Cushion grip; length 9".

Multi-Function Telephone Tool
Model ST-500

Crimps, cuts, and strips. Steel frame gives long term durability. Ratchet construction for RJ-45/11/12 modular plugs. Cushion grip; length 8 ½".

Modular Crimping Tool
Model ST-568

Cuts, strips, and crimps modular plugs 8P/RJ45 and 6P/RJ12, RJ11. Cushion grip; length 7 ½".

Economy Crimping Tool
Model ST-560

Multi-function telephone tool crimps, cuts, and strips for 4, 6, and 8 pole modular plugs. Plastic construction; length 8".

Deluxe Punch Down Tool Impact Type
Model ST-630

Adjustable pressure control. Suitable for 66 & 110 or KRONE terminal blocks. Includes (1) combination 66 & 88/110 blade. Storage for 1 spare blade in handle.

Replacement Blades: Type 66 (ST-601), KRONE Type (ST-603), Type 66 & 88/110 (ST-604)

Punch Down Tool
Model ST-620

Non-impact tool includes (1) combination 66 & 88/110 blade. Spare blade storage in handle included.

Replacement Blades: Type 66 (ST-601), Type 66 & 88/110 (ST-604), KRONE Type (ST-603)

Can Wrench
Model ST-670

An easy-to-use tool that allows access to telephone boxes and pedestals. 3/8" and 7/16" hex double end, plastic handle.

TOOL CASES / PARTS BOXES

Top quality cases to meet your educational requirements.

C-200 Large Zipper Case with Handles

Dimensions: 9" (H) x 14 ½" (W) x 3" (D)

See TK-1500 for suggested tool array.

C-800 Deluxe, Heavy-duty, Black Canvas Zipper Case - Three outside pockets for meters, testers, and manuals.
Dimensions: 12" (H) x 17" (W) x 4" (D)

See TK-4000 for suggested tool array.

C-400 Deluxe Case - Metal reinforced with handle and locks. Includes double-sided tool pallet, meter ramp and dividers.
Dimensions: 13" (H) x 18" (W) x 5 ½" (D)

See TK-3000 for suggested tool array.

C-575 Plano Molded Tool Case - Heavy-duty, extra-large molded tool case with organizer tray that provides the extra tool space that may be required. Other sizes available.

Dimensions: 11 ¼" (H) x 10 7/8" (W) x 20 ¼" (D)

C-500 Heavy-duty, Deluxe Plano Tool Box - Two cantilever trays with a total of 18 compartments. Deep bottom storage.
Dimensions: 8 ¼" (H) x 13 ¾" (W) x 6 ¾" (D)

See TK-2000 for suggested tool array.

C-520 Plano Tool Box - Top access area; full-size, lift-out tray and bulk storage area.

Dimensions: 7 ½" (H) x 13" (W) x 5" (D)

C-400B - Deluxe case shown above but with interior filled with pre-cut foam. Bottom with ½" cushion and lid with 3" convoluted (egg crate) type foam. Pallet and dividers are optional.

C-180 Deluxe Heavy-duty Tool Bag - Ruggedly constructed with heavy-duty zipper and padded handles, a hard bottom to keep shape. Includes 18 pockets. **Dimensions:** 10" (H) x 15" (W) x 9 ½" (D)

See TK-8200 for suggested tool array.

C-170 General Purpose Tool Pouch - Ideal for electricians and maintenance people. Made from heavy-duty, green canvas material with adjustable quick release belt. Pouch 11" x 10" with multiple pockets.

See TK-8000 for suggested tool array.

C-20 Small Zipper Case

Dimensions: 8 ½" (H) x 12 ½" (W) x 1 ¼" (D)

See TK-1100 for suggested tool array.

Molded Cases

Parts Boxes

C-570 Plastic Case - Built-in handles provide a large gripping area for easy carrying. Large sliding closures, lock lid into place.

Dimensions: 10 ½" (H) x 8" (W) x 3 3/16" (D)

C-40 - Plastic case with pin hinge, latch and side handle. **Dimensions:** 8" (H) x 10" (W) x 3" (D)

C-50 - Plastic case with built-in hinge and latch. **Dimensions:** 7 ½" (H) x 10" (W) x 3" (D)

C-10 - Five fixed compartments.
Dimensions: 3 ¾" (H) x 6 ½" (W) x 1 1/8" (D)

C-30 - Four fixed compartments.
Dimensions: 2 7/8" (H) x 4 5/8" (W) x 1" (D)

C-900 - 6 to 18 adjustable compartments.
Dimensions: 7 ¼" (H) x 11" (W) x 1 ¾" (D)

65MHz Scope Probe, Switchable
P-1D
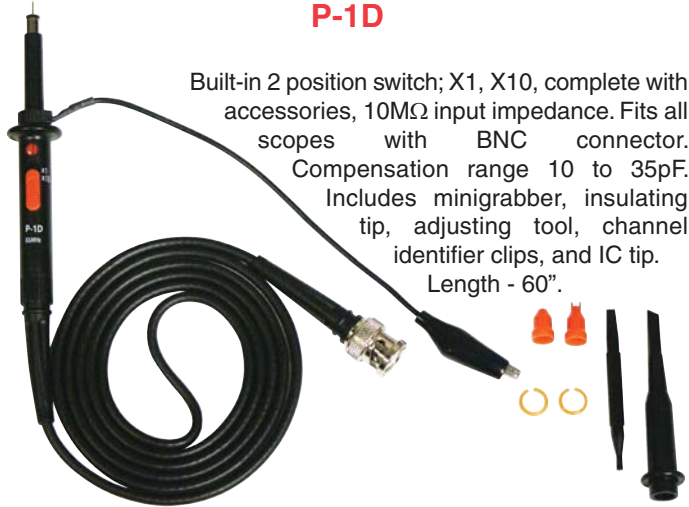
Built-in 2 position switch; X1, X10, complete with accessories, 10MΩ input impedance. Fits all scopes with BNC connector. Compensation range 10 to 35pF. Includes minigrabber, insulating tip, adjusting tool, channel identifier clips, and IC tip. Length - 60".

250MHz Scope Probe, Switchable
P-3D

OUR BEST!

Built-in 3 position switch; X1, X10, ref. Complete with accessories. 10MΩ input impedance. Fits all scopes with BNC connector. Compensation range 10 to 35pF. Length - 60".

100MHz Scope Probe, Switchable   P-2D

TL-3 *
BNC Test Lead Set
BNC to minigrabber. Length - 48"

TL-4 *
Test Lead Set
Banana to test probe lead set. Length - 36"

TL-5 *
Banana to Alligator Lead Set with Small Alligator Clips
Stackable banana to alligator clip. Length - 36"

TL-6 *
Alligator Lead Set with Small Alligator Clips
Jumper clip lead set (10 pieces, 5 colors). Length - 14"

TL-6LG *
Alligator Lead Set with Large Alligator Clips
Jumper clip lead set (10 pieces, 5 colors). Length - 36"

TL-7 *
BNC Cable
BNC male to BNC male. 50Ω. Length - 36"

TL-9 *
Minigrabber to Minigrabber
IC clip test lead set. Length - 36"

TL-12 *
Banana to Minigrabber Set
Stackable banana to minigrabber. Length - 36"

TL-13 *
Component Test Lead
Banana to alligator for testing capacitors, inductors, and resistors.   Length - 7"
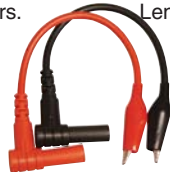
TL-15 *
Heavy-Duty Test Lead Set
Insulated banana to test probe lead with screw-on alligator clips. Length - 36"

TL-16 *
Banana to Alligator Lead Set with Large Alligator Clips
Stackable banana to alligator clip. Length - 36"

TL-17 *
BNC Test Lead Set
BNC to alligator clips. Length - 48"

TL-18 *
Banana to Banana Lead Set
Stackable 3-way banana plugs. Length - 36"

TL-21 *
Minigrabber to Minigrabber IC Test Lead Set
Jumper minigrabbers. 5 pieces, 5 colors.

TL-22 *
Banana to Probe Heavy-duty Test Lead Set
Rated max 1,000V & 10A (CAT III) Protective covers for tips. Length - 36"

TL-30 *
Push-on Alligator Test Lead Set
Extra-large red and black insulated boots. Slips onto most 0.08" diameter test lead tips.

* Available in retail packaging - See Price Sheet

SOLDER STATION & SURFACE MOUNT SOLDERING

Model SL-5 Series Soldering Stations

The **SL-5 Soldering Station** is electronically controlled to provide 5 to 40 watts and is ideal for professionals, students, and hobbyists. The unit includes a holder funnel for the iron, sponge pad for cleaning the tip and an on/off indicator light. It is available assembled or in kit form.

ASSEMBLED SOLDERING STATIONS

Model SL-540 - This station comes complete with a 40-watt soldering iron providing you with variable heat - 5 watts to 40 watts. For general soldering requirements.

Model SL-5 is the station that comes without a soldering iron. You may plug in any iron and obtain variable heat. It is suggested that you use 40-watt or 60-watt irons.

SOLDER STATION KITS

Model SL-5K40 - A solder station in kit form using a 40-watt soldering iron that is included to build the station. The 40-watt soldering iron then becomes part of the station.

Model SL-5K is a solder station in kit form. The soldering iron is not included. You build the station with your own soldering iron (40-watt iron suggested). Ideal for student projects.

Temperature Controlled Soldering Stations

Model SL30A
Digital Display

Model SL10A

LED readout for greater accuracy (**SL-30** only) • Temperature range 300°F to 900°F

This hi-tech soldering station incorporates a sophisticated electronic circuit that enables the user to change the tip temperature from 300°F (150°C) to 900°F (480°C). The temperature is maintained within ±10°F of its preset temperature. The tip is isolated from the AC line by a 24V transformer. The tip is grounded to eliminate static charges.

Replacement Tips:

Conical - 600020	1/32"
Conical - 600021	1/64"
Wedge - 600022	3/32"
Screwdriver - 600023	3/32"

Temperature Controlled Soldering Station
Model SL-75

Low-cost solder station features manual temperature settings.

Features
- 48W heater power
- Temperature range 350°F - 900°F
- Electronic temperature control
- Power on LED
- Anti-static ground output

Deluxe Temperature Controlled Soldering Station w/ Ceramic Heater
Model ZD-931

Ideal for applications requiring temperature stability when working with sensitive components.
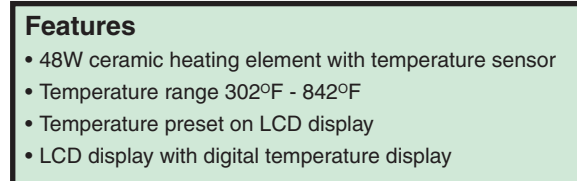
Features
- 48W ceramic heating element with temperature sensor
- Temperature range 302°F - 842°F
- Temperature preset on LCD display
- LCD display with digital temperature display

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SOLDERING EQUIPMENT

Deluxe 25W Soldering Iron
Model SR-2B *

3-wire grounded plug • Screw-in tip • Rubber sleeve handle with long-life plated tip • Replacement tips: Conical - SR-2BT2, Fine (1/64") - SR-2BT3, Wedge - SR-2BT

Standard 30W Soldering Iron
Model SR-1N *

25W Pencil soldering iron
Stand included

Conical replacement tip SR-1T1

Professional Soldering Iron
Model SR-3B *

25 watts • Ceramic element • Long-life tip •
Lightweight • Rubber sleeve • Conical replacement tip: SR-3T

Deluxe 40W Soldering Iron
Model SR-6

3 wire grounded plug • Screw-in tip
Rubber sleeve handle with long-life plated tip
Replacement tips: Conical - SR-2BT2, Wedge - SR-2BT

Soldering Iron Stand
Model SH-1

Heavy-duty holder with sponge
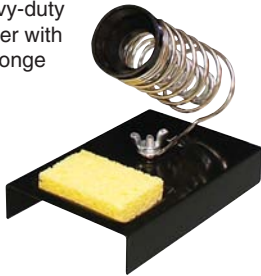
Soldering Iron Stand
Model SH-2 *

Small stand w/ flip-up form

Soldering Iron Stand
Model SH-3

Flip-up wire form with sponge
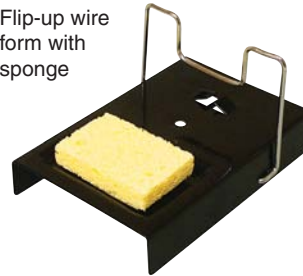
Desoldering Pump
Model SP-4

Deluxe, high-vacuum pump
Anti-static tip

Lead-free Solder
Model LF-99 * - 5 ft.
Rosin core, 0.031" dia.
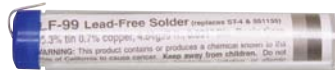
Model 551136 - 1 lb.
Rosin core,
0.032" dia.
99.3% tin,
0.7% copper

Desoldering Wick
Model SW-3 *

Solder removal braid removes solder from all types of connections. 5 ft. roll in handy dispenser.

