## Experimenters General Purpose Boards

Use these boards to quickly assemble prototype, school, and hobby projects. Available in different sizes to accommodate different project needs. Boards also feature number markings for easy positioning. #21-4570 is a dual project board.

| Fig.	Order #	# of holes	Dimensions	(1-9)	(10-up)
A	21-4570	220	1⅝" x 1⅝" x ³⁄₃₂"	$1.08	$0.87
B	21-4600	375	2" x 2¹³⁄₁₆" x ³⁄₃₂"	1.08	0.87
C	21-4605	2200	4½" x 6¼" x ³⁄₃₂"	1.60	1.39

Small IC Prototype Board

Board was designed for ICs to straddle center of board. There are 26 rows designated for IC pin connections with 2 additional connections for IC with added connections toward outer edges of board. Board measures 1¹⁵⁄₁₆" x 1¹¹⁄₁₆" x ³⁄₃₂".
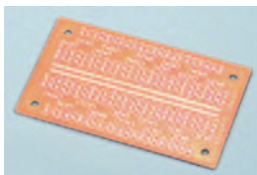
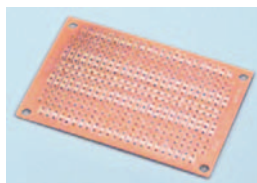| Order #	(1-9)	(10-up)
21-4575	$1.07	$0.86

Large PC Board

Large PC board has 2,036 holes for multiple connections and connected traces. Board measures 5½" x 4⁵⁄₁₆" x ³⁄₃₂"
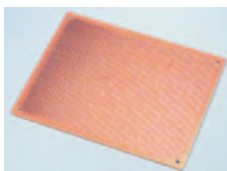
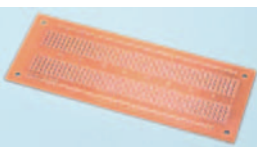| Order #	(1-9)	(10-up)
21-4585	$1.64	$1.42

Small PC Prototype Board

This prototype board features 25 rows of connections. The center two rows are one connection the length of the board. The outside 2 holes are common connection on both sides of the board and all rows. Each row also features 2 separate holes, 3 separate holes with 2 sets of 3 holes with common connections. Board measures 2¹³⁄₁₆" x 1¹³⁄₁₆" x ³⁄₃₂".

Order #	(1-9)	(10-up)
21-4590	$1.07	$0.86

Medium Size Prototype Board

This board was designed for medium sized circuits with room for several ICs and lots of components. The outside traces are all connected while the center was designed to accept multiple ICs with 45 traces available for multiple connections. Board dimensions are 5⅛" x 1⅞" x ³⁄₃₂".

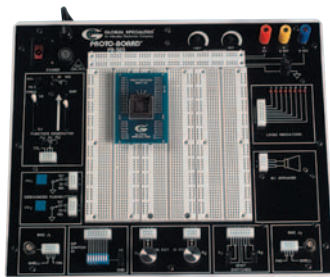| Order #	(1-9)	(10-up)
21-4580	$1.40	$1.07

IC Experimenters Board

Both boards are small boards which can be separated. Both board are capable of holding a 4 pin to 10 pin DIP IC. Excellent boards for prototyping, schools and hobbyist.

Fig.	Order #	Dimensions	(1-9)	(10-up)
A	21-4595	1¾" x 1¾" x ³⁄₃₂"	$1.08	$0.87
B	21-4610	1¹³⁄₁₆" x 1¹³⁄₁₆" x ³⁄₃₂"	1.08	0.87

GLOBAL SPECIALTIES

Proto-Board Bench-Top Work Station
LIFETIME WARRANTY

•Ideal for analog, digital and microprocessor circuits •Eight channel logic monitor •Function generator with continuously variable sine, square and triangle wave-forms and TTL pulses •Triple output power supply offers fixed 5VDC plus two variable outputs •Two digital pulsers •Audio experimentation speaker •Multiple features in one complete test instrument **Specifications: Power:** •Input: 3 wire AC line input 117V, 60Hz •Fixed DC output: +5V, 1.0A, <5mV ripple •Variable DC output: ±1.3V~±15V, 0.5A, <5mV ripple **Function generator:** •Frequency range: 0.1Hz~100KHz in six ranges •Output voltage: 0 ±10V (20V p-p) •Output impedance: 600ohm (except TTL) •Output current: 10mA maximum **General:** •Dimensions: 16" (W) x 16½" (H) x 11½" (D) •Weight: 7 lbs. •Lifetime warranty on all bread boarding sockets and three years on all parts and workmanship

| Order #	Mfr. #	(ea.)
21-4480	PB-503	$299.99

Solderless Breadboards

•The perfect breadboards for circuit designing, testing electronic devices and educational uses •Great for high frequency, high speed and low noise circuits •Red and black binding posts •1260 terminal strip tie points •100 distribution strip tie points •Dimensions: 4"(W) x 8½" (L) x ¾" (D)
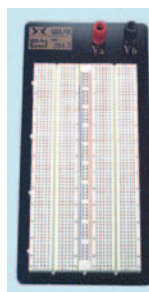
Order #	(1-9)	(10-up)
72-340	$20.35	$18.32

Solderless Breadboards

•Red, yellow, green and black binding posts •1890 terminal strip tie points and 500 distribution strip tie points •Dimensions: 6⅞" (W) x 9" (L) x ¾" (D)
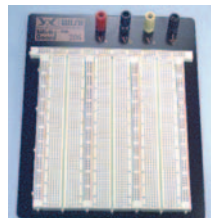
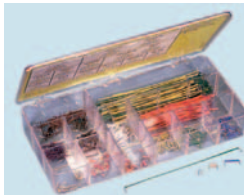| Order #	(1-9)	(10-up)
72-345	$29.95	$27.50

GLOBAL SPECIALTIES
Jumper Wire Kit

•Contains pre-cut/ pre-stripped/pre-formed 22AWG insulated solid hook-up wire •25 pieces each of 14 color-coded lengths - 0.1"~5.0" for a total of 350 wires •Compartmental plastic case •Each group of wires are individually wrapped to prevent mix-up.

Order #	Mfr. #	(kit)
72-7845	WK-1	$14.75

3M
Jumper Wire Kit

•An absolute must for fast and efficient breadboard projects •350 pieces, 25 each of 14 lengths •Tin-plated •Solid 22AWG •Color-coded PVC insulation •Mfr. #923351

Order #	(kit)
108-550	$20.38

Project Accessories

NEW! NEW! NEW!

ELENCO Jumper Wire Kit

Contains 140 lengths of pre-stripped, pre-formed #22 solid wire in various colors. Contains 14 different lengths of ten pieces each. Includes a plastic case. Dimensions: 2" (H) x 6½" (W) x ½" (D).

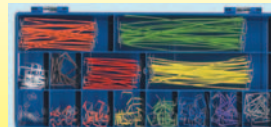| Order #	(1-4 kits)	(5 kits-up)
102-145	$5.19	$4.89

ELENCO Jumper Wire Kit

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 10½" (W) x 1¼" (D).

Order #	(1-4 kits)	(5 kits-up)
102-155	$12.95	$10.95

Power Transformers

These high-quality power transformers can be used in new equipment or as replacements. Popular high-current outputs. Heavy-duty casing has holes for chassis mounting. Standard solder lugs on the input and output. Primary: 117VAC, 60Hz.

Order # Description	Dimensions (W) x (H) x (D)	Primary	Secondary	(ea.)
28-0010 12.6V	2½" x 1¹¹⁄₁₆" x 1⅞"	117VAC	Center tap 12.6V 1.2A	$5.45
28-0015 25.6V	2¼" x 2¾" x 2⅞"	117VAC	Center tap 25.6V 2.0A	7.54

GLOBAL SPECIALTIES
Pro-S Lab Station

•Perfect for beginners and students **Includes:** •Solderless breadboard •DC power pack power supply rated +5VDC @ 1A, +12VDC @ 250m, -12VDC @ 250mA •Power connector to connect power supply to breadboard •Jumper wires, 25 precut pieces of color-coded, 22AWG, insulated solid hook-up wire.

Order #	Mfr. #	(ea.)
72-7840	Pro-S	$75.00

BUD NEMA–4 Rated Die–Cast Aluminum Boxes

Provides all of the same benefits as the standard die–cast aluminum boxes, plus they meet IP65 of IEC 529 NEMA–4 specifications. These water–proof aluminum alloy enclosures are ideal for mounting sensitive electronic assemblies in harsh commercial and industrial environments. Separately available cable glands allow similarly rated cable to exit the enclosure, and maintain the NEMA–4 rating.

Order #	Dimensions (L) x (W) x (H)	(1-2)	(3-up)
28-8645	2.52" x 2.28" x 1.38"	$5.70	$5.13
28-8646	4.53" x 2.56" x 1.18"	8.27	7.44
28-8647	4.53" x 2.56" x 2.17"	10.07	9.06
28-8648	4.53" x 3.54" x 2.17"	11.78	10.60
28-8649	8.75" x 5.75" x 2.17"	22.61	20.35

Cable Glands (sold individually)

Order #	Mounting Hole (dia.)	Usable Cable (dia.)	(1-2)	(3-up)
28-8650	0.5"	0.12"~0.26"	$1.62	$1.46
28-8651	0.61"	0.16"~0.31"	1.62	1.46
28-8652	0.73"	0.20"~0.39"	1.72	1.55
28-8653	0.81"	0.24"~0.47"	2.15	1.94
28-8654	0.89"	0.39"~0.55"	2.34	2.11
28-8655	1.12"	0.51"~0.71"	2.97	2.67
28-8656	1.47"	0.71"~0.98"	6.43	5.78

BUD ABS Project Enclosures

These highly popular black finish ABS boxes feature a textured finish, close fitting interlocking lids, and threaded screw inserts for lid attachment. Each meets flammability rating UL94-5VA and have a suggested service temperature of -20°~70°C (-4~158°F).