Tip Tinner, Cleaner
Model TTC-1

Prevents oxide build-up. Prolongs tip life and heat transfer.

Soldering Tip Cleaner
Model SH-1025

Features
• Made of low abrasive brass shavings.
• No water necessary
• No temperature drop
• Cleans better than conventional sponges.

Golden Curls Refill Model 556006

Helping Hands
w/ Magnifying Glass
Model HH-55

For soldering or making fine adjustments. Adjustable arms can hold objects in any position.

Solder Ease Kit
Model SE-1

4 pc. Set:
Brush, scraper, probe, and ST-23 heat sink in pouch

Heat Sink Model ST-23

Safety Goggles
Model ST-20

Contours to head
Soft vinyl frame
ventilated
(Safety approved)

Safety Spectacles
Model ST-22

Features wide upper frame. It can also fit over prescription glasses.

(Safety approved)

Soldering Iron Tip Package
Model TIPK-1
For SR-2B and SR-6

1/64"
3/64"
5/64"
1/16"
3/64"
7/64"

* Available in retail packaging - See price sheet

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EDUCATION KITS

Space War Gun
K-10

This gun gives you realistic sounds and flashes you expect in a Space Gun. Produces rapid fire or single shot with two flashing LED's.
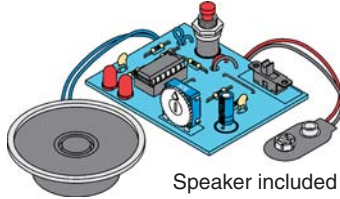
Speaker included

Requires one (1) "9V" battery (part # 590009)

0-15V Power Supply
K-11

This kit is one of the most useful, low-cost power supplies you can build. It supplies voltage to transistor radios, tape recorders, and electronic games. Output: 0-15VDC @ 250mA, 8.5VAC @ 500mA.
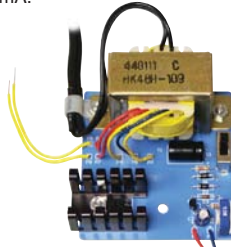
Christmas Tree
K-14

Produces flashing colored LED's and three popular Christmas melodies!
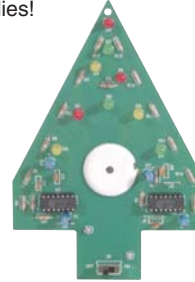
Requires one (1) "9V" battery (part # 590009)

Electronic Cricket
K-16

The Electronic Cricket is the perfect project and fun game for family and friends. You will drive your friends crazy trying to find it!
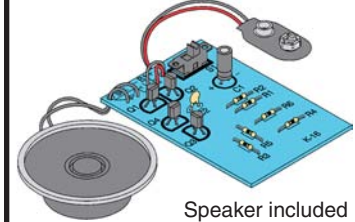
Speaker included

Requires one (1) "9V" battery (part # 590009)

LED Robot Blinker
AK-400/K-17

With the LED Robot Blinker, you will learn about free-running oscillators. You'll have fun building, displaying and learning about the LED Robot Blinker.
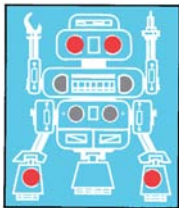
Requires one (1) "9V" battery (part # 590009)

Digital Bird
K-19

There are all kinds of birds in this world, singing all kinds of songs. But neither you nor they probably have heard anything quite like this!
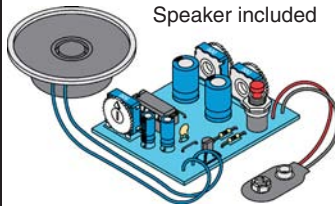
Speaker included

Requires one (1) "9V" battery (part # 590009)

Nerve Tester
K-20

Test your ability to remain calm. Indicates failure by lit LED or mild shock.
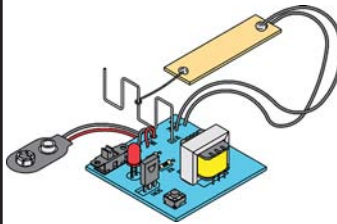
Requires one (1) "9V" battery (part # 590009)

Yap Box
K-22A

Makes six exciting sounds:
• Laser Gun   • Diesel Horn
• Siren   • Wolf Whistle
• Puppy Bark   • Machine Gun
Case Included.

Requires one (1) "9V" battery (part # 590009)

Burglar Alarm
K-23

The Burglar Alarm is an easy-to-build alarm control for your car, house, room, or closet. After the alarm is on, the only way to turn it off is to open the switch.
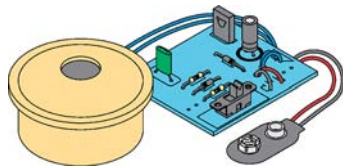
Buzzer included

Requires one (1) "9V" battery (part # 590009)

Whooper Alarm
K-24

The Whooper Alarm makes an excellent alarm device for the Combination Lock/Alarm Control. It can also be used independently as a sounder or siren.
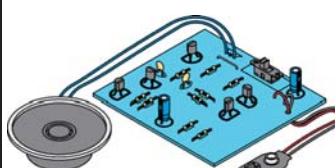
Speaker included

Requires one (1) "9V" battery (part # 590009)

Metal Detector
K-26

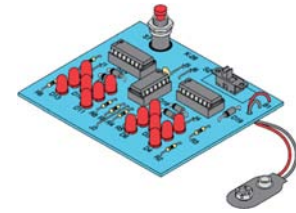Find new money and old treasure. Get started in the fascinating hobby of metal detecting.
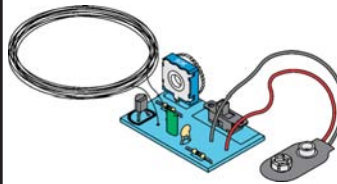
Requires one (1) "9V" battery (part # 590009)

Pocket Dice
K-28

The Pocket Dice is a handy little project to be used with any game of chance. Since it uses CMOS circuitry, it has the advantage of operating off a 9-volt battery.

Requires one (1) "9V" battery (part # 590009)

One Button Bandit
K-34

Press the button and away she goes. If three LEDs light, you win! Our version of Vegas' one arm bandit.
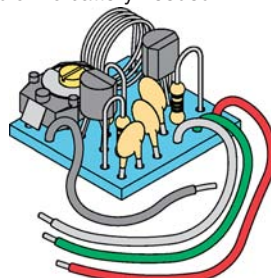
Requires one (1) "9V" battery (part # 590009)
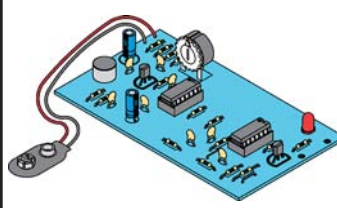
Telephone Bug
K-35

Our bug is only the size of a quarter, yet transmits both sides of a telephone conversation to any FM radio. No battery needed.

Sound Activated Switch
K-36

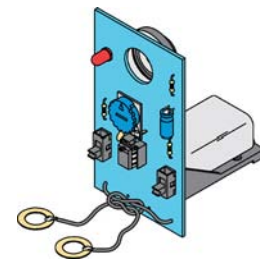Clap your hands and the light comes on . . . clap again and off it goes. Many other uses. Complete with microphone.

Requires one (1) "9V" battery (part # 590009)

Lie Detector
K-44

The sound will tell if you are lying. The sound gets louder the more you lie. Fun at parties!

Requires one (1) "9V" battery (part # 590009)

EDUCATION KITS

Digital Roulette
AK-300

The Digital Roulette will be a sure winner with you, your friends and your relatives. Thirty-eight LEDs are arranged in a five inch diameter circle.

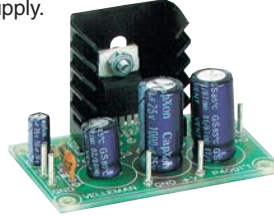Requires one (1) "9V" battery (part # 590009)

Universal Stereo Pre-Amplifier
K2572

This kit has a frequency range of 40Hz to 30kHz (–dB), 40dB gain with 40dB maximum adjustable gain. It has a maximum input voltage of 50mVrms and an output impedance of 1kΩ.
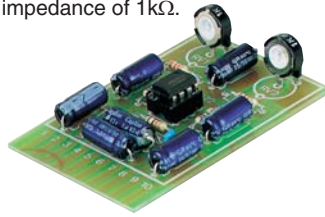
7W Amplifier
K4001

This small amplifier is constructed around the TDA2003 IC, capable of delivering 4Wrms at 4Ω. The IC is completely thermally and short-circuit protected. A conventional direct current can be connected as supply.

Metronome
MK106

Speaker included. LED beat indication. Adjustable volume and beats / minute with potentiometers. On / off switch on board.
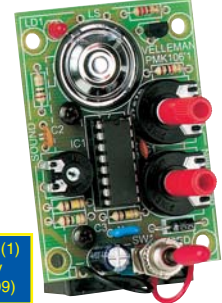
Requires one (1) "9V" battery (part # 590009)

Water Alarm
MK108

Gives alarm sound when water is detected. Incorporated alarm buzzer. Water sensor can be placed at a distance by cutting the board and using wires to connect the sensor.
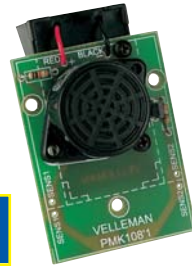
Requires one (1) "9V" battery (part # 590009)

Interval Timer
MK111

For intermittent operation of circuits and equipment. Blinking light, video/photo single frame shooting, slide projector control, miniature models.

Brain Game
MK112

Just 4 LEDs and 4 push buttons provide hours of fun. The aim-of-the-game is to repeat a pattern, which is generated at random. The pattern is played both visually and audible or visually only (selectable). It features 4 difficulty levels, which can be selected at start-up. The replay speed gradually increases during the game, to make it even more challenging. Low power consumption. Microprocessor controlled. Auto power off.
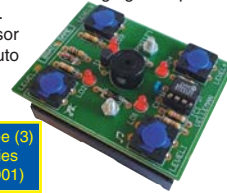
Requires three (3) "AA" batteries (part # 590001)

Light Barrier
MK120

Applications: announce visitors, warn against burglars, set boundaries, for science projects, etc.
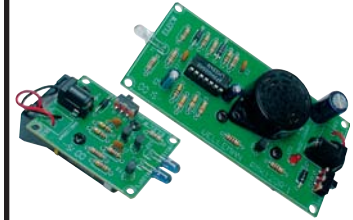
Requires three (3) "AA" batteries (part # 590001)

Traffic Light
MK131

Miniature traffic light as used on four-way junctions. Realistic operation with adjustable delay. 12 LEDs. Great for model railroads, exhibitions, as a toy, etc.

Requires one (1) "9V" battery (part # 590009)

Steam Engine Sound Generator w/ Whistle
MK134

Generates sound of a vintage steam engine. Adjustable "speed" and volume. Great for model railroads, radio plays, stage, or as a gadget. With "steam whistle" push-button.

Requires one (1) "9V" battery (part # 590009)

Super Ear Amplifier
MK136

Stereo audio amplifier boosts sound 50 times. Great for the hearing impaired (e.g. when watching TV), as a gadget, science project, etc. With volume control and on/off switch.
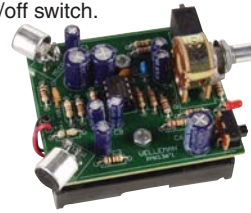
Requires one (1) "9V" battery (part # 590009)

## Dual White LED Stroboscope   MK147

Two super bright white LEDs, powerful flash effect, great for parties, in scale models, to observer moving parts, slow/fast selector, and speed adjust trimmer, speed adjustable between approx. 1 to 60 flashes per second.

Requires one (1) "9V" battery (part # 590009)

Voice Changer
MK171

Make you voice sound like a robot. Add vibrato effect. "Pitch" buttons make your voice sound lower or higher. Built-in microphone and power amplifier with volume control, just add a speaker.
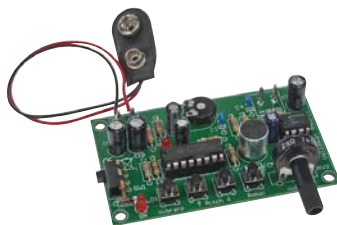
Requires one (1) "9V" battery (part # 590009)

Color Code Calculator for resistors, capacitors, and inductors
CC-100

Pocket-sized calculator is easy-to-use in determining values of resistors, capacitors, and inductors. Match colors and get a fast reading of values.
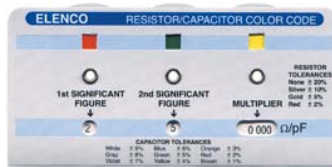
Telephone Line Analyzer
TWT-1K

A telephone line analyzer kit that tests active phone lines with RJ-11 or RJ-45 modular jacks.

Batteries

AA   9V

AA
General-purpose.........................590001
Alkaline.....................................590002
AAA
General-purpose.........................590003
Alkaline.....................................590015
D
General-purpose.........................590005
Alkaline.....................................590006
9V
General-purpose.........................590009
Alkaline.....................................590011

SPECIAL TEST EQUIPMENT

Diode / Transistor Tester
Model DT-100

Checks transistors and diodes in circuit.

Identifies NPN or PNP transistors.

Checks small or large power types.

Available in kit Model DT-100K

1% 1W Resistor Substitution Box
Model RS-500

The RS-500 Resistance Substitution Box is a convenient instrument for determining the desired resistance values in circuits under design or test. The resistance obtainable is from 0Ω to $11,111,110\Omega$ in 1Ω increments. All resistors are 1% precision.

(1 watt resistors)

Resistor Substitution Box
Model RS-400

Contains 24 standard value resistors from 10Ω to $1M\Omega$.

Available in kit K-37

Capacitor Substitution Box
Model CS-440

Contains 24 different value capacitors from 100pF to $0.1\mu F$.

Available in kit K-38

Telephone Line Analyzer
Model TT-400

A telephone line analyzer that provides fast indication of telephone line polarity, ring and line voltage levels, and the condition of phone line from user's telephone to central telephone office. It can also check basic telephone functions and condition of telephone line cord.

Available in kit Model TT-400K

Telephone Line Analyzer
Model TWT-1

A telephone line analyzer that tests active phone lines with RJ-11 or RJ-45 modular jacks.

Available in kit Model TWT-1K

TESTERS - KITS

Multi-Network Cable Tester Kit
Model TCT-255K

This tester is a convenient instrument for testing different unshielded wiring schemed telephone cables with RJ-11 and RJ-45 connectors and coax cables (F and BNC connectors). Cables can be tested before and after they are installed.
Soldering required.

Requires one (1) 9V battery (part # 590009).

Features
- Testing cables before or after their installation.
- Mapping function.
- Cable identification (straight or cross-pinned).
- Open or short testing.
- F to BNC connectors included.
- Low battery indicator.
- Auto power-off function (30 s.).
- 9V battery (part # 590009) included.

Function Generator
Model FG-500K

Provides sine, square or triangle waveforms continuously variable 1Hz to 1MHz. Amplitude adjustable to 3V peak-to-peak. Complete with all parts, PC board, schematic, deluxe case and extensive assembly manual.
Soldering required.

Available Assembled Model FG-500

Diode/Transistor Tester Kit
Model DT-100K

This dynamic tester allows the checking of transistors and diodes in circuit. Identifies NPN or PNP transistors. Checks all types: small or large power. Identifies anode or cathode of diodes.
Soldering required.

Available Assembled Model DT-100

Telephone Line Analyzer Kit
Model TT-400K

Available Assembled Model TT-400

A telephone line analyzer that provides fast indication of telephone line polarity, ring and line voltage levels, condition of phone line from user's telephone to central telephone office - also can check basic telephone functions and condition of telephone line cord. **Soldering required.**

Resistor Substitution Box
Model K-37
Contains 24 different value resistors from 10Ω to 1MΩ. **Soldering required.**

Available Assembled Model RS-400

Capacitor Substitution Box
Model K-38
Contains 24 different value capacitors from 100pF to 0.1μF. **Soldering required.**

Available Assembled Model CS-440

Anti-Static Wrist Straps
Protects ICs and other equipment from static discharges. *Adjustable*.

WS-1Y (velcro band)
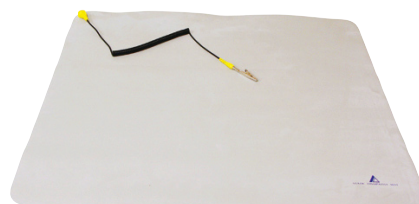
WS-1 (elastic band)

Anti-static Work Mat
Model WS-2
Protects your workstation from static discharge. Made of semiconductive vinyl.
Size: 11" x 22".

Model WS-3
Size: 19" x 23"

POWER SUPPLY KITS

The largest selection of variable and fixed voltage power supply kits in the electronics industry. Ideal as school projects for breadboarding, prototyping, and training. The regulated supplies are protected against damage from short circuits.

Power Supply Kit
Model XP-720K

Model **XP-720K** has 3 fully regulated DC supply outputs, two outputs are continuously variable and one is fixed, plus a 12.6VAC output center-tapped to 6.3VAC.

Specifications

Input Voltage	120VAC
Output Voltage	1) 1.25VDC - 15VDC @ 1A
	2) −1.25VDC - −15VDC @ 1A
	3) 5VDC @ 3A
	4) 6.3VAC @ 1A and 12.6VAC center-tapped @ 1A
	It features short circuit protection on all supplies.

Note: Variable outputs can be stacked to get 3 - 30VDC @ 1A.

Available Assembled Model XP-720

Deluxe Battery Eliminator Kit
Model XP-100K

This power supply is an ideal bench top battery eliminator. Substitutes a wide variety of batteries including AA, AAA, C, D, and 9V types. The voltage is conveniently selected by a rotary switch. Advanced, solid-state electronics provide both LINE and LOAD regulation of the output voltage. The voltage selector switch is precision-designed so that the output voltage does not increase during adjustment between voltage ranges.

Specifications

Input voltage	120VAC
Output voltage	1.5, 2.2, 3, 4.5, 5, 6, 7.2, 9, 10, 12, 13.8, 15VDC
Output current	1A max.
Accuracy	±5%
Dimensions / weight	3 ¾" (H) x 8 ¼" (W) x 7" (D) / 5 lbs.

Available Assembled Model XP-100

Variable Voltage Power Supply Kit
Model XP-15K

A handy portable power supply with a variable output voltage of 15VDC. Mounted in a rugged bakelite case.

Specifications

Input Voltage: 120VAC
Output Voltage: 1.25 - 15VDC
Output Current: 0.5A @ 8V; 0.3A @ 12V
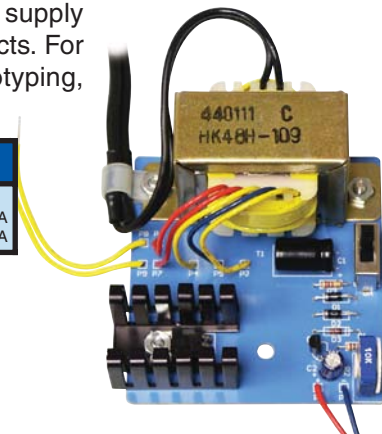0.2A @ 15V
Short Protected IC Thermo

Variable Voltage Power Supply Kit
Model K-11

A low cost way to supply voltage to school projects. For breadboarding, prototyping, and training.

Specifications

Input voltage: 120VAC
Output voltage: 0 - 15VDC @ 250mA
AC: 8.5V @ 500mA

Ideal for School Projects!

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MULTIMETER KITS

If you are using or planning to use a digital or analog meter in your training programs, consider one of the meter kits below - easy construction, detailed assembly manuals.

Deluxe Full Function Digital Multimeter Kit
Model M-2666K

Features

- Extra-large 1", 3 1/2 digit display
- Transistor tester
- Overload protection
- Capacitance to 200µF
- Diode test
- Audio continuity
- AC/DC current to 20A
- Low battery indication
- Rubber holster
- Tilt stand
- Safety input sockets & test leads.

Specifications

AC + DC Volts	200mV, 2V, 20V, 200V, 1,000V, 750VAC
Accuracy	DC: ±(0.5% rdg + 2dgt), 1,000V: ±(0.8% rdg + 2dgt)
	AC: 200mV, 750V: ±(1.5% rdg + 2dgt), 1mV-100mV: ±(1.0% rdg + 2dgt)
	Resolution 100µV
AC + DC Current	200µA, 2mA, 20mA, 200mA, 20A
Accuracy	DC: 200µA-20mA: ±(1.5% rdg + 2 dgt), 200mA: ±(2.0% rdg + 2 dgt), 20A: ±(2.5% rdg + 3 dgt)
	AC: 200µA-20mA: ±(1.0% rdg + 3 dgt), 200mA: ±(1.5% rdg + 3 dgt), 20A: ±(2.0% rdg + 3 dgt)
	Resolution 0.1µA
Resistance	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ
Accuracy	200Ω: ±(1.0% rdg + 2 dgt), 2kΩ - 2MΩ: ±(0.8% rdg + 3 dgt), 20MΩ: ±(2.0% rdg + 4 dgt)
	Resolution 0.1Ω
Capacitance	2nF, 20nF, 200nF, 2µF, 20µF, 200µF
Accuracy	2nF - 20µF: ±(2.5% rdg + 3 dgt), 200µF: ±(5.0% rdg + 3 dgt) Resolution 1pF
Size / Weight	7 1/2" (H) x 3 1/2" (W) x 1 13/32" (D)
Accessories	Test leads, Manual, 9V Battery included

20K/V VOM Model M-1250K

Features

- 20,000Ω/V
- 23 ranges
- 3 1/2" meter
- Mirrored scale
- Audible continuity
- Checks transistors / diodes
- Safety input sockets and test leads
- 10A DC current
- dB scale
- Battery test
- Tilt stand

DSR-85
Dial Scale Reading Kit Included

Available assembled as Model M-1250

Specifications

DC Volts	0.1, 0.5, 2.5, 10, 50, 250 – 3% FSR / 1k – 5% FSR
AC Volts	10, 50, 250 – 4% FSR / 1kV – 5% FSR
DC Current	50µA, 2.5mA, 25mA, 250mA – 3% FSR / 10A 5% FSR
Resistance	x1, x10, x100, x1k, x10k – 3% of ARC
Transistor hFE 0-1000	ICEO 15mA, 150mA
Size	5 29/32" (H) x 3 23/32" (W) x 1 1/4" (D)
Accessories	Test leads, Manual, 9V and (2) 1.5V AA batteries

Digital Multimeter Kit Model M-1007K

Features

- Low cost
- 3 1/2 digit LCD
- 19 ranges
- Transistor test
- Diode test
- Overload protection
- Pocket-size

Available assembled as Model M-1000D

Specifications

DC Volts	200mV, 2V, 20V, 200V, 1,000V	
AC Volts	200V, 750V	
Accuracy	DC 1/2%, AC 1.2%	Resolution 0.1mV
Input Impedance	1MΩ	
DC Current	200µA, 2mA, 20mA, 200mA, 10A	
Accuracy	±1.2% rdg + 2 digits	Resolution 0.1µA
Resistance	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ	
Accuracy	±1% rdg + 2 digits	Resolution 0.1Ω
Size	5" (H) x 2 29/32" (W) x 1" (D)	
Accessories	Test leads, Manual	

Practical Soldering Project Kit
Model SP-3B

Elenco® Electronics is proud to present another superb solder practice kit designed to meet the ever-increasing demands on proper soldering procedures. Some of the features of this kit are as follows:

- Identifying components
- Color-code reading exercises, resistors, capacitors, and inductors. **Includes color code calculator (Model CC-100)**.
- 163 solder points, standard soldering connections, close-tolerance soldering, and tack soldering.
- Evaluation exam of performed soldering connections. Written & visual.
- Complete voltage and resistance analysis of circuit.
- Desoldering exercise
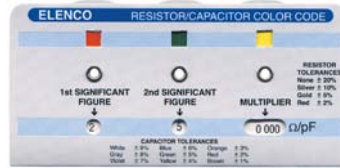
Requires one (1) 9V battery (part # 590009).

Practical Soldering Project Kit
Model SP-1A

Working with printed circuit boards is in the future of every electronic technician. Almost every electronic device today has a printed circuit board and whether you are assembling a PC board or repairing it, you must understand the basics of working with these boards.

Good soldering requires practice and an understanding of soldering principles. This solder practice project will help you achieve good soldering techniques, help you become familiar with a variety of electronic components, and provide you with dynamic results.
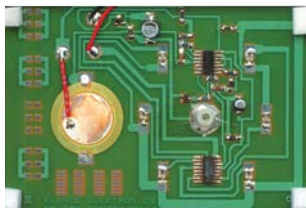
Requires one (1) 9V battery (part # 590009).

SP-1A Solder Kit w/ Soldering Iron & Side Cutters - AK-100

Surface Mount Technology Solder Practice Kit
w/ Training Course   Model SM-200K

The future of electronics is headed for miniaturization through surface mount technology (SMT). Taking our course of training will prepare you for the future. Includes all parts and instructions to give you experience on working with surface mount components. The finished project is a decision maker with 6 flashing LED's to help you make vital decisions.

SM-200K PC board showing practice areas & mounted components
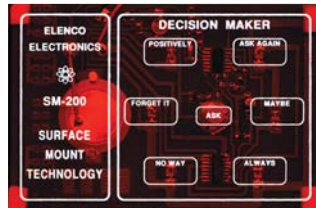
SM-200K in its final assembly as a decision maker

Requires one (1) 9V battery (part # 590009).