Order #	Dimensions (H x W x L)	(1-2)	(3-up)
28-8675	4.60" x 3.10" x 1.87"	$6.84	$6.16
28-8676	4.60" x 4.60" x 2.37"	7.22	6.50
28-8677	6.00" x 4.60" x 2.37"	8.74	7.87
28-8678	7.60" x 4.60" x 2.37"	10.07	9.06
28-8679	8.25" x 5.15" x 3.12"	16.35	14.72

BUD ABS Project Enclosures with Aluminum Lid

These highly popular black finish ABS boxes include a 0.05" thick anodized aluminum lid. Internal card guides are spaced at 0.53" centers, and accept 0.06" thick cards. Each meets flammability rating UL94-HB.

Order #	Dimensions (H x W x L)	(1-2)	(3-up)
28-8682	6.10" x 3.54" x 1.97"	$10.74	$9.67
28-8683	8.66" x 5.32" x 2.95"	20.62	18.55

BUD Die–Cast Aluminum Project Box

Thick aluminum enclosures feature close tolerance flanges providing excellent strength and shielding characteristics. They are perfect for highly sensitive audio and RF applications. The lid is attached via six included machine screws. Natural gray color.


Order #	Dimensions (L) x (W) x (H)	(1-2)	(3-up)
28-8641	4.37" x 2.37" x 1.21"	$6.84	$5.90
28-8642	4.68" x 3.68" x 2.21"	11.02	9.92
28-8643	7.39" x 4.70" x 2.21"	18.62	16.76
28-8644	7.39" x 4.70" x 3.21"	21.85	19.67

BUD ABS Project Enclosures

Standard low-cost enclosures are ideal for most typical project applications. Flush mounted black colored screws match the black textured ABS surface for improved looks. Internal PCB mounting bosses allow easy insertion of custom PC boards. Each meets flammability rating UL94-5VA.

| Order #	Dimensions (H x W x L)	(1-2)	(3-up)
28-8685	3.33" x 2.48" x 1.10"	$4.94	$4.45
28-8686	2.54" x 2.54" x 1.00"	4.66	4.19
28-8687	3.35" x 3.35" x 1.35"	5.61	5.04
28-8688	4.21" x 2.85" x 1.10"	5.42	4.87
28-8689	4.60" x 3.35" x 1.35"	6.46	5.81
28-8690	5.60" x 3.85" x 1.35"	7.51	6.75
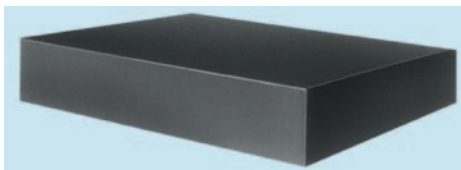
BUD Aluminum Chassis

These chassis are perfect for top mounted external components, where easy access underneath is required. 0.04" (minimum) welded aluminum construction provides outstanding durability. Natural finish. **Note:** Bottom cover plate is not included.

Order #	Dimensions (L x W x H)	(1-2)	(3-up)
28-8605	4" x 6" x 2"	$8.65	$7.78
28-8607	5" x 9.5" x 2"	11.40	10.26
28-8609	7" x 7" x 2"	9.88	8.89
28-8610	7" x 9" x 2"	11.88	10.69
28-8611	7" x 11" x 2"	14.50	13.00
28-8612	7" x 13" x 2"	15.80	14.20
28-8613	7" x 17" x 2"	23.95	21.56
28-8615	5" x 7" x 3"	12.07	10.86
28-8616	5" x 9.5" x 3"	14.35	12.91
28-8619	7" x 12" x 3"	19.25	17.29
28-8621	7" x 17" x 3"	25.69	23.00

BUD Aluminum "Converta" Project Boxes

0.05" welded aluminum base, and two sided cover allow greater flexibility when mounting controls and components. Natural finish.
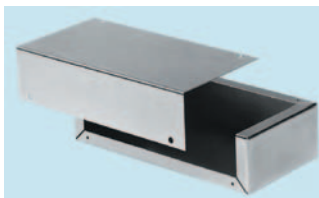
Order #	Dimensions (L x W x H)	(1-5)	(6-up)
28-8595	1.5" x 4.0" x 3.0"	$11.12	$10.00
28-8596	2.0" x 5.0" x 4.0"	12.07	10.86
28-8597	2.0" x 8.0" x 4.0"	13.68	12.31
28-8598	2.5" x 9.5" x 5.0"	15.01	13.51
28-8599	2.5" x 12.0" x 6.0"	19.76	17.78
28-8600	2.5" x 15.0" x 7.0"	27.17	24.45

BUD Mini Project "Bud" Boxes

Standard two–piece enclosures are popular for all types of hobbyist and prototype projects, as well as sub–enclosures in larger assemblies. Flanged sections assure proper shielding and may be either snapped or screwed together. Constructed from 0.04" aluminum alloy, natural finish.

Order #	Dimensions (L x W x H)	(1-5)	(6-up)
28-8570	2.75" x 2.12" x 1.62"	$3.33	$3.00
28-8571	3.25" x 2.12" x 1.62"	3.23	2.91
28-8572	4.00" x 2.12" x 1.62"	4.09	3.67
28-8573	4.00" x 2.25" x 2.25"	3.80	3.51
28-8574	5.00" x 2.25" x 2.25"	4.56	4.10
28-8575	5.00" x 4.00" x 3.00"	5.80	5.22
28-8576	5.25" x 3.00" x 2.12"	4.66	4.19
28-8577	6.00" x 5.00" x 4.00"	9.50	8.55
28-8578	7.00" x 5.00" x 3.00"	7.41	6.67
28-8579	8.00" x 6.00" x 3.50"	13.49	12.09
28-8580	10.00" x 6.00" x 3.50"	15.11	13.59
28-8581	12.00" x 7.00" x 4.00"	21.40	19.20

BUD Steel Wall Mount Box

All steel construction features a hinged front door, and slotted rear surface, allowing easy mounting to wall, panel or post. Equipment mounting panels and panel mounting brackets are available as optional accessories. All have a textured white finish.

Order #	Dimensions (L x W x H)	(1-2)	(3-up)
28-8626	8" x 10" x 4"	$47.80	$43.00
28-8627	10" x 12" x 4"	58.00	52.00
28-8629	12" x 12" x 6"	89.00	80.00

Panel Mounting Accessories

Order #	Description	(1-2)	(3-up)
28-8632	11.0" mounting bracket pair	$5.35	$4.80

HAMMOND MANUFACTURING

## ABS General Purpose Cases

• Molded in smooth, black styrene plastic which is ideal for labels, silk screens, and decals • Cases come with interlocking flange lid, 0.062" molded PC card guides, and self tapping screws • Average wall thickness is 0.079"

Order # Mfr.#	(H) x (W) x (D)	(1-9)	(10-24)	(25-up)
21-4800 1591LSBK	3.34" x 2.20" x 1.38"	$3.38	$3.07	$2.75
21-4802 1591ASBK	3.93" x 1.97" x 0.82"	3.11	2.78	2.47
21-4806 1591CSBK	4.72" x 2.55" x 1.41"	3.64	3.33	3.00
21-4808 1591DSBK	5.90" x 3.14" x 1.80"	4.50	4.19	3.86
21-4810 1591ESBK	7.47" x 4.33" x 2.24"	6.25	5.61	5.29
21-4818 1591USBK	4.72" x 4.72" x 2.17"	5.91	5.59	5.37

Breadboard Module

• Snap together design lets you make any size breadboard by combining segments • 630 plug-in tie points and four distribution strips, each with 50 plug-in tie points • Dimensions: 2¼" (W) x 6½" (L) x ½" (D)
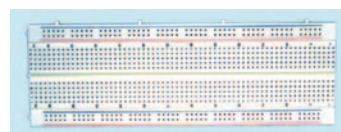
| Order #	(1-9)	(10-up)
72-337	$10.25	$9.23

HAMMOND MANUFACTURING

Diecast Aluminum Boxes

•Aluminum alloy boxes with countersunk lid and tumbled surface have RF shielding capabilities, making them ideal for RF connectors •Aluminum alloy allows for easy drilling and punching with the durability of metal •All units include four 6-32 x Phillips screws •Part #'s 21-4832 to 21-4848 are natural finish •#21-4878 is black

| Order # Mfr.#	(H) x (W) x (D)	(1-9)	(10-24)	(25-up)
21-4832 1590A	3.62" x 1.50" x 1.07"	$7.31	$6.55	$6.34
21-4834 1590B	4.37" x 2.47" x 1.07"	7.83	7.20	6.77
21-4836 1590BB	4.68" x 3.69" x 1.18"	9.43	8.89	8.58
21-4838 1590C	4.68" x 3.69" x 2.06"	10.38	9.95	9.53
21-4840 1590D	7.39" x 4.70" x 2.06"	17.54	16.45	15.92
21-4848 1590S	4.33" x 3.23" x 1.58"	10.43	10.10	9.67
21-4878 1590V	4.72" x 4.72" x 3.54"	25.78	24.70	23.63
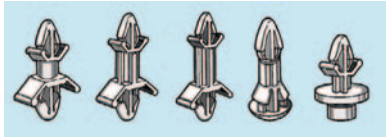
Nylon PC Board Spacers