Learn Surface Mounting Techniques Function Generator Kits
w/ Training Courses   Model FG-600K

These versatile function generators include surface mount components such as IC's, resistors and capacitors. When completed, they provide Sine, Square and Triangle waveforms, continuously variable to 1MHz. Amplitude adjustable. Complete with all parts and PC board. Both include case and extensive training manual.

Specifications	
Output	
Waveforms: Sine, square, triangle	
Frequency: 1Hz - 1MHz	
Impedance: 600Ω ±10%	
Amplitude: Sine/triangle: 0-3V; Square wave: 8V	
Frequency variable range: 10:1 or more	
Frequency multiplier: Six decade steps	
Sine Wave	
Distortion: Less than 1% (at 1kHz)	
Flatness: ±0.05dB (1Hz - 100kHz)	
Square Wave	
Symmetry: Less than 5% (at 1kHz)	
Rise / fall time: Less than 50/30ns (at 1kHz)	
Triangle Wave	
Linearity: Less than 1% (up to 100kHz)	
Power requirements: 9V battery	

Requires one (1) 9V battery (part # 590009).

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RADIO KIT WITH TRAINING COURSE

MAKES AN EXCELLENT PROJECT FOR CLASSROOM STUDIES

The unique design of these kits allows you to place the parts over its corresponding symbol in the schematic drawing on the surface of the printed circuit board during assembly. This technique maximizes the learning process while keeping the chances for an assembly error at a minimum.

Both kits include an assembly, lesson and theory of operation manual. The actual assembly is broken into simple sections. Each section should be completely tested before moving on. This reduces difficult troubleshooting associated with many similar kits. Both include practical hi-tech blue PC boards with the schematic printed on the surface. The manuals are easy to understand. Each radio kit PC board has been designed so that no cabinet is necessary. A special molded plastic base provides the necessary support to use the radio in any location, displaying the work achievement of the student.

Model AM/FM-108K
AM/FM Radio Kit and Training Course
1 Integrated Circuit, 9 Transistors and 4 Diodes

Training course of 56 pages is divided into 9 lessons; Audio Amplifier, AM Detector, AM IF, AM Amplifier, AM Mixer & Oscillator, FM Detector, 1st FM IF, 2nd FM IF, FM RF Stages. Integrated circuit technology now included. "Superheterodyne" designed to receive standard AM (amplitude modulation) and FM (frequency modulation) broadcast frequencies. Includes radio mounting stand.

Also Available
Model AM/FM-108TK
14-Transistor, 5-Diode Version (without IC)
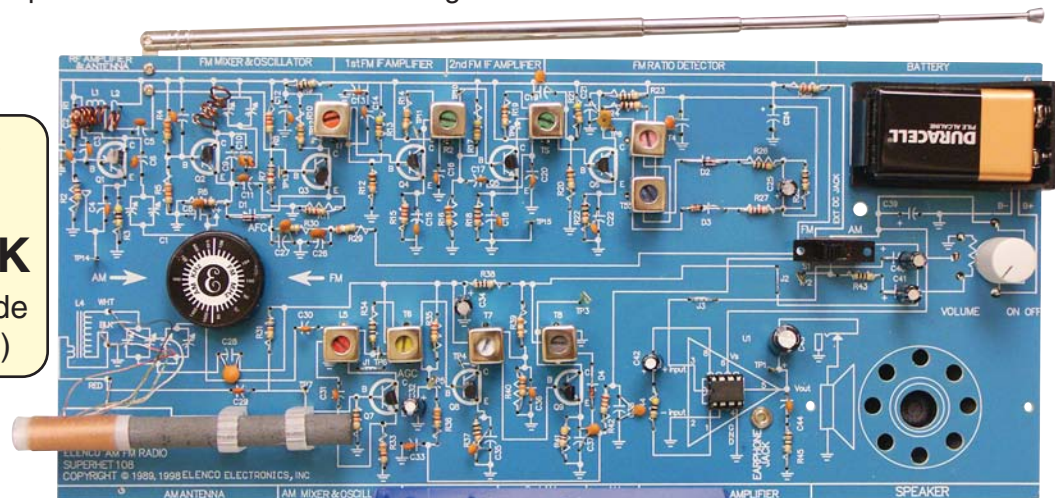
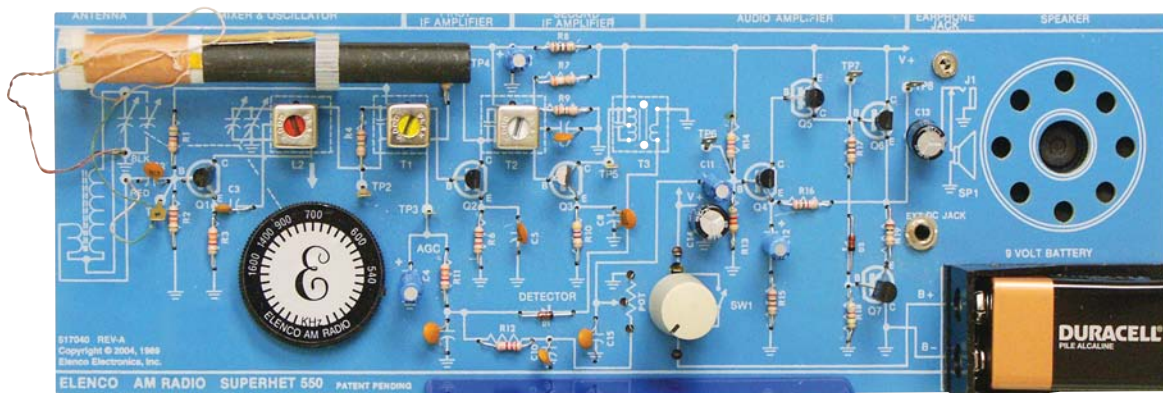

Requires one (1) 9V battery (part # 590009)

PC Board 5 1/4" (H) x 11 5/8" (W)

Model AM-550TK
AM Radio Kit and Training Course
7 Transistors and 2 Diodes

Training course divided into 5 lessons: Audio Amplifier, Detector, IF Amplifier, Oscillator, and Mixer. "Superheterodyne" designed to receive standard AM (amplitude modulation) broadcast frequencies. Includes radio mounting stand.

Requires one (1) 9V battery (part # 590009)

PC Board 3 1/2" (H) x 10 1/2" (W)

The following warning pertains to all products on this page.

⚠️ **WARNING: CHOKING HAZARD** Small parts. Not for children under 3 years.

DELUXE KITS

FM Wireless Microphone Kit

Model AK-710

Now you can hear your voice on the radio! This kit will have you singing in no time at all. After following our easy assembly manual, you'll be ready to transmit your voice on an actual FM Radio. Range up to 100 feet.
**Soldering required.**

Requires two (2) "AA" batteries (part # 590001)

Line Tracking Mouse Kit   Model 21-880

A smart Robot Mouse tracks a black line using a photo interrupter for its eyes. Create a twisting and turning road layout yourself with black tape on a white background. See how it tracks the black line to find the target.
Soldering required.

Features
- Sound activated.
- Uses three photo interrupters to detect a black line.
- Two sets of gear motors (unassembled).
- Programmed IC.
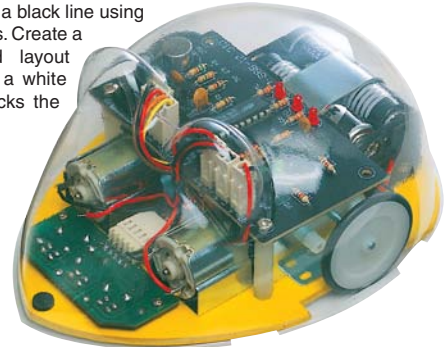
Requires four (4) "AA" batteries (part # 590001)

Motion Detector Kit

Model AK-510

Learn the basics of motion detector technology while building this motion detector kit that uses an infrared sensor. Use as a burglar alarm, message minder, room detector, or entry to home or business.
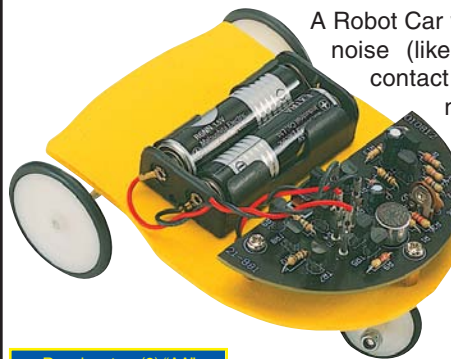**Soldering required.**

Requires one (1) 9V battery (part # 590009)

Sound Reversing Car Kit   Model 21-881

A Robot Car with a sensor to detect noise (like a clap) or physical contact for its reaction. It moves forward when it detects noise and reverses when it touches obstacles.
Soldering required

Features
- Uses a microphone as a sound sensor.

Requires two (2) "AA" batteries (part # 590001)

Tunable FM Stereo Transmitter   Model FM10CK

Learn the basics of FM transmitters. Tunable anywhere in standard FM band 88 to 108MHz. Operates on 5 to 15VDC settable pre-emphasis 50 to 75μsec. Includes matching case and knobset.
Soldering required.
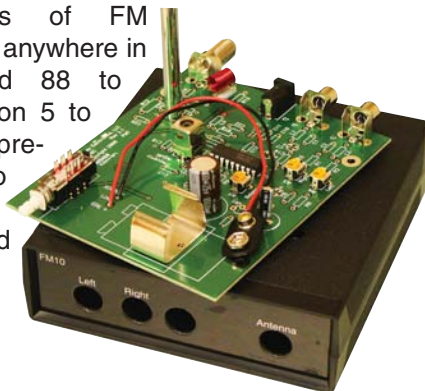
Requires one (1) 9V battery (part # 590009)

Turning Frog Kit   Model 21-882

This is an interesting robot kit. When it detects sounds, it will move and repeat the following steps sequentially: Start (move forward), Stop, Left Turn, Stop, Right Turn, Stop.
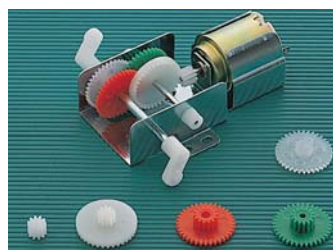**Soldering required.**

Features
- Two sets of gear motors (unassembled).

Requires one (1) 9V (part # 590009) & two (2) "AA" batteries (part # 590001)

2-in-1 Gearbox (unassembled)   Model 21-130

We provide the motor, two sets of gears, metal shafts, gearbox, and other accessories in this kit. Use a different gear setting and you will have a different speed (see the table for details).

Gear Set 1:

Gear Ratio	Gear	Teeth	I.D.
	Pinion Gear	10T	1.9mm
	Face Gear	36T/14T	2.05mm
1:60	Double Spur Gear	36T/14T	3.05mm
	Double Spur Gear	36T/14T	2.05mm
	Spur Gear	36T/0T	2.9mm
Reduction RPM			41.6

Gear Set 2:

Gear Ratio	Gear	Teeth	I.D.
	Pinion Gear	8T	1.9mm
	Face Gear	36T/10T	2.05mm
1:288	Double Spur Gear	40T/10T	3.05mm
	Double Spur Gear	40T/10T	2.05mm
	Spur Gear	40T/0T	2.9mm
Reduction RPM			41.6

Hexapod Monster Kit   Model 21-883

The Hexapod Monster is a robot that uses an infrared emitting diode for its eyes, and moves by its six legs. It turns left when it detects obstacles, and keeps moving forward if there is no shade in front of the sensor. **Soldering required.**
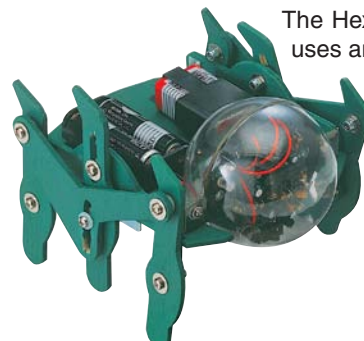
Features
- Uses an infrared emitting diode as its sensor.
- Two sets of gear motors (unassembled).

Requires one (1) 9V (part # 590009) & two (2) "AA" batteries (part # 590001)

The following warning pertains to all products on this page.

⚠️ **WARNING: CHOKING HAZARD** Small parts. Not for children under 3 years.

DELUXE KITS

Telephone Kit
Model PT-323K
Clear, See-Through Case
with Training Course

The Elenco® PT-323K is a push button electronic telephone. It is equipped with the following features: Pulse/tone dialing, automatic redial, a ringer turn off switch, 4 neon bulbs for visual indication of telephone ringing, and a clear see-through case to show the total inner workings of the phone. A detailed, easy-to-follow 36 page manual included. Sectionalized construction and testing makes construction easy. Wall mounting cradle included.

Radio Controlled Race Car
Model RCC-7K
with Training Course

Now available in non-soldering version: **Model FUN-875** with training course.

The purpose of this project is to expand your understanding of basic transmitters, receivers and electronic switching theories. Your Turbo King Car will be built from the ground up. You'll learn all about gears, motors, printed circuit boards, and integrated circuits from our detailed assembly and training manual. You will construct each section, explore the circuitry and troubleshoot it.
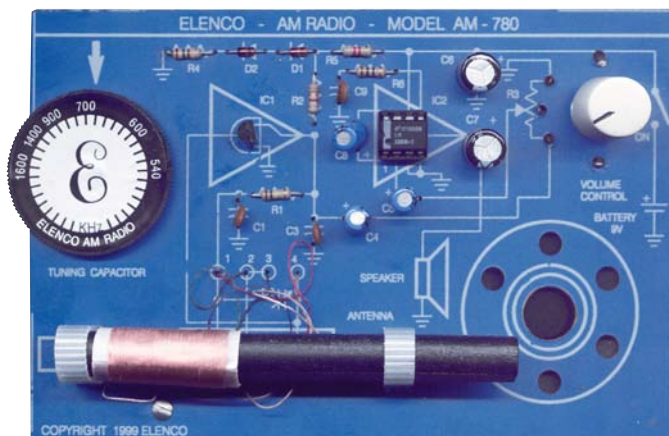
Features

- 7 Remote Functions
- Flashing Top Light
- Single Channel Operation
- Remote Control Included

Requires one (1) 9V (part # 590009) and four (4) "AA" batteries (part # 590001).

Two IC AM Radio Kit
Model AM-780K   with Training Course

New Design - Easy-to-Build complete radio on a single PC board. Unique design allows you to place parts over its corresponding symbol on the PC board. Teaches the basic theory of AM radio operation. Detailed instructions and illustrations make it an easy and educationally sound project.

Requires one (1) 9V battery (part # 590009).

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The following warning pertains to all products on this page.

⚠️ **WARNING: CHOKING HAZARD** Small parts. Not for children under 3 years.

OWI ROBOT KITS

None of our OWI Kits require soldering (unless otherwise noted).

MOON WALKER II   MV-979
(Light & Sound Sensor)

Moon Walker II begins to walk when it detects a change in light intensity or sound commands, and continues its four-legged voyage until instructed by an internal timer to stop.

This kit presents an engaging opportunity to learn about some of the mechanics, operation and history of robots. When assembled, this robot uses a phototransistor to sense changes in light (such as turning on a lamp) and a condenser microphone to sense changes in sound (such as clapping). It converts those stimuli into electrical signals to power a motor, and the robot walks forward for a preset time. When it stops, affecting another change in area light or sound may activate it again. The sensors may be adjusted for different sensitivity levels. Printed circuit board pre-assembled.

OWI-979K (PCB Unassembled) - Soldering Req'd

Requires one (1) "AA" battery (part # 590001)

WAO KRANIUS   OWI-9762
(Limited Edition)

"PUSH MY BUTTONS AND WATCH ME GO!" The 4th generation of WAO programmable robot kits. WAO Cranius is a 2-wheeled robot that you can program to follow an interesting path "WITHOUT" a personal computer. The brain is an 8-bit micro-controller and keyboard with 33 tactile buttons. Stores up to 60 programming steps and 30 FOR-NEXT multiplex loops. 6 vision sensors (two infrared light sensors to detect obstructions and four floor light sensors enables it to detect a contrast of light like an edge of a table). Programming makes you plan ahead, think systematically and logically, develop problem-solving skills, and challenge you to think creatively. Easy to assemble. Intermediate level kit.

PC Interface - (0762-USB)

Requires two (2) "AA" batteries (part # 590001)

SUMO ROBOT   OWI-9647
(Infrared Sensor)

Now OWIKIT brings the Sumo tradition to your home. The super warrior, SUMO ROBOT, can be controlled to assail and overpower its opponent or retreat to prepare for battle. An infrared sensor beam is emitted when detecting an opponent. Upon detection, it instructs the brain of SUMO to "charge", thereby creating a bona fide wrestling match!

Movement: 2 tractor style wheels powered by 1 DC motor. Control: Infrared sensor/detectable range: approx. 350mm (max.).

Requires four (4) "AA" batteries (part # 590001)

SOCCER PRO   OWI-9850
(Wired Control)

OWI-9850

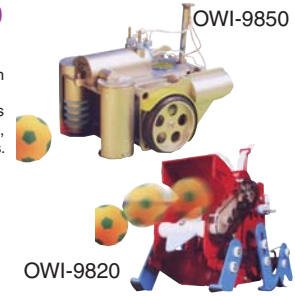There will be many hours scoring goals on the living room coffee table with SOCCER ROBOT.

SOCCER ROBOT has six operational kicking mechanisms and includes a control box and ball. It runs forward, backward, turns left or right, and executes 360-degree turns. It will even help develop your hand/eye coordination skills. Assembled Electronic Printed Circuit Board.

Movement: 6 legs driven by 2 DC motors in a crank motion. Control: Wire remote.

OWI-9820 Soccer Jr.

Requires four (4) "AA" batteries (part # 590001)

OWI-9820

SPIDER III   OWI-9727
(Infrared Beam)

With its radical walking style, this intelligent robot avoids interference by emitting an infrared beam which detects obstacles in its path. It then sends command signals in the form of electronic pulses to alter the rotating direction of its motor to evade these obstacles.

Printed circuit board pre-assembled.

OWI-972K (PCB Unassembled) - Soldering Req'd

Requires one (1) 9V (part # 590009) and two (2) "AA" batteries (part # 590001)

JUNGLE ROBOT   OWI-9870
(Sound Sensor)

Jungle Robot traverses "hand over hand" like an orangutan or walks on the ground like a gorilla. Amaze and surprise your friends with its ape like animation. A condenser microphone and printed circuit board controls your multi-function friend. When you think jungle robot is asleep, just cry "Wake UP!" Your robot will immediately start climbing or walking for a pre-set time and reset itself waiting for another command.

Requires one (1) "AA" battery (part # 590001)

HYPER LINE TRACKER OWI-9737
(Infrared Sensor)

This cyber bug possesses a sonic tracking system, and is fortified with a multitude of sensors: photo transistors to detect a black line, tracking memory to memorize its last track of the black line, and two red LEDs that tell you which side of the light sensor is activated.

Hyper Line Tracker follows a designed course. By using an infrared emitter, light sensor circuitry, and tracking memory, it demonstrates how robots "see" a pathway. Make a path with a black felt tip marker or black tape and watch how infrared sensors enable the robot's motors to make course corrections. Printed circuit board pre-assembled.

OWI-973K (PCB Unassembled) - Soldering Req'd

Requires four (4) "AA" batteries (part # 590001)

ROCKIT ROBOT   OWI-7769
(Sound/Touch Sensor)

OWI introduces to their award winning Beginner Series of educational electronic robot and science kits...RocKit Robot! The new futuristic style includes high performance and superior materials. Rockit Robot evolves as a spunky little robot that you can build. Explore the fundamentals of robotics with this informative and entertaining robot kit. Appropriate for ages 10 and up, RocKit Robot is an intelligent robot with a touch/sound sensor. If it comes in contact with an object or hears a loud noise (such as hands clapping), RocKit Robot automatically reverses, then turns left before embarking on a new course. Rockit Robot is lots of fun from the moment it arrives. Requiring only basic hand tools, it contains step-by-step instructions, pre-assembled printed circuit board, condenser microphone, and an easy-to-assemble mechanical drive system. It's an ideal gift for the educator, hobbyist or budding scientist.

OWI-769K (PCB Unassembled) - Soldering Req'd

Requires two (2) "AA" batteries (part # 590001)

SOLAR CAR   OWI-685
(Triple Action)

Sleek, powerful, unearthly, and very cool . . . this futuristic solar car is an exciting way to demonstrate the use of alternative energy. It features and aerodynamic sports car shell design, a 4-wheel chassis, a powerful 1.4V, 350mA solar cell (included) and a transparent plastic body that can be painted or left clear to display the car's inner mechanical construction. The steerable front axle, rear wheel and adjustable (directional/angle) solar panel mount are all independent parts, allowing for separate solar projects.

The Triple Action Solar Car Kit is also available: (1) The two-way battery source allows for battery or solar power; (2) the kit design is an aerodynamic racer or tractor; and (3) it features a multi-speed transmission.

Requires one (1) "AA" battery (part # 590001)

KNIGHT INVADER III OWI-6573
(Optional Solar Power)

The Knight Invader is a super race car that includes mini-construction projects, teaches the basic principles of electricity, gear mechanisms, and demonstrates two different modes of propulsion. Available with optional solar cell.

Requires two (2) "AA" batteries (part # 590001)

ROBOTIC ARM TRAINER OWI-007
(Wired Control)

The Robotic Arm Trainer teaches the basic robotic sensing and locomotion principles while testing your motor skills as you build and control the arm. You can command this unit with its five switch wired controller with lights to grab, release, lift, lower, rotate wrist, and pivot sideways 350 degrees. After assembly, observe the dynamics of gear mechanisms through the transparent arm. Five motors and five joints allow for flexibility and fun! For educators and home schoolers, you'll find the robotics technology curriculum and personal computer interface useful tools.

PC Interface - (0762-USB) • Curriculum - (RTC-007)

Requires four (4) "D" batteries (part # 590005)

ROBOTIC ARM EDGE OWI-535
(Wired Control)

Riding the wings of the award winning Robotic Arm Trainer, OWI has made robotic arm technology more affordable without compromising quality. With Robotic Arm Edge, command the gripper to open and close, wrist motion of 120 degrees, an extensive elbow range of 300 degrees, base rotation of 270 degrees, base motion of 180 degrees, vertical reach of 15 inches, horizontal reach of 12.6 inches, and lifting capacity of 100g. WOW! Some of the added features include a search light design on the gripper and a safety gear audible indicator is included on all five gear boxes to prevent any potential injury or gear breakage during operation. How does this equate to fun? Total command and visual manipulation using the 5s: five switch wired controller, five motors, and five joints. Night time play is possible and extended life on the gearbox to prolong your control and predictions of the robot's behavior. 9in x 6.3in x 15in

PC Interface - (535-USB)

Requires four (4) "D" batteries (part # 590005)

The following warning pertains to all products on this page.

⚠ **WARNING: CHOKING HAZARD** Small parts. Not for children under 3 years.

OWI ROBOT KITS

None of our OWI Kits require soldering (unless otherwise noted).

BINARY PLAYER ROBOT   OWI-9875
(Programmable, Infrared Sensor)

Binary Player Robot is controlled by black and white patterns on a disk, which are read by an infrared sensor. Particular patterns activate either of two wheels to turn left, right, forward, or pause. These on/off commands illustrate the basic principles of binary coding. To change a movement program, the operator simply creates a new disk pattern. Set your course and explore the fascinating world of Binary Player Robot! Ages 10 & up.

Requires two (2) "AA" batteries (part # 590001)

WEASEL   OWI-9910
(Touch/Light Sensors)

"THERE GOES . . . WEASEL!" Weasel has two sensors that allow it to "see" a line or "feel" its way along walls and around corners. The two motors and contact sensor activate the wall sensing micro switch to control the motors' on/off operation that determines the path of a wall. It is the classic robot design using the "Left Hand Rule" to escape mazes. Imagine the endless mazes that can be set up for Weasel to try to escape! With OWI's™ continued pursuit in making robots "smart", they have added another feature to this little bundle of energy . . . a sonic tracking system. Discover and learn about the phototransistors underneath Weasel that enable it to detect and follow a black line. Want speed? Its three-speed gearbox will help navigate at the velocity you determine. Quick and easy to assemble, this is a beginner robot that makes great entrants for robotic competitions, robotic workshops, after-school programs, special events, gifts, science enrichment camps, and classroom activities. Ages 10 & up.

OWI-991K (PCB Unassembled) - Soldering Req'd

Requires two (2) "AA" batteries (part # 590001)

4-in-1 ROBOT KIT   OWI-9874
(Sound Sensor)

4-in-1 Robot Kit features 4 different methods of movement: Traversing - hand over hand (Orangutan mode), 2 legged walking (Gorilla mode), 4 legged walking (Centaur mode) and 6 legged walking (Spider mode). Discover the dynamics of animal locomotion. This is an excellent beginner series robot. This battery-controlled kit can teach the basic principles of robotic sensing and locomotion. It features a pre-assembled printed circuit board, hardware, and mechanical drive system that can be handled by almost anyone from ages 10 & up.

Requires one (1) "AA" battery (part # 590001).