•Provides board to board or chassis to board connection •Arrow-type locking head snaps into 0.187" diameter hole •No tools required •Single and dual sided mounting •25 per bag

			Price Per Bag	
Order#	Mount type	Space Height	(1-4)	(5-up)
83-2235	Dual sided	¼"	$1.83	$1.32
83-2240	Dual sided	⅜"	1.83	1.32
83-2250	One sided	¼"	1.83	1.32
83-2255	One sided	⅜"	1.83	1.32
83-2260	One sidedslide	⁵⁄₃₂"	1.83	1.32

### APEM COMPONENTS, INC.

Machined Aluminum Control Knobs

•Anodized natural or black finish •Anti-static plastic insert in shelled aluminum knobs •Straight knurl with line indicator on top and side •Two #6-32 set screws •Height: .638"
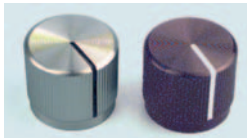
Order #	Finish	Shaft Size	Diameter	(1-9)	(10-49)	(50-up)
Solid aluminum knobs						
26-1530	Natural	¼"	.5"	$2.55	$2.31	$2.04
26-1535	Black	⅛"	.5"	2.55	2.31	2.04
26-1540	Black	¼"	.5"	2.55	2.31	2.04
Shelled aluminum knobs with plastic insert						
26-1545	Natural	¼"	.75"	2.86	2.65	2.35
26-1555	Black	¼"	.75"	2.86	2.65	2.35
26-1560	Black	¼"	.94"	3.06	2.65	2.35

APEM COMPONENTS, INC.

Control Knobs

•Molded phenolic with black gloss finish •Ribbed with white line indicator on side •Anti-static plastic •Spun aluminum inlay •#6-32 set screw •Approximately ½" height
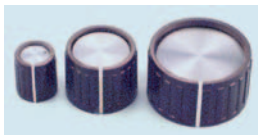
Order #	Shaft Size	Diameter	(1-9)	(10-49)	(50-up)
26-1490	⅛"	.410"	$1.22	$1.01	$0.91
26-1495	⅛"	.550"	1.22	1.01	0.91
26-1500	¼"	.550"	1.22	1.01	0.91
26-1505	¼"	.660"	1.22	1.01	0.91
26-1510	¼"	.740"	1.22	1.01	0.91
26-1520	¼"	1.050"	1.42	1.28	1.12

HAMMOND MANUFACTURING

Plastic Enclosures

•Rugged enclosures come with interlocking flanged lid and self tapping screws •Ideal for mounting printed circuit boards •Average wall thickness 0.124" •Gray color

Order # Mfr.#	(H) x (W) x (D)	(1-9)	(10-24)	(25-up)
21-4822 1594ASGY	2.17" x 2.17" x 1.10"	$4.62	$4.19	$3.86
21-4828 1594DSGY	5.12" x 2.56" x 1.70"	5.29	4.98	4.65
21-4830 1594ESGY	6.50" x 4.13" x 2.09"	7.31	6.55	6.34

Piezo Electronic Buzzers

•Operating voltage: 3~28VDC •Rated maximum current: 20mA •Sound output level: Minimum 85dB at 10cm

Order #	Resonant Freq. (KHz)	(dia)	(1-9)	(10-up)
28-735	6.6~0.6	28mm	$1.99	$1.45
28-740	4.7~0.5	35mm	1.99	1.45
28-745	2.8~0.5	50mm	1.99	1.45

Piezo Electric Element (Transducer)

•Commonly used in alarm glass breakage detectors •Works as microphone or buzzer •Generates voltage when flexed by sound or pressure •Ten per package

Order #	(1-3 pkgs.)	(4-9 pkgs.)	(10 pkgs.-up)
35-610	$3.39	$3.19	$2.89

Control Knobs

High impact black plastic knobs have metal bushings and set screws. Fits ¼" diameter shaft. Ideal for projects, prototype or replacement use. Two per package. **Note:** Height and diameter are approximate.
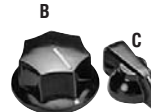
Fig.	Order #	Description (H) x (D)	Price Per Package (1-9)	(10-49)	(50-up)
B	50-1935	Line pointer ⅝" x ¾"	$1.99	$1.79	$1.49
C	50-1955	Bar pointer ½" x 1¼"	1.99	1.79	1.49

Rubber Grommets

•100 per bag •Black

Order #	(I.D.)	(O. D.)	(1-9 pkgs.)	(10 pkgs.-up)
28-1075	⅛"	⁵⁄₁₆"	$5.11	$4.70
28-1080	³⁄₁₆"	⅜"	5.63	5.11
28-1085	⁵⁄₁₆"	⁹⁄₁₆"	5.93	5.42
28-1090	¼"	½"	6.14	5.73
28-1095	⅜"	⅝"	6.55	6.14

Cord Strain Relief Bushings

•Accommodates standard 18 gauge zip cord •½" hole required for installation •100 per package
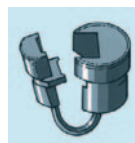
Order #	(1-9 pkgs.)	(10 pkgs.-up)
28-680	$5.42	$4.29

Project Boxes

•Gray plastic boxes with slots inside to hold PC boards •Lid with hardware included •Measurements are inside dimensions

Order #	Dimensions (W) x (L) x (D)	(ea.)
28-960	2" x 4" x 1⅝"	$2.99
28-965	2⁵⁄₁₆" x 4⅞" x 1⅝"	3.49
28-970	3³⁄₁₆" x 5¹⁄₁₆" x 2"	3.99
28-975	4⁵⁄₁₆" x 7¼₆" x 2⅜"	4.99

Solid State Electronic Buzzers

•All purpose buzzers ideal for burglar alarms, fire alarms, car back-up alarms and much more •High reliability •Thin and lightweight •4.5mA

| Order #	Voltage (VDC)	Type	(1-9)	(10-up)
28-1650	12	Lead wire	$1.66	$1.45
28-1675	12	Lead wire	1.56	1.35
28-1645	6	Lead wire	1.66	1.45
28-1680	6	Lead wire	1.53	1.33

Piezo Electronic Buzzers

•Ideal for use in computers, telephones and door bells •For 3~20VAC •PC pin type 2mA resonant current •Frequency: 6.5±0.5KHz •Diameter: 24mm

Order #	(1-9)	(10-up)
28-1610	$1.03	$0.83

Adhesive Rubber Feet

Perfect for finishing off the latest project or prototype. Also great for replacing lost or damaged feet on existing equipment. Non-skid rubber material helps stabilize enclosure while protecting shelf finish. Peel and stick adhesive allows easy application. Black color, four per package.
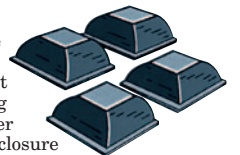
		Price Per Package		
Order #	Dimensions	(1–4)	(5–9)	(10–up)
28-940	0.82" x 0.82" x 0.31"	$0.99	$0.87	$0.74
28-941	0.51" x 0.51" x 0.25"	0.99	0.87	0.74
28-942	0.49" x 0.49" x 0.24"	0.99	0.87	0.74
28-943	0.51" x 0.51" x 0.16"	0.99	0.87	0.74

ICO-RALLY

Vinyl Grommet Assortment Pack

•Includes a total of 28 pieces •Assorted sizes: ½" , ⁷⁄₁₆" and ⅝" •Black

Order #	(1-9 pkgs.)	(10 pkgs.-up)
95-575	$3.06	$2.55

ICO-RALLY

Vinyl Grommet Variety Pack

•Includes a total of 26 pieces •Assorted sizes: ¼", ⁵⁄₁₆", ⅜", ⁷⁄₁₆", ½", ⅝", ²¹⁄₃₂", ⅞" and 1" •Black

Order #	(1-9 pkgs.)	(10 pkgs.-up)
95-580	$3.02	$2.51

19

AC/DC Brushless Cooling Fans

MCM's line of square cooling fans will help you prolong the life and reliability of your computer, office machine, power supply and much more. Available in ball or sleeve bearing design.

AC Fans
•115VAC

Order #	(A)	(CFM)	Size	Bearing	(1-4)	(5-up)
28-1720	.13	32	3⅛" x 1½"	Ball	$21.95	20.50
28-1690	.24	105	4⅝" x 1½"	Sleeve	19.95	18.50
28-1725	.24	105	4⅝" x 1½"	Ball	22.95	21.50

DC Fans
•12VDC

Order #	(A)	(CFM)	Size	Bearing	(1-4)	(5-up)
28-1730	.10	5.4	1⁹⁄₁₆" x ¾"	Ball	$7.99	$6.50
28-1700	.09	12.7	2⅜" x 1"	Sleeve	9.99	8.75
28-1735	.09	12.7	2⅜" x 1"	Ball	9.99	8.50
28-1705	.12	19.8	3⅛" x 1"	Sleeve	10.99	9.75
28-1740	.12	19.8	3⅛" x 1"	Ball	10.99	9.50
28-1710	.16	25.2	3⅝" x 1"	Sleeve	11.99	10.75
28-1745	.16	25.2	3⅝" x 1"	Ball	11.99	10.50
28-1750	.20	54.0	4¾" x 1"	Ball	16.99	15.50

NEW! NEW! NEW!

ELENCO
Basic Parts Kit

Contains: Resistors: ¼W, five 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, two each, 1µF, 4.7µF, 10µF, 47µF, 100µF, 470µF, 1000µF. **Mylar Capacitors:** 100V Radial DIP, two each, .001mF, .0047mF, .01mF, .047mF, .1mF, .33mF. **Ceramic Disc Capacitors:** 500V, two each, 2.2pF, 4.7pF, 10pF, 1pF, 22pF, 47pF, 100pF, 220pF, 470pF, 680pF. **Inductors:** One each, 4.7µH, 10µH, 47µH, 100µH, 470µH, 1µH, 10µH, 33µH. **Trimpots:** Single turn, one each, 500Ω, 1KΩ, 5KΩ, 50KΩ, 100KΩ, 500KΩ, 1MΩ. **Switches:** Two each, push-button, SPDT slide, DPDT slide, 8-position DIP. **LEDs:** Standard T 1 ¾ size, 5 each, red, green, yellow. **Displays:** Two each, 7-segment common cathode, 7-segment common anode. **Integrated Circuits:** Two each, 7805, 7812 regulators, LM386 audio amp, 555 timer, 741 Op-amp, 74LS00, 74LS02, 74LS08, 74LS10, 74LS47, 74LS74, 74LS86, CD4013, CD4017. **Transistors:** Two each, PN2222, PN2907, 2N3055, 2N3904, 2N3906, 2N5457. **Diodes:** Two 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. All housed in a plastic parts container, dimensions: 11" x 7" x 1½"

Order #	(1-4 kits)	(5 kits-up)
102-150	$69.95	$65.95

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SPC TECHNOLOGY — AC Tubeaxial Fans

Black die-cast aluminum housing and thermoplastic impeller, rated UL94V-0. Life-lubricated ball bearing system or oil-impregnated sintered sleeve bearing system. Reliable shaded-pole motor. Connect by two 24AWG lead wires or two 0.120W x 0.020" thick (3.0 x 0.5) terminals. All models are 50/60Hz. UL recognized.

Order #	Type	Connect	Bearing	VAC	Watts	rpm	cfm	dBA	(1-9)	(10-24)
4.76" Square x 1.50" Deep (120 SQ. x 38) High-speed version										
N-84N1519	MC1123HST	T	S	115	18	2900	105	48	$9.45	$8.50
N-84N1520	MC1123HBT	T	B	115	18	3050	107	50	14.85	14.02
N-92N4751	MC1123HSL	L	S	115	18	2900	105	48	12.36	11.66
N-84N1521	MC2123HST	T	S	220/240	19	2900	105	48	12.36	11.66
N-84N1522	MC2123HBT	T	B	220/240	19	3050	107	50	14.85	14.02
N-92N4752	MC2123HSL	L	S	220/240	19	2900	105	48	12.36	11.66
4.76" Square x 1.50" Deep (120 SQ. x 38) Low-speed version										
N-84N1517	MC1123LST	T	S	115	11	2200	76	38	12.36	11.66
N-92N4753	MC1123LSL	L	S	115	11	2200	76	38	12.36	11.66
N-84N1518	MC2123LST	T	S	220/240	10	2200	76	38	12.36	11.66
N-92N4754	MC2123LSL	L	S	220/240	10	2200	76	38	12.36	11.66
4.76" Square x 1.00" Deep (120 SQ. x 25) High-speed version										
N-84N1515	MC1122HBT	T	B	115	18	2300	78	46	14.85	14.02
N-92N4755	MC1122HBL	L	B	115	18	2300	78	46	14.85	14.02
N-84N1516	MC2122HBT	T	B	220/240	18	2300	78	46	14.85	14.02
N-92N4756	MC2122HBL	L	B	220/240	18	2300	78	46	14.85	14.02
3.62" Square x 1.00" Deep (92 SQ. x 25)										
N-84N1511	MC1092HST	T	S	115	12	2750	36	39	12.36	11.66
N-84N1513	MC1092HSL	L	S	115	12	2750	36	39	12.36	11.66
N-84N1512	MC2092HST	T	S	220/240	14	2750	36	39	12.36	11.66
N-84N1514	MC2092HSL	L	S	220/240	14	2750	36	39	12.36	11.66
3.18" Square x 1.50" Deep (80 SQ. x 38)										
N-92N4757	MC1083HSL	L	S	115	12	2750	30	35	12.36	11.66
3.18" Square x 1.00" Deep (80 SQ. x 25)										
N-92N4758	MC1082HBL	L	B	115	11	2900	22	34.5	14.85	14.02
N-92N4759	MC2082HBL	L	B	220/240	13.5	2900	22	34.5	14.85	14.02

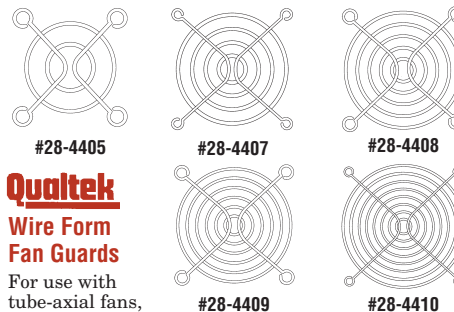*****Not UL recognized; Connection: T = terminals, L = lead wires; Bearings: S = sleeve, B = ball**

Qualtek
Plastic Fan Filter Assemblies

Assemblies consist of guard, polyurethane foam filter media and media retainer for tube-axial fans. Easy to install, secure the guard portion with mounting screws, (not included) then snap-on the retainer and filter media with no extra hardware or brackets. When the filter requires maintenance, the guard and fan do not need to be removed. Just remove retainer and clean or replace the media.

Order # Description	Mfr. #	Center Hole	(ea.)
3⅛" Fan Size			
28-4413 Guard, retainer, media	09325-F/30	2.81"	$3.06
28-4414 Guard, retainer, media	09325-F/45	2.81"	3.06
3⅝" Fan Size			
28-4416 Guard, retainer, media	09362-F/45	3.25"	3.37
4.5" Fan Size			
28-4418 Guard, retainer, media	09450-F/45	4.13"	4.09

Qualtek
Wire Form Fan Guards

For use with tube-axial fans, .25" maximum ring spacing for compliance with domestic and international safety requirements.

#28-4405 #28-4407 #28-4408
#28-4409 #28-4410

Order #	Mfr. #	Fan Size	Hole Center	(ea.)
28-4405	08149	1.5"	1.26"	$1.63
28-4407	08147	2.5"	1.97"	1.73
28-4408	08172	3.125"	2.81"	1.63
28-4409	08174	3.625"	3.25"	1.73
28-4410	08170	4.5"	4.13"	2.01

Qualtek
#28-4437 #28-4438 #28-4439

Fan Power Cords

Tube-axial fan power cords with strain relief. UL listed 10A/125VAC and CSA certified 7A/125VAC. 24" SPT-1, two-conductor cord.

Order #	Mfr. #	Description	(ea.)
28-4437	07100-24	Straight style	$1.73
28-4438	07145-24	45 Style	1.73
28-4439	07190-24	90 Style	1.73

Snap Bushings
•Black •50 per bag

Order #	(I.D.)	(O. D.)	(1-9 pkgs.)	(10 pkgs.-up)
28-2000	³⁄₁₆"	⁵⁄₁₆"	$2.18	$1.98
28-2005	¼"	⅜"	2.18	1.98
28-2006	⁵⁄₁₆"	⁷⁄₁₆"	2.88	2.55
28-2010	⅜"	½"	2.18	1.98
28-2015	½"	⅝"	2.82	2.50
28-2020	⁹⁄₁₆"	¾"	2.82	2.50
28-2025	¹¹⁄₁₆"	⅞"	3.34	2.82
28-2030	¾"	1"	3.96	3.65
28-2035	¹⁵⁄₁₆"	1¼"	4.38	3.96

Continuous Grommets

•Protects wires, cables and cords against damage from sharp panel edges
•Simply cut to fit any size or shape opening
•Clear •100' length

Order #	Size	Gauge	(ea.)
21-3695	Up to .036"	20	$8.68
21-3696	.037"~.105"	18~12	9.85

GC ELECTRONICS — Developing and Etching Trays

Set of three for developing and etching PC boards. Plastic tray for positive method developing and for etching. Aluminum trays for negative method developing. Kit includes two 5¼" x 7¼" plastic trays and one 4¼" x 6¾" aluminum tray (inside dimensions).

Order #	(1-4 kits)	(5 kits-up)
21-3930	$6.12	$5.69

PC Board Etching Solution

This ferric chloride solution is one of the most effective and safest etching materials for copper clad PC boards. 6 oz. will etch about 180 sq. inches of PC board. Use only in plastic or glass trays.
•Size: 32 fl. oz.

Order #	(1-4)	(5-up)
21-3881	$13.11	$11.50

GC ELECTRONICS — Pure Copper Circuit Tape

6' roll of self-adhesive pure copper tape for quick repairs or circuit modification. Adheres readily to PC boards and similar surfaces; solders readily. Flexible enough to be used around corners, between PC boards, between board and chassis, etc. Extremely low resistance (.020" thick). Supplied on 1" I.D. core.

Order #	Width	(1-4)	(5-up)
21-3840	¹⁄₁₆"	$3.00	$2.78
21-3841	⅛"	3.43	3.11

GC ELECTRONICS — Printed Circuit Boards

One ounce copper on base of either FR-4 (G-10) fiberglass or CEM-1 type epoxy reinforced board. Copper on one side.

Order #	Size	(1-4)	(5-up)
21-3851	3" x 5"	$2.14	$1.92
21-3852	4" x 6"	3.00	2.68
21-3853	6" x 6"	3.76	3.43
21-3854	6" x 9"	5.37	4.83
21-3855	8" x 10"	8.27	7.63
21-3856	11" x 14"	15.88	15.02

GC ELECTRONICS — Positive Pre-Sensitized PC Boards

Made of ¹⁄₁₆" thick glass epoxy base with one ounce copper. Coated with positive etch resist photo sensitizer. Base is FR-4 (G-10) fiberglass. Dielectric constant at 1MHz = 5.3.