ROLY POLY ROBOT   OWI-9855
(Gear Technology)

Roly Poly Robot will tumble, fumble, stumble but will find a way to right itself up. The moment you turn it on, Roly Poly will speed away on its two cyclonic wheels. The engineering genius behind this well thought-out machine enables it to get on its 'feet' whenever it tumbles and then will continue on its new path of exploration. After assembling one worm gear and less than 20 parts, your mechanical marvel is ready to amuse any household pet. Ages 10 & up.

Requires one (1) "AA" battery (part # 590001).

TURBO 3000   OWI-8606
(Optional Solar Power)

TURBO 3000 will amaze children nine years and older. This monster vehicle with oversized tires and independent suspension is "tricked-out". It features three modes of propulsion: direct motor drive, air propulsion, and solar power (optional). The kit includes electricity experiments involving series and parallel circuits and a high powered miniature light bulb. The special air-blowing compartment allows the styrofoam ball (included) to magically float into the air while the car is running. No tools are required for this easy to assemble and disassemble magical beastly beauty. If that's not enough, some of its transparent parts allow you to view and study the inner mechanics of the product. Ages 9 & up.

AMPHIBIOUS SOLAR VEHICLE   OWI-688
(Solar Power)

This kit introduces the fundamentals of solar power through hands-on experiments. The sun or any intense mobile light can power the solar battery (included). A multiple function switch (solar [1.4V, 350mA] or battery) allows this kit to be energized day or night, indoors or outdoors. The user can explore different types of energy and energy conversion with this land and water vehicle. Learn what materials solar batteries are made from and the characteristics of solar batteries, advantages, and disadvantages of solar power. Ages 10 & up.

KABUTO MUSHI ROBOT   OWI-8800
(Infrared Sensor)

NEW

The Kabuto Mushi (Rhinoceros Beetle) Robot is an infrared remote controlled robot with caterpillar traction. The infrared remote control handset has 8 channels, each channel controls 4 motors. This easy-to-build kit will provide students, teachers, and hobbyists (with little or no experience), a fun and informative building session. Ages 10 & up.

Requires four (4) "AA" batteries (part # 590001) and three (3) "AAA" batteries (part # 590003).

6-in-1 SOLAR KIT   OWI-MSK610
(Solar Power)

Mini Solar building kits teach children the benefits of solar energy while they create a toy that is both fun to play with and requires no batteries. Newest member of this popular line is the 6 in 1 Educational Solar Kit, an excellent beginner building kit designed to teach how solar power is used to drive a small motor. Children use the 21 snap together parts (no tools required) to build six different working models including an airboat, windmill, puppy, and two different planes. Ages 8 & up.

WALKING KING CRAB
OWI-MSK-669   (Solar Power)

Methodically, eight legs work in harmony to create a ballet style "tippy-toe" movement. Similar to its cousin from Alaska, the sun's rays will make it scurry along to safe passage. Ages 9 & up.

SUPER SOLAR RACE CAR
OWI-MSK-671   (Solar Power)

One source of such power is derived from the sun's powerful rays of light. Super Solar Racing Car is easy to assemble and demonstrates alternative energy principles. No batteries or tools required and less than a dozen parts to assemble. Ages 9 & up.
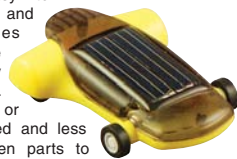
HAPPY HOPPING FROG
OWI-MSK-672   (Solar Power)

Using its hind legs and rubber feet, Happy Hopping Frog jiggles its eyes as a dog would wag its tail acknowledging its love and appreciation to its owner. The tailless, leaping mini solar kit is activated by the power of the sun's rays; no batteries required. Ages 9 & up.

SONIC F1
OWI-MSK-674   (Solar Power)

When equipped with the most power engine, the sun, Sonic F1 races at amazing speeds. Easy to build and fun to play. Have hours of fun experimenting with it in the sun. No batteries required and eight plastic parts to assemble. Ages 9 & up.

OWIKIT TEACHKIT
OWI-RETC

A complete teacher resource written by teachers for student experimentation with all OWIKIT robots (except 007 Arm)! Capture students' interest in simple and advanced robotics. Over 110 pages long, complete with answer keys, appendix and teacher guides.

ELEMENTARY TECHNOLOGY CURRICULUM OWI-ELEM2
(Beginner Experience Series Only)

A "teacher-friendly" learning guide about robotics and/or electrical technology that provides activities, concepts, and research assignments. Over 30-page curriculum.

SOCIETAL IMPACTS of COMPUTERIZATION TEACHKIT
OWI-SIC

A must for grades 6-12 computer teachers who try to help their computer students understand value conflicts and ethical choices associated with electronics communication. Over 40 pages & 1 diskette that is PC/PowerMac compatible.

SOLAR BATTERY   OWI-608
(Solar Power)

Have fun in the sun with our safe, encapsulated mini-solar panel. This sturdy panel will endure handling without breakage or cell damage traditionally associated with solar cells. Create various experiments by exposing and positioning the panel at the energy source. Intended for use to familiarize students or hobbyists with fundamental silicon solar cell principles, and practical applications of solar cells. Mounting bracket not included.
Current: 350mA. Voltage: 1.4V. Compatible with: OWI-685, OWI-688, OWI-6573, & OWI-8606.

Solar Deluxe Educational Kit

Model SK-40

- By solar power, harness the power of the sun with this environment-friendly D.I.Y. kit!

- Children can do a series of do-it-yourself experiments to acquire the basic knowledge of solar energy.

- Children can learn how to make an electrical circuit, make a solar circuit, how to increase voltage and current, and how to use solar power to produce energy for a radio, calculator, battery charger, a cassette player and more!

Radio Controlled Car Kit

w/ Training Course   Model FUN-875

The purpose of this project is to expand your understanding of basic transmitters, receivers and electronic switching theories. Your Turbo King Car comes with the PC board already built. There is no soldering required! You'll learn all about gears, motors, printed circuit boards, and integrated circuits from our detailed assembly and training manual. You will construct each section, explore the circuitry, and troubleshoot it.

Now available in soldering version: Model RCC-7K with training course

Requires one (1) 9V (part # 590009) and four (4) "AA" batteries (part # 590001).

Features

- 7 remote functions.
- Flashing top light.
- Single channel operation.
- Remote control included.
- Full color assembly instructions.

Photon Solar Racer Kit

Model AK-590

Learn all about solar energy and how to convert it to useful applications. You will build this exciting sleek solar car that runs on a high efficiency solar cell. Have your friends build one too and have fun racing them. No soldering required.

The solar car comes in clear plastic. The car can be painted any color scheme that you desire (paint is not supplied). Photo is painted to illustrate how your car could look.

Cola Clock Kit

Model FUN-285

Cola not only quenches your thirst, but can power a clock too! Build this kit and amaze your family and friends with this cola-powered clock.

Learn how batteries work when you use cola to make a chemical reaction that powers a clock. Completely safe and doesn't require batteries! Parts are easily identified and assembled with full color manual.
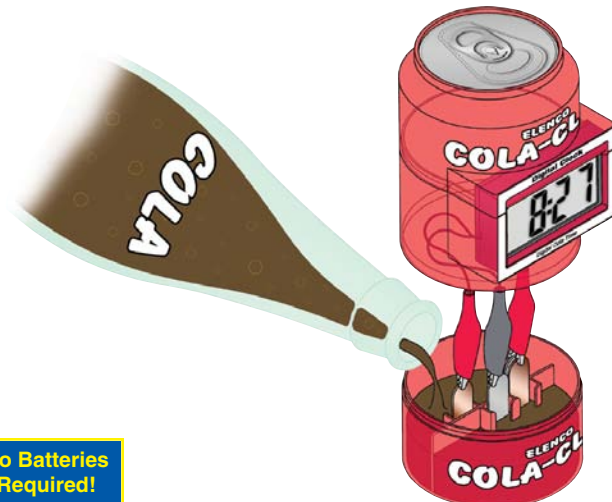
No Batteries Required!

The following warning pertains to all products on this page.

⚠️ **WARNING: CHOKING HAZARD** Small parts. Not for children under 3 years.

Electronic Crystal Radio Kit
Model MX-901C

Features
- Safe, solderless, educational, and fun!
- Easy-to-read instructions included
- Crystal diode converts RF to audio
- Tune in your favorite AM radio stations!
- Learn how radios work
- Includes earphone
- For ages 10 and up

No batteries required!

Electronic AM/FM Radio Kit
Model MX-901AF

Features
- Learn and build your own AM/FM radio kit - it's easy, it's fun, and it's safe!
- Tune in your favorite AM/FM radio stations - receives 520-1650kHz band and 88-108MHz band.
- Easy-to-read illustrated operating manual included.
- Safe, solderless, exciting, educational, and fun!

Requires one (1) 9V battery (part # 590009)

Electronic AM Radio Kit
Model MX-901A

Features
- Learn and build your own AM radio kit - it's easy, it's fun, and it's safe!
- Tune in your favorite AM radio stations - receives 520-1650kHz band
- Easy-to-read illustrated operating manual included
- Safe, solderless, exciting, educational, and fun!

Requires one (1) 9V battery (part # 590009)

Electronic FM Radio Kit
Model MX-901F

Features
- Learn and build your own FM radio kit - it's easy, it's fun, and it's safe!
- Tune in your favorite FM radio stations - receives 88-108MHz band
- Easy-to-read illustrated operating manual included
- Safe, solderless, exciting, educational, and fun!

Requires one (1) 9V battery (part # 590009)

Electronic Short Wave Radio Kit
Model MX-901SW

Features
- Learn and Build Your Own Short Wave Radio Kit - It's easy, It's Fun, and It's Safe!
- Explore the Fascinating World of Short Wave Radio!
- Receives Band from 6 - 8MHz (SW1) and 12 - 18MHz (SW2).
- Easy-to-read Illustrated Operating Manual Included.
- Safe, Solderless, Exciting, Educational, and Fun!

Requires one (1) 9V battery (part # 590009)

4-1 Action Kit Lab
Model MX-902

Motor   Bell

Meter   Generator

Features
- Safe, solderless, educational, and fun!
- Easy-to-read, illustrated, lab-style manual included.
- Discover how an electric bell is constructed and how it's made to ring.
- Build your own operating motor - It's easy, it's fun, it's safe!
- Find out how a generator makes the electricity that makes things work.
- Meter measures the amount of electricity used in your experiments.
- For ages 10 and up.

Requires two (2) "AA" batteries (part # 590001)

Just a Few of the Many Exciting Experiments
- Controlling motor's forward/reverse rotation with generator.
- Fan using motor and generator.
- Electromagnet and reverse polarity.
- Operating the electric bell with generator.
- Color mixing with rotating color disc.

Ordering Information

MX-902 - 4 pc. set: Includes motor, bell, meter, and generator.
MX-902T - 2 pc. set: Includes motor and generator.
MX-510B - 1 pc. set: Includes bell.

MX-510L - 1 pc. set: Includes light.
MX-510G - 1 pc. set: Includes generator.
MX-510M - 1 pc. set: Includes motor.

The following warning pertains to all products on this page.
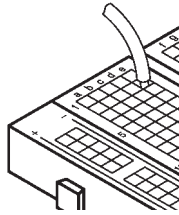
⚠️ **WARNING: CHOKING HAZARD** Small parts. Not for children under 3 years.

PROJECT LABS

Bredboard Method:

Featured in our advanced kits, this system is used by professionals and engineers. Just plug the components and wires into the special bredboard socket holes.

No soldering is required. Everything uses safe battery power - no dangerous AC is required, so it's safe for all ages. Labs come with all components and wires needed to build each project. NO TOOLS ARE REQUIRED. No prior knowledge is needed to assemble and build these exciting projects. Easy-to-read, illustrated, lab-style manuals take you through each electronic experiment step-by-step. All are designed for ages 10 & up, so these are ideal for **MIDDLE SCHOOLS** and **HIGH SCHOOLS**.

500-IN-ONE Electronic Project Lab
Model MX-909

Features
- Everything you need to build 500 Exciting Electronic Projects.
- Learn the basics of electronics and put your knowledge to work creating 500 different electronic experiments, special lighting effects, radio transmitter and receivers, amazing electronic sound effects, cool games and MORE!
- Includes built-in bredboard for easy wiring and connection of components, and an LCD (Liquid Crystal Display) indicates the information during the experiments in process!
- Build your knowledge by exploring amplifiers, analog and digital circuits plus how to read schematic diagrams.
- Includes transistors, transformers, diodes, resistors, capacitors, phototransistors, CDs, integrated circuits, speaker, earphone, LEDs, LED digit display!
- Fact-filled, illustrated, lab-style manual included.

Requires six (6) "AA" batteries (part # 590001).