Order #	Size	(1-4)	(5-up)
Copper One Side			
21-3871	3" x 4"	$5.91	$5.37
21-3872	3" x 6"	6.45	5.91
21-3873	4" x 6"	7.41	6.77
21-3875	6" x 9"	12.38	11.30
21-3876	7" x 10"	15.02	13.72
21-3877	12" x 12"	30.08	27.71
Copper Both Sides			
21-3862	6" x 9"	15.60	14.26
21-3863	12" x 12"	32.61	29.96

GC ELECTRONICS — Small Printed Circuit Repair Kit

For repair and servicing of printed circuits.
Kit contains: Solder aid tool, low-melt solder, PC repair foil, fiberglass eraser, tweezers, 2 oz. Print-Kote, 2 oz. Print-Kote solvent and assorted fluxed solder washers.

Order #	(kit)
21-3825	$32.50

SPC TECHNOLOGY — Combo Pan Head Sheet Metal Screw Kits

Combo pan head sheet metal screws are steel with zinc plating. Combo head allows for installation and removal with either flat or Phillips screw drivers. Kit contains a total of 16 items and 330 pieces including: 25 each of #6 x ½", #6 x 1", #8 x ½", #8 x ¾", #8 x 1", #10 x ½"; 20 each of #10 x ¾", #10 x 1", #10 x 1½", #12 x ½", #12 x ¾", #12 x 1", #14 x ½", #14 x 1"; 10 each of #12 x 1½", #14 x 1½". Includes 18 compartment storage case.

Order #	(kit)
28-6510	$27.22

SPC TECHNOLOGY — Hex Head "Tek" Screw Kit

Screws are steel with zinc plating and self-drilling points. Kit contains 18 items and 215 pieces including:
•15 each: #6 x ½", #6 x ¾", #6 x 1", #8 x ½", #8 x ¾", #8 x 1", #8 x 1¼", #10 x ¾", #10 x 1", #10 x 1¼" •10 each: #10 x 1½", #12 x ¾", #12 x 1", #12 x 1¼", #14 x 1" •5 each: #12 x 1½", #14 x 1¼", #14 x 1½" •Includes 18 compartment storage case.

Order #	(kit)
28-6520	$22.50

SPC TECHNOLOGY — Flat Head Machine Screws

•Nickel-plated steel binder head screws
•100 per package

Order #	Thread	Length	Price Per Package (1-9)	(10-up)
28-6660	#4-40	¼"	$2.39	$1.89
28-6665	#4-40	½"	2.59	2.09
28-6670	#4-40	¾"	2.79	2.29
28-6690	#6-32	½"	1.59	1.29
28-6705	#8-32	⅜"	1.89	1.49
28-6720	#10-32	½"	3.09	2.49
28-6725	#10-32	¾"	3.69	2.89

SPC TECHNOLOGY — Hex Machine Screw Nuts

Order #	Thread	Width	Price Per Package (1-9)	(10-up)
28-6885	#2-56	³⁄₁₆"	$1.99	$1.59
28-6895	#4-40	¼"	1.29	0.99
28-6900	#6-32	¼"	0.99	0.79
28-6905	#6-32	⁵⁄₁₆"	1.39	1.09
28-6925	#10-32	⅜"	1.39	1.09

KEYSTONE — Round Nylon Spacers

•Unthreaded round nylon spacers
•Available in different lengths with two different clearance hole sizes: #4 and #6 •100 pieces per package

Length	#4 clearance hole Order #	#6 clearance hole Order #	(pkg.)
0.250"	28-5743	28-5751	$11.22
0.375"	-	28-5752	13.27
1.000"	28-5749	28-5757	20.45

KEYSTONE — Threaded Nylon Spacers

•Threaded hex nylon spacers •Available in different lengths with two different thread sizes: 4-40 and 6-32 •100 pieces per package

Length	4-40 thread size Order #	6-32 thread size Order #	(pkg.)
0.250"	-	28-5715	$30.70
0.375"	28-5709	-	32.75
0.500"	28-5710	28-5717	32.75
0.750"	-	28-5719	43.00
0.875"	-	28-5720	44.02
1.000"	28-5714	-	40.95

1001 Piece Hardware Assortment

•Wide assortment of machine screws, cotter pins, split, flat and tooth washers, hex nuts, sheet metal screws, wood screws, wire, common and finish nails •Heavy-duty 25 drawer cabinet •25 identification labels •Safety stop trays prevent spillage

Order #	(ea.)
28-1180	$19.52

Philips Pan Head Screws

•Popular for use in all aspects of equipment assembly and repair •Black oxide finish •100 per box

Order #	Size		Price Per Box	
		(1–9)	(10–19)	(20–up)
28-18295	#8 x ¼"	$0.83	$0.67	$0.54
28-18300	#8 x ½"	1.03	0.78	0.55
28-18305	#8 x ¾"	1.21	1.02	0.82
28-18310	#8 x 1"	1.37	1.17	0.97
28-18315	#8 x 1½"	1.91	1.58	1.24
28-18320	#8 x 2"	2.34	2.01	1.59
28-18325	#8 x 3"	3.41	2.87	2.33
28-18330	#10 x 1"	1.70	1.42	1.15
28-18335	#10 x 2"	2.84	2.41	1.93

Speed Clips

•Commonly used in many applications including autosound speaker installation •For use with #8 screws •Packaged in bags of 100

Order #	Description	(1-9 bags)	(10-24 bags)	(25 bags-up)
28-8390	Short	$5.59	$4.99	$4.49

Philips Oval Head Screws

•Popular for use in all aspects of equipment assembly and repair •Common for use in countersunk holes •Black oxide finish •100 per box

Order #	Size		Price Per Box	
		(1–9)	(10–19)	(20–up)
28-18340	#8 x 1/2"	$0.99	$0.85	$0.65
28-18345	#8 x 1"	1.37	1.16	0.94
28-18350	#8 x 2"	2.35	2.06	1.55

Philips Truss Head Screws

•Popular for use in cabinet and speaker enclosure assembly •Truss head is especially useful when attaching ABS and Plexiglas sheets to wood cabinets •Sharp "stinger type" point requires no pilot hole and easily pierces metal and wood surfaces •Black oxide finish •100 per box

Order #	Size		Price Per Box	
		(1–9)	(10–19)	(20–up)
28-18370	#8 x ½"	$1.28	$1.08	$0.85
28-18375	#8 x 1"	1.58	1.38	1.09

Philips Drywall Screws

•Popular for use in cabinet and speaker enclosure assembly •Sharp "stinger type" point requires no pilot hole •Black oxide finish •100 per box

Order #	Size		Price Per Box	
		(1–9)	(10–19)	(20–up)
28-18355	#6 x 1"	$0.99	$0.85	$0.65
28-18360	#6 x 1½"	1.28	1.08	0.85
28-18365	#6 x 2"	1.58	1.38	1.09
28-18366	#6 x 3"	2.69	2.39	1.97

NEW! NEW! NEW!

Toggler® Wall Anchors

Toggler bolts replace old-fashioned toggle wings. They may be pre installed without using a bolt and won't fall behind the wall when the bolt is removed. The solid metal channel centers the bolt, which cannot sag. These anchors will not damage or break through the wall, even under vibration. Ideal for use in drywall, ceiling tile, wood and hollow concrete block **Specifications:** •Grip range: ⅜"~3⅝" •Accepts ¼ x 20 bolt •Required hole diameter: ½" •Supports up to 265 lbs. in drywall, over 1000 lbs. in concrete block •Sold in boxes of 50

Order #	(box)
28-8545	$31.95

Toggle Bolts

•Spring bolts are popular for mounting light fixtures ceiling baffles to sheet rock and drop ceilings •¼" diameter screws are 4" length •Requires ¾" diameter hole •Toggle opens to 2" •100 per box

Order #	(1–9 boxes)	(10–19 boxes)	(20 boxes –up)
28-18550	$21.19	$17.65	$14.63

#8 Trim Rings

•Commonly used to add finished look to #8 wood screws •Ideal for use on carpeted enclosures and Plexiglas panels •Black oxide finish •100 per box

Order #	(1-4 boxes)	(5 boxes-up)
60-4375	$4.19	$3.77

Philips Pan Head Sheet Metal Screws

•8-18 stainless steel •Popular in all aspects of equipment repair and assembly •100 per box

Order #	Size		Price Per Box	
		(1–9)	(10–19)	(20–up)
28-18510	#10 x 1"	$5.47	$4.67	$3.70
28-18515	#10 x 1½"	7.29	6.38	5.10

Lag Bolts

•Commonly used for mounting outdoor antennas and small satellite dishes •¼" diameter x 3" length •100 per box

Order #	(1–9 boxes)	(10–19 boxes)	(20 boxes–up)
28-18420	$7.49	$6.33	$5.16

Buildex
Dynabolt® Concrete Sleeve Anchors

•Designed for heavy loading capacity in concrete, masonry, grout filled and hollow block •Excellent for exterior walls •Perfect for antenna/dish supports, speaker brackets, wall mount racks and panels •Durable zinc plated carbon steel •Provides full 360° hole contact over a large area •Reduces concrete stress •Pre–assembled for fast, easy installation

Order #	Bolt Diameter	Sleeve Diameter	Length	Box Qty.	Price Per Box (1-3)	(4-up)
28-18570	⅜"	½"	2¼"	50	$26.75	$24.25
28-18571	⅜"	½"	3"	25	31.25	29.95
28-18575	½"	⅝"	2¼"	25	43.50	39.25
28-18576	½"	⅝"	3"	25	47.75	42.99

Fender Washers

•Black oxide finish •100 per box

Order #	I.D	O.D.	Price Per Box (1-9)	(10-19)	(20-up)
28-18425	¼"	1"	$2.46	$2.34	$2.09
28-18430	⅜"	1"	3.11	2.99	2.81

Washers

•Packaged in bags of 100
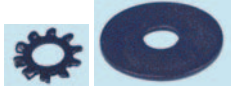
Order #	Description	(1-9 bags)	(10-24 bags)	(25 bags-up)
28-8385	#10 lock washer	$0.89	$0.79	$0.75
28-8430	⅜" washer	2.49	2.19	1.99

Fender Washers

•1" outside diameter •³⁄₁₆" inside diameter •Black oxide finish •100 per bag

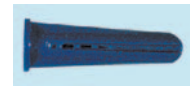| Order #		Price per bag	
	(1-9)	(10-24)	(25-up)
28-8400	$2.59	$2.29	$2.09

E-Z Ancor® Drywall Anchors

Ideal for hanging pictures, shelves, speakers and other moderate weight items to standard sheetrock drywall. Very easy to install, these anchors require only a Philips head screwdriver for installation. Available in light duty plastic or metal, 100 per box.

Order #	Type	(box)
28-8535	Plastic	$19.74
28-8536	Metal	27.25

Plastic Drywall Anchors

Ideal for hanging lightweight items such as pictures and small speakers to standard sheetrock drywall. Anchors require only a small pilot hole for use. 100 per box.

Order #	Type		Price Per Box	
		(1–9)	(10–19)	(20–up)
28-18525	For screw #8~10	$1.36	$1.11	$0.87
28-18526	For screw #10~12	1.35	1.09	0.89
28-18530	For screw #6~8	1.29	1.09	0.80

Screw Anchor Kit

•Anchor fits permanently behind panel face to allow repeated removal and replacement of screws •Screw shaft length: 1⅛" **Kit contains:** •Eight black screws and anchors

Order #	(1-9 kits)	(10-24 kits)	(25 kits-up)
50-630	$1.59	$1.39	$1.19

Ramset/Red Head
Tapcon® Self-Tapping Concrete Anchors

•Designed for use with high powered drill and hammer drivers •Climaseal™ coated for excellent corrosion protection •Works on all masonry materials, excellent for exterior walls •Self tapping design cuts their own threads •Fully removable •¼" diameter •100 per box

| Order #	Length	(1-3 boxes)	(4 boxes-up)
28-8850	2.25"	$29.95	$26.96
28-8851	1.25"	24.75	22.28

Compact Panel Mount Ammeters

DC moving coil ammeters provide accurate measurement of amperage in microamp, milliamp and amp scales. Mirrored scale provides accurate readings at any angle. Front panel dimensions 2⅜" (H) x 1⅜" (W). Requires 1½" diameter cutout. Includes all mounting hardware. Required mounting depth, 1", overall depth 1½".
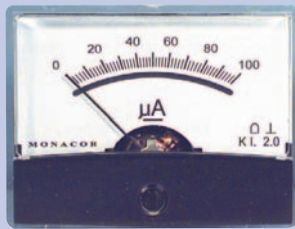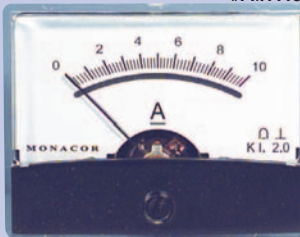
#PM11119

#PM11199

#PM11278

Order #	Measurement Range	(1–3)	(4–up)
PM11271	30µA	$8.81	$7.54
PM11272	50µA	9.37	7.95
PM11119	100µA	8.86	7.54
PM11120	1mA	9.30	7.92
PM11121	10mA	8.86	7.54
PM11199	100mA	9.07	7.74
PM11122	1A	9.07	7.74
PM11277	3A	8.86	7.74
PM11123	5A	8.86	7.54
PM11278	10A	8.86	7.54
PM11279	15A	8.86	7.54

Compact Panel Mount DC Voltmeters

DC moving coil meters provide accurate measurement of DC voltage from 0~30V, in three ranges. Mirrored scale provides accurate readings at any angle. Front panel dimensions 1¾" (H) x 1⅜" (W). Requires 1½" diameter cutout. Includes all mounting hardware. Required mounting depth, 1", overall depth 1½".
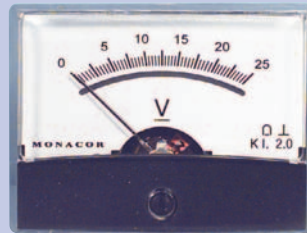
Order #	Measurement Range	(1–3)	(4–up)
PM11280	10VDC	$9.37	$7.95
PM11281	25VDC	8.86	7.54
PM11189	30VDC	8.86	7.54

15VDC Panel Mount Meter

DC moving coil meter provides accurate measurement from 0~15VDC. Mirrored scale provides accurate readings at any angle. Front panel dimensions 2½" (H) x 3½" (W). Requires 1¾" diameter cutout. Includes all mounting hardware. Required mounting depth 1", overall depth 1½".

Order #	(1–3)	(4–up)
PM11124	$8.86	$7.54

Backlight Assemblies

Dual 6V incandescent lamps mount in all PM Series panel meters. All meters are pre-wired and have special inserts for backlit use.

Order #	(1–3)	(4–up)
PM11191	$1.01	$0.91

2¾" Swivel Caster Set

•Set of four •Two locking swivel caster •Two non-locking swivel casters •16 T-nuts and ¼" x 1" Phillips head screws •Wheels have hard rubber cover •Mfr. #HW960/995

Order #	(1-9 sets)	(10-49 sets)
50-1905	$30.70	$28.19

4" Swivel Caster

•Blue wheel with bearings •Mfr. #W0990

Order #	(1-9)	(10-49)
50-1635	$15.10	$14.09

Surface Mount Draw Latch

•Black •Mfr. #L0566

Order #	(1-9)	(10-49)
50-1555	$1.00	$0.90

Square Recessed Dish with Butterfly Latch

•Mfr. #L905/915

Order #	Type	(1-9)	(10-49)
50-1545	Zinc	$5.99	$5.79

Surface Mount Butterfly Latches

•Mfr. #L925

Order #	Type	(1-9)	(10-49)
50-1525	Zinc	$6.05	$5.85
50-1530	Black	8.19	7.88

Surface Mount Handle with Spring

•Mfr. #H1052
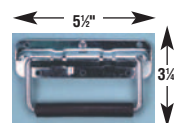
Order #	Type	(1-9)	(10-49)
50-1600	Zinc	$3.02	$2.72
50-1605	Black	3.52	3.22

5½" 3¼"

Recessed Flip Handle

•Mfr. #H1051
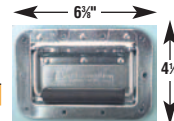
Order #	Type	(1-9)	(10-49)
50-1590	Zinc	$4.74	$3.42
50-1595	Black	7.88	7.68

6⅜" 4¼"

Cabinet Corner Pieces

•Protect the corners of your cabinets with these plastic or metal corner pieces •#50-500 has grooved design for stacking •Screws not included •Four per package
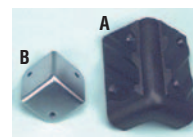
			Dimensions	Price Per Package		
Fig.	Order #	Type	(W) x (H) x (D)	(1-9)	(10-24)	(25-up)
A	50-500	Plastic	2¼" x 3¼" x ¾"	$2.03	$1.62	$1.32
B	50-580	Metal	1½" x 1½" x 1½"	2.67	2.25	1.85

Square Recessed Dish with Two ¼" Jack Holes

•Mfr. #D0938

Order #	Type	(1-9)	(10-49)
50-1560	Zinc	$2.04	$1.83
50-1565	Black	2.55	2.35

Square Recessed Dish with Two EP Connector Cutouts

•Mfr. #D028 •Black

Order #	(1-9)	(10-49)
50-1575	$5.75	$5.44

Metal Cabinet Handles

•Heavy-duty metal construction •Handle is spring loaded for added convenience •Wide rubber grip •Ideal for large and heavy cabinets •Black finish •Screws not included

Order #	(1-3)	(4-9)	(10-up)
50-505	$5.14	$4.52	$4.01

Small Recessed Steel Handle

•Black •Mfr. #H1105 •8⅝" x 6⅜"

Order #	(1-9)	(10-49)
50-1610	$5.99	$5.69

Large Recessed Steel Handle

•Mfr. #H1070 •10¾" x 6⅜"

Order #	(1-9)	(10-49)
50-1615	$6.55	$6.35

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High Power FM Transmitter

Pre-assembled board accepts line level input (300mV), and transmits audio to any standard FM radio. Output frequency can be adjusted anywhere in the 88~108MHz FM band. Requires 9~15VDC supply, 150mA. Board dimensions 50mm x 65mm x 20mm.
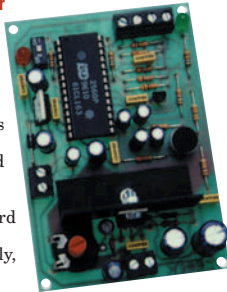
Order #	Description	(ea.)
28-4851	FM transmitter	$25.45
28-4775	12V, 1A supply	20.35

Digital Message Recorder with Amplifier

Pre-assembled board digitally records any audio signal supplied to its on-board electret microphone, and plays it back through its built in amplifier. Recording time is up to 60 seconds, and information is stored, even when power is removed. Volume is controlled via board mounted potentiometer. Requires 9~12V power supply, 300mA. Amplifier delivers 5W/7W RMS/peak. Output impedance 4~8ohm, speaker not included. Board dimensions: 3.74" x 2.56" x 1.18".
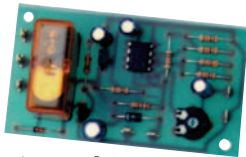
Order #	Description	(ea.)
28-6245	Digital recorder	$89.71
28-4772	12V, 300mA supply	15.25

Voice Activation (VOX) Relay

Pre-assembled board switches output relay when audio signal level is detected. Input level 50mV, 10Kohm. Sensitivity is adjusted via a board mounted potentiometer. Output relay contacts rated at 5A. Required supply voltage 12VDC, 50mA. Board dimensions 75mm x 40mm x 30mm.

Order #	Description	(ea.)
28-4825	VOX module	$18.31
28-4772	12V, 300mA supply	15.25

Two Digit LED Counter

Pre-assembled counter circuit board provides digital count from 0 to 99. Contact closure input provides one count up and reset-to-zero function. Each digit is 0.5" high. Requires 12VDC, 100mA. Dimensions 70mm x 52mm x 46mm.

Order #	Description	(ea.)
28-4785	Counter	$15.40
28-4772	12V, 300mA supply	15.25

Need an additional catalog? Request one @ www.mcminone.com

Audio Amplifier Modules

Pre-assembled audio amplifier boards may be used for many applications including repair or modification of equipment, projects or prototype work. They are easily installed into existing enclosures, speaker cabinets or audio equipment. Single and two channel models are available. All accept line level input, provide rated output, RMS into 8ohm load, and are usable with 4ohm loads. Each may be powered with a single DC supply, voltage as listed. All boards are pre-tested and include a three year limited warranty.

Order #	Power Output	Power Requirements	Dimensions (H) x (W) x (D)	(ea.)
28-5180	75mWx2CH. (headphone amplifier)	3~6VDC, 50mA	0.59"x1.38"x1.38"	$9.26
28-5175	500mWx2CH.	12VDC, 100mA	0.59"x2.17"x1.57"	14.59
28-5170	1Wx2CH.	4~14VDC, 250mA	0.78"x2.83"x1.97"	15.80
28-4800	5Wx2CH.	6~15VDC, 500mA	1.06"x3.54"x2.17"	26.00
28-4801	15Wx2CH.	12~35VDC, 1A	1.77"x3.54"x2.17"	41.16
28-5165	500mWx1CH.	6~12VDC, 50mA	0.59"x1.10"x1.18"	7.95
28-4795	1Wx1CH.	4~14VDC, 200mA	0.79"x1.38"x1.97"	7.71
28-4796	5Wx1CH.	6~15VDC, 250mA	0.79"x1.57"x1.97"	14.37
28-4797	15Wx1CH.	12~35VDC, 500mA	1.77"x3.54"x3.15"	20.35
28-4798	20Wx1CH.	9~15VDC, 2A	1.57"x2.76"x2.76"	26.08
28-4799	30Wx1CH.	12~35VDC, 1.5A	1.77"x2.56"x3.62"	30.86
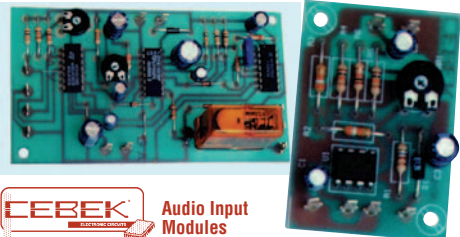
Audio Input Modules

Each pre-assembled circuit module may be used with Cebek amplifiers, or any audio amplifier having a line level input. Microphone and guitar input modules feature board mounted level adjustments. The four channel mixer is unity gain on all channels, unless individual (optional) potentiometers are used. The stereo magnetic cartridge module also features RIAA equalization circuitry. All will operate from a single DC power supply, and require less than 50mA (#28-6225 requires 100mA). All boards are pre-tested and include a three year limited warranty.

Description Order #	Power Requirements	Dimensions (H)x(W)x(D)	(ea.)
Microphone preamplifier 28-4805	6~18VDC	0.78"x1.38"x1.97"	$9.22
Guitar preamplifier 28-4815	6~18VDC	0.78"x1.38"x1.97"	9.35
Stereo phono preamplifier 28-5205	18VDC	0.78"x2.05"x2.95"	15.40
Guitar effects generator 28-6225	9~15VDC	0.59"x1.85"x2.91"	20.86
Noise gate 28-6220	12VDC	0.79"x1.57"x2.56"	29.22
Audio compressor 28-6230	9~15VDC	0.79"x1.57"x2.56"	13.07
Bass/treble control 28-4810	9~24VDC	0.79"x2.95"x3.46"	15.63
Bass/treble/balance/volume control 28-4835	12~24VDC	0.79"x4.14"x5.51"	28.51

Single Channel Audio Amplifier Module

Compact audio amplifier circuit is housed in a fully potted plastic enclosure and is great for a variety of hobby, service and prototype applications. Amplifier accepts line level input (80mV), and provides 12W output into a 4ohm load. Requires 6~16VDC, 12VDC optimum (800mA). Dimensions: 2⅜" (W) x 1½" (D) x 1" (H).

Order #	(1-4)	(5-9)	(10-up)
28-6402	$9.58	$8.67	$7.84

Timer Modules

These pre-assembled circuit modules provide accurate, consistent timing functions for a variety of uses. All delay times are adjustable via board-mounted potentiometers, and each has SPDT relay outputs which handle 5A. Power requirements: 12VDC, <100mA. All boards are pre-tested and include a three year limited warranty.

| Order #	Timer Mode	Time Range	Dimensions (H)x(W)x(D)	(ea.)
28-4735	Single event (one shot)	1~180 sec.	1.18"x1.69x2.95"	$18.49
28-4736	Single event (one shot)	2~45 min.	1.18"x1.69"x2.95"	18.49
28-4750	On delay	1~180 sec.	1.18"x1.69"x2.95"	20.86
28-4751	On delay	2~45 min.	1.18"x1.69"x2.95"	20.86
28-4745	Sequential dual time delay	1~180 sec.	1.18"x2.36"x3.03"	30.86
28-6175	Retriggerable	1~180 sec.	1.18"x2.95"x1.69"	17.46
28-6176	Retriggerable	2~45 min.	1.18"x2.95"x1.69"	18.77
28-4740	Repeat cycle	0.3~60 sec.	1.18"x1.69"x2.95"	21.37
28-4741	Repeat cycle	1~30 min.	1.18"x1.69"x2.95"	21.37

Hi-Fi Amplifier Power Supplies

Power supplies include center tapped AC transformer and pre-assembled circuit board, and are designed specifically for use with the Hi-fidelity audio amplifiers. Each features necessary positive and negative voltage output and has sufficient current to power two amplifier modules. Additionally, each includes a regulated 18VDC output for additional preamplifier or other input module. Listed dimensions are for PC board only. AC line cord is not included.

Order #	Power Output	Dimensions (H) x (W) x (D)	(ea.)
28-6111	±24VDC, 2A	1.38" x 1.97" x 3.15"	$32.94
28-6116	±28VDC, 2.5A	1.38" x 1.97" x 3.15"	38.63
28-6121	±32VDC, 3.0A	1.77" x 1.97" x 3.54"	50.13
28-6126	±42VDC, 4.4A	1.77" x 1.97" x 3.54"	66.86

High Fidelity Audio Amplifier Modules

Pre-assembled single audio amplifier boards are ideal for repair, modification or prototype projects requiring high output power with a high level of musical accuracy. The larger models may be used for powered monitors, active subwoofers and similar applications. All models utilize discrete output devices and require specific ± symmetrical power supplies. All accept line level input, provide rated output, RMS into 8ohm load, and are usable with 4ohm loads. THD: <0.1%, @ 1W, 20Hz~20KHz. All boards are pre-tested and include a three year limited warranty.
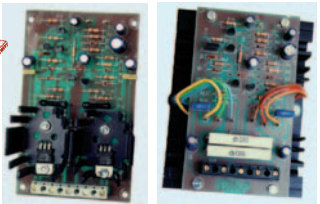
Order #	Power Output	Power Requirements	Dimensions (H) x (W) x (D)	(ea.)
28-6110	25W	±24VDC, 1A	1.50" x 2.75" x 4.41"	$26.08
28-6115	35W	±28VDC, 1.25A	1.50" x 2.75" x 4.41"	33.49
28-6120	60W	±32VDC, 1.5A	1.50" x 2.75" x 4.41"	52.22
28-6125	100W	±42VDC, 2.2A	2.76" x 4.33" x 4.33"	61.30

Single Channel Audio Amplifier Module

Ultra compact audio amplifier circuit is housed in a fully potted plastic enclosure and is great for a variety of hobby, service and prototype applications. Amplifier accepts line level input (80mV), and provides 3.5W output into a 4ohm load. Requires 4½~12VDC, 12VDC optimum (500mA). Dimensions: 1¼" (W) x 1" (D) x ⅝" (H).
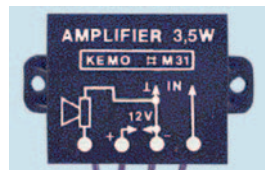
Order #	(1-4)	(5-9)	(10-up)
28-6400	$7.20	$6.48	$5.93

Electronic Traffic Light

Pre-assembled module will suit numerous novelty and practical applications. The three timer circuit is designed to simulate the operation of a traffic light. The on board potentiometer may be adjusted for time settings from 5~50 seconds for "red" and "green" output. The "yellow" output is automatically ¼ of the time setting. Board mounted red, yellow and green LEDs show status of solid state output devices. Each output is capable of switching a 12~15VDC load 2A max. Requires 12~15VDC, 40mA max.

Order #	Description	(ea.)
28-6215	Timer	$20.55
28-4772	12VDC, 300mA supply	15.25

Flip-Flop Relay Module

With momentary contact at the input, the output relay closes and latches. Upon a second momentary closure of the same input, the relay opens. Relay contacts 5A. Requires 12VDC, 50mA. Board dimensions 60mm x 60mm x 30mm.

Order #	Description	(ea.)
28-5115	Flip-flop module	$16.83
28-4772	12V, 300mA supply	15.25
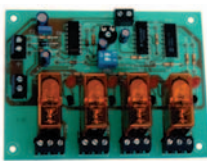
#28-5116   **#28-5117**

Sequential Relay Modules

Upon a single contact closure at the input, the output relays (either four or eight) sequentially close. The delay time between each relay closing is adjustable from 0.3~10 seconds. Each relay is capable of switching 5A. Requires 12VDC, 50mA.

Order #	Relays	Dimensions	(ea.)
28-5116	Four	11 mm x 78mm x 30mm	$41.16
28-5117	Eight	155 mm x 112mm x 35mm	61.76
28-4772	12V, 300mA supply		15.25

Photoelectric (Sunset) Relay Module

Pre-assembled control module utilizes an external sensor to detect the absence of light. Output relay energizes when there is no light present. Sensitivity is adjusted via board mounted potentiometer. Relay contacts are 5A. Board 67mm x 45mm x 30mm. Requires 12VDC, 50mA.

Order #	Description	(ea.)
28-5131	Light detector	$20.86
28-4772	12V, 300mA Supply	15.25

Liquid Level Control

Pre-assembled module utilizes two included liquid sensors to provide control intended for "fill" or "drain" of a water tank. **"Fill"** mode energizes the relay when the lower sensor does not detect the presence of a liquid. The relay de-energizes when the top sensor then detects liquid. **"Drain"** mode energizes the relay when the top sensor detects the presence of liquid, and de-energizes when the lower sensor no longer detects liquid. Relay is SPDT with 5A contacts. Requires 12VDC, 50mA. Board dimensions 3" x 2.17" x 1.18". **Note:** This device is intended for use with water. Use with flammable or corrosive liquids could have hazardous results.

Order #	Description	(ea.)
28-6185	Liquid level control	$27.70
28-4772	12V, 300mA supply	15.25

Single   **Dual**
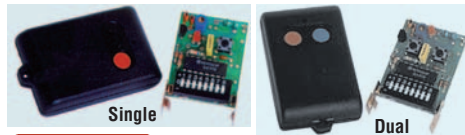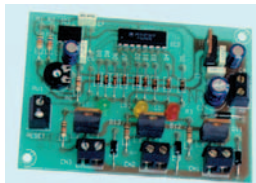
Wireless R/C Transmitters and Receivers

Pre-assembled receiver and transmitter modules provide wireless operation of single or dual relay outputs. UHF operation (433.92MHz) allows optimal signal penetration through walls and other obstructions. Eight position dip switch selector allows over 13,000 code possibilities to prevent accidental activation by other transmitters on the same frequency. Single and dual channel transmitters require 12VDC source such as a GP23A battery, and measure 2.24" x 1.42" x 0.63". Receivers measure approximately 4" x 2.5" x 1³⁄₁₆" and are available in 120VAC and 12VDC (140mA) models. Relay contacts are SPDT, 5A.

Order #	Description	(ea.)
28-6237	Single channel transmitter	$18.49
28-6242	Dual channel transmitter	20.86
28-6235	Single channel receiver, 12VDC	33.49
28-6240	Dual channel receiver, 12VDC	44.43
28-6236	Single channel receiver, 120VAC	43.79
28-6241	Dual channel receiver, 120VAC	54.09

Regulated DC Power Supply Modules

Ideal for any low voltage application, these power supply modules are easily incorporated into existing enclosures. Each pre–assembled board features an oversized heat sink, for added reliability, and includes the necessary AC transformer. Standard models have conventional V+ and ground connections, symmetrical models have V+, ground and V- connections, both are fixed voltage. Variable models are continuously adjustable within the stated range, via a board mounted potentiometer. Listed dimensions are for PC board only. AC line cord is not included.

Order #	Type	Output	Dimensions (H)x(W)x(D)	(ea.)
28-4771	Standard	5V, 300mA	1.00"x1.69"x1.97"	$15.63
28-4772	Standard	12V, 300mA	1.00"x1.69"x1.97"	15.25
28-4774	Standard	9V, 1A	1.38"x1.69"x2.76"	20.86
28-4775	Standard	12V, 1A	1.38"x1.69"x2.76"	20.35
28-4776	Standard	24V, 1A	1.38"x1.69"x2.76"	26.41
28-4777	Standard	12V, 2A	1.57"x3.94"x2.56"	36.40
28-4778	Standard	12V, 5A	2.17"x3.15"x4.13"	52.83
28-7874	Variable	12~24V, 1A	1.77"x2.09"x2.80"	31.20
28-4780	Variable	12~24V, 2A	1.57"x2.95"x4.33"	52.22
28-4779	Variable	3~15V, 1A	1.57"x2.09"x2.01"	30.86
28-7882	Symmetric	±15V, 500mA	0.98"x2.20"x3.66"	31.71
28-7886	Symmetric	±15V, 1A	0.98"x2.20"x3.66"	39.06

PC Controlled Eight Channel Switch

Pre-assembled circuit module has numerous possibilities for computer controlled automation of electrical devices. Simply connect to LPT1 parallel port of any 486 or higher PC and solid state output of eight channels is provided via 25 pin female sub "D" connector. Each output switches 6~40VDC @ 400mA, or 4~40VAC @ 200mA. Especially suitable for switching external relays. Included 3½" diskette contains necessary software and a complete reference manual which may be printed. Separately available 15' cable (#83-0470), not included, has a DB-25 male connector to stripped leads, greatly easing connection of external components. Dimensions: 2¼" (W) x 3" (D) x 1⅛" (H).

Order #	Description	(1-4)	(5-9)	(10-up)
28-6420	PC switch	$26.08	$23.52	$20.12
83-0470	DB-25 cable	9.49	-	-

Digital Thermometer Module

Pre-assembled thermostat accurately displays temperature from -20°~120°C. 0.5". LED display clearly displays temperature with accuracy to 0.1°C. Requires 12VDC, 160mA. Board dimensions 84mm x 66mm x 51mm.

| Order #	Description	(ea.)
28-4760	Thermometer	$51.46
28-4772	12V, 300mA supply	15.25
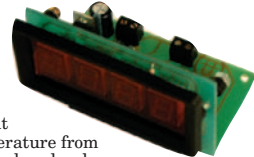
NEW! NEW! NEW!

Infrared 4 x 7 LED Array

Compact circuit is housed in a fully potted plastic enclosure and requires only 12VDC @ 300mA. Intended for CCTV applications, this device will light up any area when viewed through a CCD camera, yet leave that area dark to the naked eye. The array of 28 LEDs provides considerably more illumination than that included with CCTV cameras, with much lower cost and power consumption than typical infrared lights. Dimensions: 2⅞" (W) x 2" (D) x ⅞" (H), black color.

Order #	(1-4)	(5-9)	(10-up)
28-6419	$17.95	$15.95	$14.95
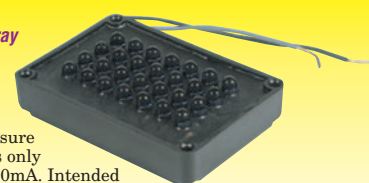
Infrared 4 x 7 LED Array

Compact circuit is housed in a fully potted plastic enclosure and requires only 12VDC @ 300mA. Intended for CCTV applications, this device will light up any dark area when viewed through a CCD camera, yet leave that area dark to the naked eye. The array of 28 LEDs provides considerably more illumination than that included with CCTV cameras, with much lower cost and power consumption than typical infrared lights. Dimensions: 2⅞" (W) x 2" (D) x ⅞" (H).

Order #	(1-4)	(5-9)	(10-up)
28-6418	$19.56	$17.46	$15.97

Digital Message Recorder

Pre-assembled board digitally records any audio signal supplied to its mic level input, and plays it back through its built-in 100mW amplifier. Recording time is up to 16 seconds, and information is stored even when power is removed. Electret microphone is included. Requires 9~12VDC supply, 150mA. Board dimensions 80mm x 60mm x 25mm.

Order #	Description	(ea.)
28-4855	Digital recorder	$36.01
28-4772	12V, 300mA supply	15.25
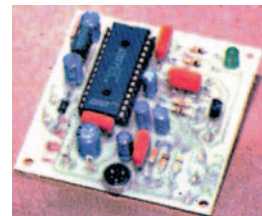
Ultrasonic Signal Generator Module

Compact circuit is housed in a fully potted plastic enclosure and can be powered from any 12~24V power supply (50mA). When connected to any piezo electric speaker, such as MCM #53-071 (not included), device emits ultrasonic tones from 20KHz~40KHz, ideal for repelling insects, birds, rodents and other pests. Up to four piezo speakers may be connected to a single module. Top mounted 10 position rotary BCD switch selects output frequency. Dimensions: 2⅜" (W) x 1¾" (D) x ¾" (H).

Order #	(1-4)	(5-9)	(10-up)
28-6404	$9.81	$8.88	$8.04