Uses bredboard and spring hook-up methods

300-IN-ONE Electronic Project Lab
Model MX-908

Everything You Need to Build 300 Exciting Electronic Projects:

• A Transistor Radio	• Multiple Counter	• Rain Detector
• IC Organ	• Digital Light Dimmer	• Voltage Drop Alarm
• Burglar Alarm	• Tone Burst Generator	• Logic Checker
• Delayed Timer	• Audio Signal Tracer	• Function Generator
• Electronic Game	• Electronic Candle	• Voltage Controlled Amplifier
• Optical Volume	• Voice Level Meter	• AND MANY, MANY MORE!
• Multiplier	• Metal Detector	

Easy-to-read, illustrated, lab-style manual included.

Uses spring and bredboard hook-up methods

Requires six (6) "AA" batteries (part # 590001).

200-IN-ONE Electronic Project Lab
Model MX-907

Requires six (6) "AA" batteries (part # 590001).

Features
- Easy-to-read, illustrated, lab-style manual included.
- Learn about transistors, transformers, diodes, capacitors, oscillators, basic electronic circuits, and schematic symbols.
- Build your own Radio, AM Broadcast Station, Burglar Alarm, Electronic Game, Ohmmeter, Telegraph, Rain Detector, Amazing Sound Effects, and Much More!
- With built-in speaker, earphone, meter, seven-segment LED digital display, out-front controls, and more!

Uses spring hook-up method

PROJECT LABS

NO TOOLS OR SOLDERING REQUIRED!

These "Electronic Science Labs" will teach you about electronics from A-Z. With these all-in-one labs, you'll learn about electronic parts, how to read schematics, and wiring diagrams. All this while building up to **500** different projects. These kits use two quick and easy hook-up methods:

Spring Method:
Simply slip pre-cut wires and components into special springs for a safe, secure connection.

Electronic Playground
Model EP-50
Over 50 Electronic Projects

Build these exciting circuits:
- Finger touch lamp
- Magnetic bridge
- Voltmeter
- Morse code
- Alarm
- Electronic noisemaker
- Electronic kazoo
- Electronic keyboard
- Transistor radio
- Radio announcer
- Metal detector

Learn about:
- Voltage
- Current
- Resistors
- Capacitors
- Transistors
- Diodes
- Transformers
- Speakers
- Antennas

Ideal for Middle Schools!

OVER 50 EXPERIMENTS
Specifically Designed for Beginners.
(Spanish Manual Available)

Requires one (1) 9V battery (part # 590009).

Uses spring hook-up method

75-IN-ONE Electronic Project Lab
Model MX-905
- Easy-to-read, illustrated, lab-style manual included.
- Learn basic principles of electricity, electronics, physics and magnetism!

Uses spring hook-up method

Requires four (4) "AA" batteries (part # 590001).

Everything You Need to Build:
- Timer Buzzer
- Sound Alarm
- Burglar Alarm
- Photo-level Alarm
- Logic Tester
- Electronic Coin Toss
- Motion LED
- Electronic Organ
- Motion Detector
- First-Aid Siren
- Pulse Width Modulation
- Water Level Alarm
- Sound Level Meter
- DC-to-DC Converter
- Sound-sensor Timer
- Four-level Photometer
- Two Stage Timer Sound
- Voltage Detector
- Conductivity Tester
- Optical Volume
- AND MANY, MANY MORE!

130-IN-ONE Electronic Project Lab
Model EP-130

- Easy-to-read, illustrated, lab-style manual included.
- Learn basic principles of electricity, electronics, physics and magnetism!
- Comes with built-in speaker, 7-segment LED display, two fully integrated circuits and rotary controls.

Requires six (6) "AA" batteries (part # 590001).

Everything You Need to Build:
- AM Broadcast Station
- Electronic Organ
- Strobe Lights
- Timer
- Logic Circuits
- AND MUCH MORE

Uses spring hook-up method

SNAP CIRCUITS® GREEN

Alternative Energy Kit
Model SCG-125

Learn about energy sources and how to "think green". Build over 125 projects, using the flexibility of our award-winning Snap Circuits®, to have loads of fun learning about environmentally friendly energy and how the electricity in their home works. Includes full-color manual with over 100 pages and separate educational manual. This educational manual will explain all the forms of environmentally friendly energy including: geothermal, hydrogen fuel cells, wind, solar, tidal, hydro, and others. Contains over 40 parts.

Topics Covered:
- Solar Energy
- Wind Power
- Hydro Power
- Generators
- Chemical Power
- Rechargeable Batteries
- Analog Meters

NEW!
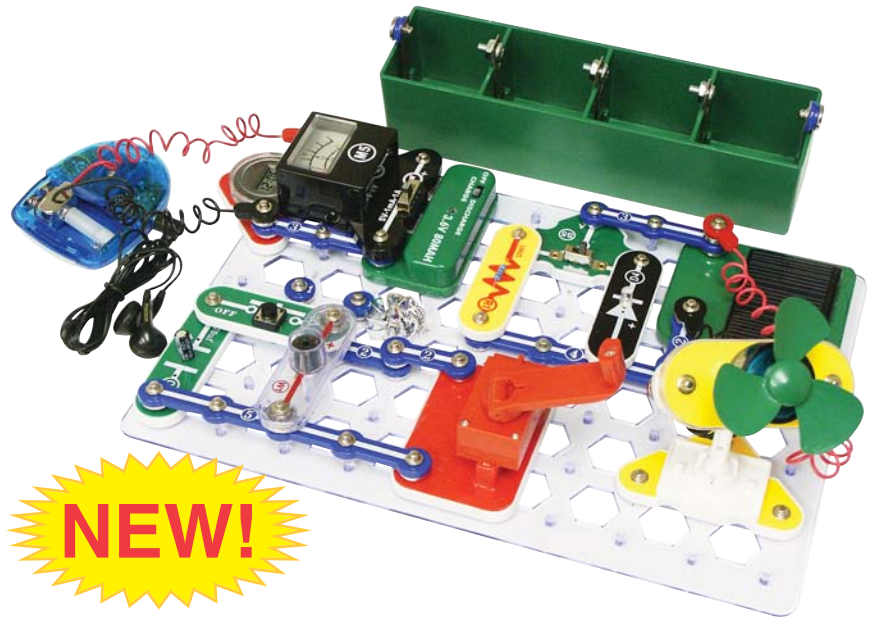
SNAP-MICRO™ I

Snap-Micro™ I is an easy way to learn about micro-controllers and how they are used in the world around us. Our easy-to-follow instructions will guide you through the programming of basic commands by using flow charts to operate the micro-controller. After a brief intro, Snap-Micro™ I will have you programming over 25 projects such as data loggers, A/D converters, DC motors and much more using Snap Circuits® components. No prior understanding of micro-controllers required.

Snap-Micro™ I comes with all the components and software you need to get started. All that is required is a computer with Windows®-based system. The 86 page instruction manual is divided into 4 sections: ① Getting Started (electronic components), ② Flow Chart Programming and Snap Circuits® Basics, ③ Programming for Snap Circuits®, and ④ Audacity®* Sound Circuits. After the course is completed, you will have a better understanding of programming a micro-controller and how you can use them for real world applications.

Snap-Micro™ I Deluxe   Model SCM-450

Deluxe SNAPCASE7 included!

NEW!

Learn About:
- Micro-controllers
- Flow charts
- Basic commands
- Electronic components
- Programming
- Data logging
- Sensors
- Analog to digital conversion

Snap-Micro™ I Standard
Model SCM-400

UC-100 Upgrade Kit - Converts SC-300 to SCM-400. *SNAPCASE7 sold separately, see page 8.*

* Audacity® is a registered trademark of Dominic M. Mazzoni, South Pasadena CA 91030

DELUXE SNAP ROVER®
RADIO CONTROLLED VEHICLE

Model SCROV-50

Introducing the next generation of the RC Snap Rover®! This version includes a disc shooter, digital voice recorder, and music sounds. Over 50 parts allow you to complete over 40 additional projects.

NEW!

Features
- Disc shooter
- Digital voice recorder
- Music sounds
- Over 40 additional projects
- Over 50 parts
- Left & right turning control
- Goes forward & backward
- Headlight
- Red & blue side lights
- Wireless remote control
- Run up to three Rovers at once
- No soldering required

(forward, back, left & right)

Requires one (1) 9V and six (6) "AA" batteries.

SNAP ROVER® RADIO CONTROLLED VEHICLE

Model SCROV-10
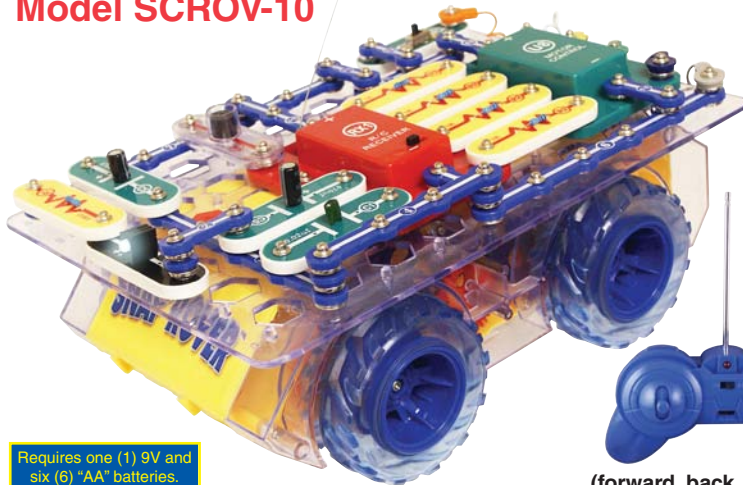
Requires one (1) 9V and six (6) "AA" batteries.

(forward, back, left & right)

Have FUN building your own RC Snap Rover® using the colorful Snap Circuits® parts that come with this kit. There is no soldering required as all the parts snap together with ease.

Once completed, you will be able to navigate your surroundings going left, right, forwards and backwards with the easy-to-use Snap Rover® remote control. The remote is a 27MHz multi-channel that allows you to run up to three cars at the same time!

Snap Rover® includes a headlight and red & blue side lights that allow you to operate it in the dark. Build over 20 projects. Includes over 30 parts.

Deluxe Snap Rover® Upgrade Kit
Model UC-90

Upgrade your Snap Rover® to a Deluxe Snap Rover®! Includes the disc launcher, parts, and manual for over 40 new projects.

MINI SNAP CIRCUITS®

Musical Recorder
Model SCP-01
- Records up to 8 seconds.
- Plays music after your recording.
- Easy to build.
- Fun to use!

Requires three (3) "AA" batteries.

FM Radio
Model SCP-02
- Have fun building this kit and tune it to your favorite FM station when you are finished!
- Easy to build.
- Fun to use!
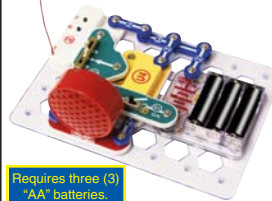
Requires three (3) "AA" batteries.
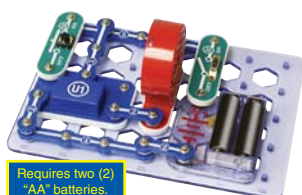
Motion Detector
Model SCP-03
- Whenever somebody walks in front of the Motion Detector, the sound of a laser comes out of the speaker!

Requires one (1) 9V battery.

Music Box
Model SCP-04
- Push the button and music plays.
- Easy to build.
- Fun to use!

Requires two (2) "AA" batteries.

Space Battle
Model SCP-05
- Amuse yourself and your friends with exciting space battle sound effects!
- Laser ray and explosion sound effects.
- Fun to use!

Requires two (2) "AA" batteries.

Flying Saucer
Model SCP-06
- Press & release the switch and watch the saucer rise into the air!
- Easy to build.
- Fun to use!

Requires three (3) "AA" batteries.

SNAP CIRCUITS® EDUCATIONAL KITS

Elenco®'s new Snap Circuits® Kits make learning electronics a "snap". Just follow the colorful pictures in our manual and build over 750 projects, such as AM/FM radios, burglar alarms, flashlights, door-bells, and much more.

You can even play electronic games with your friends!
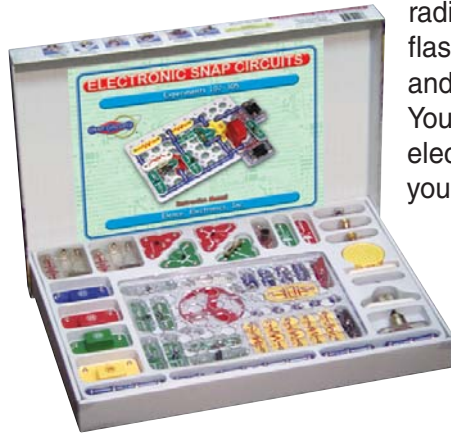
Contains over 80 parts that are mounted on plastic modules and snap together with ease. Enjoy hours of educational fun while learning about electronics. With our deluxe version, you will also learn about and use an oscilloscope and spectrum analyzer, as you build over 73 bonus experiments using your Windows-based PC. Comes with all of the interface parts you need and the software. Great for introducing electronics through a computer. No tools required. Uses "AA" batteries.

Create Your Own Exciting Experiments!

Deluxe Versions Contain Over 73 "Bonus" Computer Interfaced Experiments!

Ideal for Middle Schools, High Schools, and Vocational Institutions.

Project #242 AM Radio
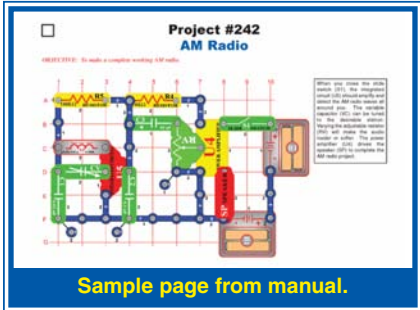
Sample page from manual.

Models Available

SC-750 - *Extreme Version*, contains over 80 parts to build over 750 experiments. Includes everything from SC-500 plus experiments in solar, electromagnetism, vibration switches, and 70 computer interfaced experiments.

SC-500S - *Deluxe Version*, same as SC-500 plus 73 bonus computer interfaced experiments.

SC-500 - *Snap Circuits® Pro*, contains over 75 parts to build over 500 experiments. Includes voice recording IC, FM radio module, analog meter, transformer, relay, 7-segment display and SCR.

SC-300S - *Deluxe Version*, same as SC-300 plus 73 bonus computer interfaced experiments.

SC-300 - *Standard Version*, contains over 60 parts to build 300 experiments using resistors, capacitors, LED's, switches, speaker, transistors, integrated circuits, and more.

SC-100 - *Snap Circuits® Jr.*, Contains over 30 parts.
Build over 100 experiments.

SNAP CIRCUITS® UPGRADES & PARTS

Custom Storage Case
Model SNAPCASE7
Parts sold separately

Heavy duty plastic case with 2 custom foam inserts for housing your Snap Circuits® parts. Easy to identify missing components. Also includes a separate small case to hold the smaller loose parts.

Snap Circuits® Battery Eliminator
Model AC-SNAP
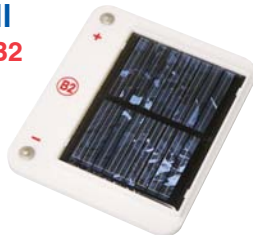
Works on all models of Snap Circuits®.

Create your own experiments!

All Snap Circuits® replacement parts are available on our website: www.elenco.com

Solar Cell
Model 6SCB2

Snap Protoboard
Model 6SCPB
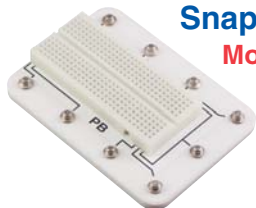
Motion Detector IC
Model 6SCU7

Upgrade Kits Available

Get the additional parts and manuals to take your Snap Circuits® set to the next level!

Model UC-30	Model UC-40
Converts SC-100 Snap Circuits® Jr. into SC-300 Snap Circuits®	**Converts SC-100 Snap Circuits® Jr. into SC-500 Snap Circuits® Pro**
includes 30 new parts (AM radio components, transistors, ICs, capacitors, resistors, & more) and 200 projects!	*includes 42 new parts, AM/FM radio, recorder, meter & more, and 400 projects!*
Model UC-50	**Model UC-60**
Converts SC-300 Snap Circuits® into SC-500 Snap Circuits® Pro	**Converts SC-100 Snap Circuits® Jr. into SC-750 Snap Circuits® Extreme**
includes 12 new parts (recording IC, transformer, FM radio, meter, & more) and 200 projects!	*includes 52 new parts, CI-73 computer interface, solar panel, and more than 650 projects!*
Model UC-70	**Model UC-80**
Converts SC-300 Snap Circuits® into SC-750 Snap Circuits® Extreme	**Converts SC-500 Snap Circuits® Pro into SC-750 Snap Circuits® Extreme**
includes 22 new parts, CI-73 computer interface, solar panel, and more than 450 projects!	*includes 10 new parts, CI-73 computer interface, solar panel, and more than 250 projects.*

Computer Interface for Snap Circuits®
Model CI-73

The CI-73 allows the SC-300 or SC-500 set to interface with a computer! With this module, you will learn about and use an oscilloscope and spectrum analyzer, as you build over 73 BONUS PROJECTS using your Windows-based PC (32 projects require the SC-500). Comes with all of the interface parts you need and the software. Great for introducing electronics through a computer. Acts as a scope and allows you to see the signals in the circuit. **Included FREE with SC-750!**
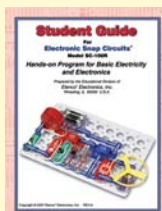
Teaching Aids for the Homeschooler - Student Guides

Educational Series - Teaches about Basic Electricity & Electronics in the everyday world using our Learn By Doing® concept!
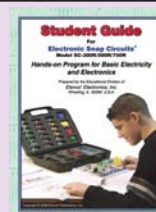
Junior Student Guide
753294

48 full color pages
*(Covers experiments 1-101)*

Student Guide
753307

Enhance your learning with detailed explanations and quizzes. 137 full-color pages covering all 750 Snap Circuits® projects! Ideal for ALL Snap Circuits® models. One book covers them all!

Teacher Guide
753290

The Teacher Guide is meant to prepare educators for proper introduction of Snap Circuits® and guide them through each chapter with quizzes for the students to test their knowledge.
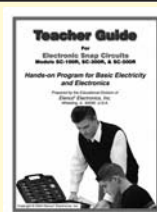
Snap Circuits® Training Program

Model SC-300R   Includes student & teacher guides

The Model SC-300R contains over 60 modular snap-together parts that will allow students to build over 300 experiments. With an easy-to-read color manual, students can jump right in and start building projects that teach about motors, batteries, lamps, speakers, resistors, capacitors and switches . . . just to name a few. Students as early as the 4th grade on up to high school will enjoy learning and have fun working with Snap Circuits®.

Topics Covered:
- Resistors
- Capacitors
- Transistors
- Motors
- Integrated Circuits
- Series Circuits
- Parallel Circuits
- Switches
- Batteries

Requires four (4) "AA" batteries (part # 590001).

Snap Circuits® Training Program

Model SC-100R

Includes student & teacher guides

The Model SC-100R contains over 30 parts to introduce students at the elementary level to the world of electricity and electronics. Build over 100 experiments from the easy-to-follow color manual by simply snapping all the parts in place. No tools needed. Student will learn about resistors, capacitors, motors, batteries, series/parallel circuits, and much more.

Topics Covered:
- Resistors
- Capacitors
- Transistors
- Motors
- Switches
- Series Circuits
- Parallel Circuits

Case included

Requires two (2) "AA" batteries (part # 590001).

NEW!

Snaptricity® Model SCBE-75

Learn how **electricity** and **magnetism** can be used to make each other. Learn about magnetic fields, how the electricity in your home works, how switches control the electricity to the lights in your home, and how series and parallel circuits affect electricity.
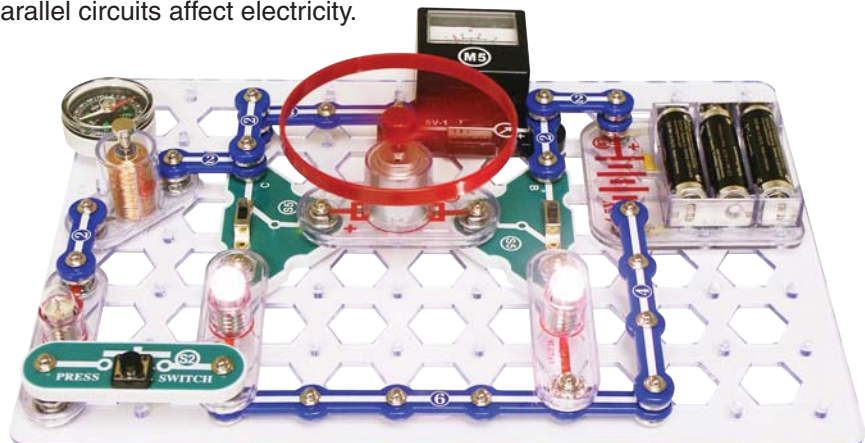
Features
- Over 40 parts
- Includes: Meter, electromagnet, motor, lamps, switches, fan, compass, and electrodes
- Educational toy: Projects that relate to electricity in the home and magnetism and how it is used.
- Build over 75 projects!

Requires three (3) "AA" batteries (part # 590001) or AC adapter (see page 45).

The following warning pertains to all products on this page.

⚠️ **WARNING: CHOKING HAZARD** Small parts. Not for children under 3 years.

SNAP CIRCUITS® EDUCATIONAL SERIES

Ideal for Middle Schools, High Schools, and Vocational Institutions.

Elenco® Electronics is proud to present four training programs to introduce your students to basic electricity and electronics. Through the development of Snap Circuits®, Elenco® has revolutionized the approach educators use in the teaching of basic electronics. Through the safe use of modules that easily snap together, students can construct hundreds of projects from simple light circuits to radios, burglar alarms, and much more. The teachers guide and student guide booklets make the administration of the program not only educational, but easy and fun.

Snap Circuits® Training Program

Model SC-750R Includes student & teacher guides

The Model SC-750R is an in-depth exploration of the electronic components included with the SC-750 Snap Circuits® Extreme. Ideal for use in home schooling, middle schools and high schools, where students will grasp the basic principles of electronics.

The **Student Guide** for the SC-750R includes 137 pages of educational curriculum. Written with the help of educators, the Student Guide is essential in covering all topics related to electricity and electronics being taught in middle schools and above. Includes real world applications and problem solving quizzes.

The teacher guide is meant to prepare educators for proper introduction of Snap Circuits® and guide them through each chapter with quizzes for students to test their knowledge.

Topics Covered:
- Resistors
- Capacitors
- Transistors
- Motors
- Integrated Circuits
- Diodes
- Series Circuits
- Parallel Circuits
- Motors
- Relays
- Transformers
- Digital Recording
- 7-segment Displays
- Solar Energy
- Electro-magnetism

Requires four (4) "AA" batteries (part # 590001).

Includes CI-73 Computer Interface to perform 73 projects on your PC based computer!
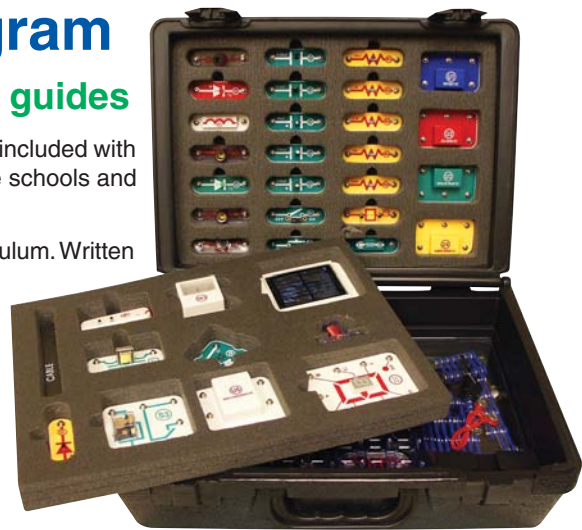
Custom Storage Case
Each SC-750R comes with a lightweight, durable case with custom foam inserts to store all Snap Circuits® parts. Easy to identify missing components.

Snap Circuits® Training Program

Model SC-500R Includes student & teacher guides

The Model SC-500R is an in-depth exploration of the electronic components included with the SC-500 Snap Circuits® Pro. Ideal for use in home schooling, middle schools and high schools, where students will grasp the basic principles of electronics.

The **Student Guide** for the SC-500R includes 137 pages of educational curriculum. Written with the help of educators, the Student Guide is essential in covering all topics related to electricity and electronics being taught in middle schools and above. Includes real world applications and problem solving quizzes.

The teacher guide is meant to prepare educators for proper introduction of Snap Circuits® and guide them through each chapter with quizzes for students to test their knowledge.

Custom Storage Case
Each SC-500R comes with a lightweight, durable case with custom foam inserts to store all Snap Circuits® parts. Easy to identify missing components.

Requires four (4) "AA" batteries (part # 590001).

Topics Covered:
- Resistors
- Capacitors
- Transistors
- Motors
- Integrated Circuits
- Diodes
- Series Circuits
- Parallel Circuits
- Motors
- Relays
- Transformers
- Digital Recording
- 7-segment Displays

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For all international inquiries, please contact our International Department.

Elenco® specializes in building kits for many of the largest schools in the country. Tell us what PC board, transformer, resistors, capacitors, semiconductors and hardware your school needs and we will package them for you. We also do custom design, complete with PC board layout and special cabinet or case.

WARRANTY

All Elenco® models are guaranteed for two full years on all parts and service. For the first three months, you receive full coverage at absolutely no charge. For the remaining 21 months, a nominal service charge is required to cover mailing and handling.

New and Larger Facility to Serve You Better Since 1972!

Distributor: