

# ALTRONICS

ELECTRONIC COMPONENTS CATALOGUE

11TH  
EDITION  
1992  
\$2.00



**Free Call Order Hotline Phone 008 999 007**  
**Jet Express Delivery - Australia Wide**

Supplement to Electronics Australia and Silicon Chip Magazine February 1992

## Here is a sampling of some New and Revised ALTRONICS Products for 1992

Just arrived this Gas Soldering Iron, exclusive to Altronics is set to become Australia's most popular portable iron. See TOOLS section for more details.



New improved 1GHz Frequency Counter. See TEST EQUIPMENT section for our full range of multimeters etc.



This stylish telephone incorporates a state-of-the-art answering machine, complete with digital voice synthesiser, date stamp and remote control. See GENERAL PRODUCTS section for our complete range of answering machines.

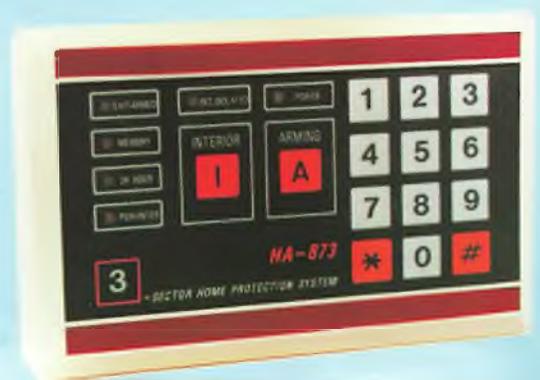


Designed and made in Australia, this new 1200 Watt Inverter kit will power a myriad of appliances. See KIT section for this and other exciting kit projects for 1992.



Utilizing latest EEPROM technology, this multi-function Remote Car Alarm allows you to lock and unlock your car doors, turn on the car headlights, beep the horn and even open the boot, all by your remote keyring control.

To protect your home, this 3 Sector Flush Mount house alarm will blend into any decor making it a perfect addition. See SECURITY section for other alarms and sensors.



## Dear Customer

Welcome to 1992 and the beginning of the end, to the worst recession for many decades. The electronics industry has been one of the least effected in Australia and for this we could be extremely grateful.

We have all come to accept that electronics and technological advancement go hand in hand — there is a continual process of self innovation bringing lower real costs to the consumer together with features and facilities in home electronics such as video, stereo and even kitchen equipment which would have been considered extremely 'high tech' just a decade or so back.

Over the past year at Altronics we have initiated rigid procedures for quality control evaluation and testing of the countless products and components we import and purchase (and produce) locally. The benefit to you, our valued customers, will be greater reliability than ever before. Our standard warranty period is now 6 months — double that of our major competitors.

All our transformer range including toroids are now certified to comply with Australian Standard AS 3108, the very best and most stringent specification applicable to this component type.

The even better news with our Q.C. procedures and extended warranty is that there is no increase in prices accompanying the ever evolving higher quality of our product range. **In fact, we have held our prices down for the third consecutive year; some indeed are lower this year.**

Another initiative at Altronics for 1992, is the commencement of a profit share scheme with our employees. We all would be aware that as organisations grow they tend to become less personable, more unwieldy and inefficient and for the most part end up providing inferior service to the people who provide their employment — **the customer.** With our new scheme each sector of the company is responsible for monitoring its own performance and costs and in return the employees will share in a generous portion of operating profits. So customers watch out for extremely good service from Australia's most motivated and helpful staff!

Our sincere thanks once more to the thousands of customers we have had the privilege to serve over the past 12 months.

Remember, we are always open to constructive comments, and if you ever have a problem or suggestion, write to me personally.

All the best for the coming year and thank you all once again.

Yours faithfully

*Jack O'Donnell*



Jack O'Donnell  
MANAGING DIRECTOR

## QUICK FIND INDEX

Starting  
From  
Page

Alarms & Accessories	19
Audio & Amplifiers	46
Books	77
Boxes/Racks/Rackframes	36
Capacitors	98
Data Section	101
General/Consumer Products	26
Hardware	35
Heatsinks	44
Kits	5
Plugs & Sockets	84
Plug Packs	76
Resistors	97
Semiconductors	91
Service Aids	70
Speakers	46
Switches	80
Telephone Products	30
Test Equipment	61
Tools	68
Transformers	73
TV Antennas	27
Wire & Cable	89

## WHY YOU SHOULD BUY A KIT SET PROJECT FROM ALTRONICS

1. Our Kits are complete with all chassis, cases, panels, mains cords etc., we even include solder! — don't be fooled by the "shortform" kits some suppliers offer, these are often more expensive pro rata than an Altronics Kit.
2. Virtually all Altronics Kit chassis, cases and panels are fully drilled and punched. The tools you'll need to assemble one of our projects therefore are simple hand tools and a soldering iron.
3. Quality screened panels are provided in lieu of "stick on" Scotchcal type labels. The resultant good looks puts an Altronics kit product way in front of the rest.
4. Altronics build yourself projects include step by step instructions enabling the reasonably careful beginner to successfully complete most projects.
5. Only first quality components are used (not factory seconds as some of our competitors have been known to use in the past!)
6. We take the trouble to build a prototype of each new magazine project whenever possible. In this way we can often add construction hints and additional info to assist the kit builder to get it right the first time.
7. Lastly, we are Electronic Enthusiasts just like yourself, so when you do need a little help or advice we are just a phone call away. We also offer a repair service at nominal cost to those who get absolutely "stumped" with a project.

## QUICK FIND KIT INDEX

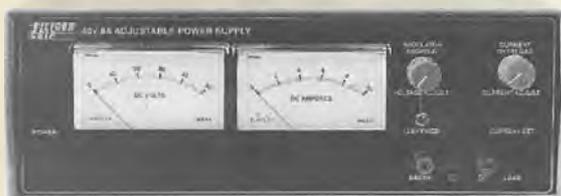
12V Gel Cell Charger.....12	Fluoro Inverters.....7	Public Address Amplifier.....17
Active Direct Injection Boxes.....15	FM Radio Microphone.....13	Radio Baby Monitor.....15
Altimeter.....10	FM Stereo Transmitter.....13	RF Detector Probe.....10
Amplifiers.....16	Frequency Counters.....8	Signal Generator.....10
Automatic Charger for Nicads.....12	General Purpose Pre-Amp.....17	Solar Battery Charger.....12
Automatic Power Relay.....7	Guitar Pre-Amp.....17	Speaker Protection Kit.....15
Baby Monitor.....15	High Capacity Ni-Cad Charger.....12	Speech Synthesiser.....16
Balanced Input Pre-Amp.....17	High Energy Ignition System.....11	Stereo Amplifiers.....16
Basic Car Alarm.....11	House Guard Alarm System.....12	Studio 200 Stereo Control Unit.....16
Battery Chargers.....12	Infra-Red Light Beam Relay.....13	Sub-Woofer Adaptor.....15
Beat Triggered Strobe.....14	Inverters.....6 & 7	Telephone Off Hook Indicator.....13
Bench Amplifier.....10	Karaoke Adaptor.....15	Telephone Line Grabber.....15
Bench Top Power Supplies.....5	Laboratory Power Supplies.....5	Television Pattern Generator.....10
Bridge Adaptor for Stereo Amps.....15	LED Bargraph Display.....14	Temperature Probe.....10
Capacitance Meters.....8	Light Beam Relay.....13	Transistor Amp Modules.....17
Car Alarms.....11	Light Chasers.....14	Transistor Testers.....10
Combination Lock (4 Digit).....12	Lighting Desk, 4 Channel.....14	Ultrasonic Proximity Detector.....11
DC Electronic Fuse.....10	Low Ohms Adaptor.....9	Video Amplifier.....13
DC-DC Converter for Car Amps.....11	Low Voltage Cutout.....11	Video Enhancer.....13
DI Boxes.....15	Megger Meter.....9	Video Transmitters.....13
Digital Tachometer.....11	Mosfet Power Amp Modules.....16	Voice Operated Relay.....14
Digital Voice Recorders.....18	P.C. Voice Recorder.....18	Voice Recorder.....18
Discolite.....14	Playmaster Amplifier & Module.....16	Wireless Baby Monitor.....14
Dual Tracking Power Supplies.....5	Power Relay.....7	Wireless Video Transmitters.....13
Expanded Scale LED Voltmeter.....11	Power Transistor Tester.....9	Zener Diode Tester.....11

Front Cover Illustration by Nadene Hoy, Graphic Arts Student Curtin University W.A.  
 Compilation and Photography by Jason Heskett.

**ALTRONIC** • PHONEORDER TOLL FREE 008 999 007  
 COMPONENTS

Note: SC and EA are the abbreviations for Silicon Chip and Electronics Australia Magazines respectively

## Adjustable 0-45V, 8 Amp Bench Power Supply (SC Jan/Feb '92)



Using state of the art circuitry this supply will be a great asset to the enthusiast and professional alike. It uses switch mode principles which allows for smaller transformers, and heatsinking which means greater efficiency, less heat and lighter weight.

- Features:**
- Variable output
  - Variable current limit
  - Separate Earth Terminal
  - Individual Volt and Amp Meters
  - Constant 13.8V setting
  - Short circuit proof

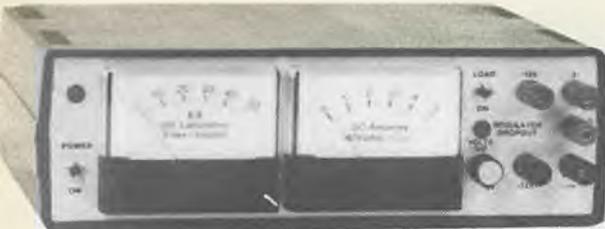
- Specifications:**
- Output voltage 0-45V
  - Output current 8A @ 35V, 6A @ 40V
  - Load regulation 1%
  - Ripple and Noise 40mVp-p at 8A 35V
  - Current limit 800mA-8.6A
  - Over current limit 9A
  - Foldback current less than 2A

**NEW  
IN  
'92**

K 3360 **\$375.00**

## Laboratory Power Supply (EA May '85)

3-50 Volts at up to 5 Amps



This supply has been one of our most popular. It includes the latest refinements and is now housed in a tough 'ABS' instrument case. This compact version uses a high efficiency toroidal transformer resulting in less heat and weight.

- Exclusive to Altronics**
- Deluxe instrument case
  - Attractive silk screened front panel
  - Pre-drilled and punched chassis — No holes to drill
  - Front panel drilled for K 3302 option.

- Specifications:**
- Output Voltage: 3 to 50V
  - Output Current: 5 Amps Max
  - Floating Output
  - Ripple: Less than 5mV
  - Dual Meters

K 3300 **\$195.00**

### Additional Options For K 3300

10 Turn Pot For Precision Voltage Control

K 3301 **\$29.50**

Fixed +/- 12V Rails Independent of Variable Main Output

K 3302 **\$14.50**

## Bench Top Power Supply (EA Jan '85)



3-30V to 1 Amp Max with Variable Current Limit.

- Features:**
- Variable Output
  - Short Circuit Protected
  - Full 1 Amp Available
  - Variable Current Limit
  - Separate Earth Terminals
  - Dual Scale Meter

- Specifications:**
- Output Voltage: 3 to 30V
  - Output Current: 0 to 1 amp
  - Load Regulation: 0.2% Max.
  - Output Ripple: 2mV RMS Max.

K 3210 **\$109.00**

## Low Cost Dual Tracking Supply (SC Jan '86)



Ideal for Experimenting and Prototyping with Memory, Logic and Op Amps

- Features:**
- Adjustable + or - 18.5V at 1.7A
  - Volt Meter

- Floating Ground
- Dropout Indicator
- Load Switch
- Compact Sturdy "ABS" Instrument Case

K 3325 **\$89.00**

## +/- 0-50V 1.5A Dual Tracking Power Supply (SC April '90)



This switch mode dual tracking supply can deliver a massive 100V at 1A. The two rails track each other exactly on any voltage, which is varied by a multi-turn control.

- Specifications:**
- Dual Tracking
  - 0 to +/-50V
  - 1% Tracking Accuracy
  - Load Regulation 500mV max.
  - Line Regulation 500mV max.
  - Ripple 3mV max.

- Short Circuit and Reverse Polarity Protection
- Load On/Off Switch

K 3380 **\$229.00**

**Get 240V AC Mains Power From Your 12V Battery With These Handy Inverter Kits**

Depending on power capacity the various models will power a Microwave Oven, TV Set, HI FI Turntable, AC Lighting, Electric Drill, Angle Grinder and Many Other Products

**The All New Powerhouse 1200W Inverter**

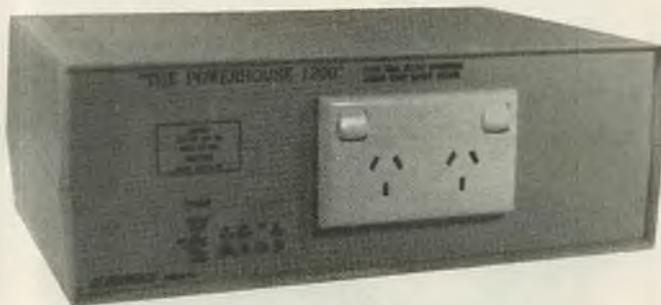
(EA Feb '92)

This new design of Power Inverter will provide all your power requirements from a heavy duty 12 or 24V battery. Using the latest Mosfet output stage and toroidal transformer this inverter is both efficient and will deliver high surge currents.

The Powerhouse has been designed not only for rugged bullet proof operation but for ease of construction, two PCB's hold all circuitry with one inter-connecting cable. (7 wires).

*(Exclusive to Altronics): This kit comes to you in a fully drilled, pre punched chassis complete with silk screened front panel. Assembly of the kit is simplified as the majority of components mount on a single PCB. Thus virtually eliminating all external terminations.*

*Suitable for use in camping, boating, fishing, mining, farming, remote settlements etc.*



**NEW FOR '92**

**Includes Quality 100 Amp Battery Leads!**

**EXCLUSIVE TO ALTRONICS**

**Features:**

- Massive 1200W continuous 2400W surge will run almost anything
- 12 or 24V operation selected via internal wiring
- Low battery cut-out
- Over temp cutout
- Circuit breaker for overload protection
- Auto start circuitry for standby operation
- Easy to construct

Note: This inverter will flatten standard car batteries very quickly, full power will not be available, use extra heavy duty truck batteries for best results.

K 6790 Kit Version **\$799.00**

K 6792 Fully Built & Tested 12V Input **\$999.00**

K 6793 Fully Built & Tested 24V Input **\$999.00**

**Powerhouse 600W Inverter**

(EA Dec '87)

This inverter has the capability to produce 600 watts of mains power which will run a fantastic array of appliances. It would be ideally suited to running power tools, lighting (including fluores) electric motors and much more. It can be either used as a portable unit or permanent fixture. A must for farming, camping, mining, boating, remote settlements and wherever else 240V power isn't available.

**Features:**

- Manual or auto start facilities
- Low battery cut out
- Compact high efficiency toroidal transformer
- Housed in sturdy ABS instrument case
- Can be configured to operate from either 12V or 24V DC
- Easy to construct, very little internal wiring



**NOW WITH IMPROVED CIRCUITRY FOR RUNNING INDUCTIVE LOADS**

**EXCLUSIVE TO ALTRONICS**

K 6770 Kit Version **\$499.00**

K 6774 Fully Built & Tested 12V Input **\$625.00**

K 6775 Fully Built & Tested 24V Input **\$625.00**

Note: SC and EA are the abbreviations for Silicon Chip Magazine and Electronics Australia Magazine respectively



### 300 Watt Inverter with Auto Start

(EA April '88)

Operates from 12V Car Battery. Kit comes complete with pre-punched chassis and front panel. Includes leads to connect to your battery.

- Super Compact — kit is supplied in Altronics tough ABS case
- Uses High Efficiency Toroid Transformer • thus keeping down heat dissipation, battery drain and weight
- Auto start • Draws power from your battery only when appliance is plugged in and "turned on" ie. battery can be left permanently connected if required
- Voltage regulated
- Current regulated • Current overload unit self limits — Single PC Board construction - easy to build as there is very little internal wiring.

K 6750 \$279.00

K 6755 Fully Built & Tested \$379.00

### 40 Watt Inverter

(EA Aug '85)



This great design also doubles as a battery charger

This inverter is ideally suited for powering low wattage mains appliances from a car battery. Ideal for camping, boating etc. Typically, it can be used to power an electric shaver, electric blanket, electric can opener or a 40W light bulb. Output frequency can be either crystal locked at 50Hz or variable over a small range via internal trimpot. When 240V is available this inverter can be used to recharge car battery.

K 6705 \$99.00

### Compact 40 Watt Inverter

(SC Feb '92)

Suitable for low powered mains appliances this compact, light weight inverter has many applications away from the home. It is ideal for use with incandescent globes, (note this model inverter will not run fluorescent lighting) electric shavers, small radios and some plug pack operated devices, i.e.: charging cordless drills and other rechargeable battery appliances etc.

Suitable for tradesmen, camping and boating enthusiasts etc.

Features:

- Operates off 12V DC
- Battery connection leads provided
- Light weight
- Uses Mosfet devices
- High efficiency
- Low heat dissipation

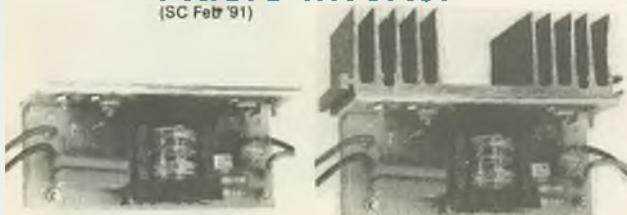
K 6710 \$79.00

NEW FOR '92



### Fluoro Inverter

(SC Feb '91)



(16W Version)

(20/40W Version)

This kit enables you to build a high power DC inverter suitable for driving fluorescent lights from a 12V source typically a car battery. Ideal for use in camping or boating as fluorescent light offers 2 big advantages over normal incandescent lights. Namely more even 360° light spread and low current drain.

Two kit versions to choose from.

K 6350 (16W Version) \$35.95

K 6360 (20/40W Version) \$43.95

### 240V Power Relay

(EA Jan '92)



NEW IN '92

Here's a simple project that monitors the power drawn from a 'master' socket and automatically switches on a 'slave' socket. It is versatile, because it can monitor one or several appliances plugged into the 'master' and switch on one or several devices plugged into the 'slave'. Ideal for Hi-Fi's or computers with peripheral hardware.

K 6070 \$59.95

## Digital High Performance Signal Generator

(SC July '90)



This Digital Sine/Square Wave Generator uses high speed CMOS ICs and a digital filter IC to produce sine and square waves over the frequency range from 0.1Hz to 500kHz. It also features a 4-digit frequency readout and an output level control.

Like most high quality audio function generators, this digital generator covers a very wide frequency range — from 0.1Hz to 500kHz — and it does so with rock solid amplitude stability. There is no bouncing about of the amplitude as you change frequency (as is inevitable with thermistor stabilised Wien Bridge designs).

<b>Frequency Range</b>	0.1 Hz-500kHz in four ranges: 0.1-10Hz; 10-1000Hz, 1-100kHz, and 100-500kHz
<b>Output Waveforms</b>	Sine & square
<b>Harmonic Distortion</b>	Less than 0.1% from 0.1Hz-50kHz, 0.27% at 80kHz
<b>Square Wave Rise Time</b>	10ns
<b>Square Wave Fall Time</b>	10ns
<b>Output Level</b>	Sine wave: variable from 0-1.2VRMS Square wave: variable from 0-5V p-p
<b>Output Impedance</b>	600ohm nominal
<b>Load Impedance</b>	600ohm to Infinity
<b>Protection</b>	Short circuit protected (indefinite)
<b>Display Accuracy</b>	+/-2% + 1 digit

K 2547 **\$155.00**

## 1GHz Digital Frequency Meter

(SC Nov '87 to Jan '88)



This superb 1GHz Frequency Meter will out perform many other instruments twice its price.

### Features:

- Professional machined and screen printed red perspex front panel
- Easy to assemble and construct
- No special tools required
- Bright Hewlett Packard 8 digit display
- Electronic switch latching
- High Performance IC's
- High Quality Components

### Specifications:

**Operational Modes:** Period, Freq to 10MHz, freq to 1GHz.  
**Freq. Range:** 10Hz-1GHz (1.7GHz typical) in frequency mode;  
 10Hz-2.5MHz (5MHz type) in period mode.  
**Gating Times:** 0.01, 0.1, 1 and 10 seconds (10MHz and 100MHz); 0.128, 1.28, 12.8 and 128 sec (1GHz range).

K 2515 **\$299.00**

## Highly Accurate 4-Digit Capacitance Meter

(SC May '90)



This attractive 4-digit capacitance meter is designed for the workshop or laboratory. It can measure capacitance from 1pF up to 9999uF in seven ranges with an accuracy of better than +/-1%, +/-1 digit.

Capacitance meters are always a very useful addition to any electronics workshop. While it is true that capacitors are marked with their value, it is often difficult to interpret the coding or worse still, the markings are illegible. On other occasions, a capacitance meter can be used to select matched capacitor values which may be necessary in critical filter and timing circuits.

To use the instrument, you simply connect the capacitor to the test leads and select the appropriate range. The value is then read directly from the big bright LED display. Seven ranges are available and these allow the unit to measure capacitors anywhere from 1pF to 9999uF. An over-range LED flashes whenever the capacitance value is too large for the range selected.

K 2524 **\$119.95**

## 50MHz Digital Frequency Meter

(EA May '88)

Fantastic for work bench and tool box for less than \$100

Easy to build and construct this fantastic meter measures to well over 50MHz in 5 ranges. Features high input impedance, overflow LED indicator, KHz and MHz LED indicators. All components mount onto a single PCB, even the selector switch. Altronic Kit comes complete with pre-punched and silk screened front panel. Ideal for use in testing CB radios, TV's and AM radios etc.

K 2510 **\$99.00**



## Capacitance Meter Adaptor

(SC Nov '87)

Great for hand selecting exact values for trimmer circuits etc.

This clever add-on adaptor increases the range of your digital multimeter. It allows measurements up to 2.2uF. Plugs directly into your meter via inbuilt banana plugs. Kit includes pre-punched silk screened front panel.

K 2520 **\$24.95**



## Low Ohms Adaptor For Your DMM

(See SC Feb '88)



Measure accurately down to 50 milli Ohms. Ideal for measuring heating elements, light globes for loads etc.

As we all know it's difficult to obtain accurate resistance measurements below 50 Ohms or so with conventional multimeters. This adaptor plugs directly into your DMM via in-built banana plugs enabling quite accurate measurements to 50 Milli Ohms and less.

K 2518 **\$24.95**

Multimeter Not Included

## Zener Diode Tester

(ETI May '83)

Take the guess work out of identifying zeners. Simply plugs into your multimeter. Ever come across the problem of worn off markings on your Zener Diodes? Or even trying to decipher the IN4XXX numbers? By simply plugging this handy little tester into your multimeter, it allows you to read out the actual Zener voltage of any Zener Diode up to 60 volts and will also test LED's as well as give you a reading of its forward voltage drop.

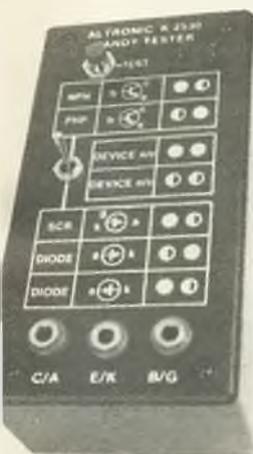
**Inexpensive and Accurate, This Handy Little Tester Should Have a Home in Every Electronics Toolbox**



K 2620 **\$19.95**

## Transistor Tester

(EA Aug '83)



Checks transistor in circuit. "No need to unsolder suspect transistors".

Have you ever de-soldered a suspect transistor, only to find that it checks out OK?

**Features:**

- Tests both NPN and PNP transistors in circuit at the touch of a switch
- Tests Diodes and SCRs as well
- No need to switch between NPN and PNP - it's automatic
- LED indication to show condition of device.

K 2530 **\$17.50**

## Transistor Beta Tester

(S.C. March '91)



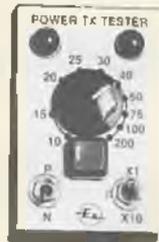
**Ideal for Gain Matching Transistors Being Used in Amplifier Stages!**

This simple Beta Tester will test and measure the gain of most bipolar transistors. You simply connect the transistor, press the test button, rotate the knob until the LED lights, and read the gain from the calibrated dial scale. Requires 9V battery.

K 2534 **\$25.00**

## Power Transistor Tester

(EA May '88)



This tester has been designed specifically for bipolar transistors with a continuous collector rating of at least one amp. Previous transistor tester kits are not suitable for testing power transistors. Simple operation allows for testing of current gain and Vbe of all popular power transistors even power Darlington's. Suitable for both N.P.N. and P.N.P. types. Altronic Kit comes complete with screened box.

K 2532 **\$24.95**

and Select Transistors for Power Output Stages

## Megger Meter

(EA May '89)



**Checks electrical wiring and appliances for insulation breakdown.**

Insulation breakdown can be determined by the use of this dual range megohm meter. Ideally suited for checking breakdown in electrical wiring, appliances, transformers, automotive generators and alternators, etc. Breakdown can be measured at either 500V or 1000V depending on the required situation.

Would suit electricians or technicians work van, tool box or work bench.

K 2555 **\$79.00**

## Bench Amplifier

(ETI April '80)



**Essential for Audio Project Testing and Design Simple but Effective**

Invaluable for testing all your audio projects. This amplifier is a well proven design with low distortion and high reliability. One of the most useful pieces of equipment in an electronic workshop is a simple amplifier module to test circuits.

- 250 milli watts output into 4 Ohms
- Runs off single 9V supply
- Can give 0.5 watts when run on 12V and heatsink
- Complete kit housed in "ABS" jiffy box.

K 2105 **\$22.70**

## DC Electronic Fuse

(EA Nov '87)



This unit simply clips across the DC fuse holder. Offers protection adjustable from 0-10A in 2 ranges. In essence it's an adjustable DC circuit breaker

**Features:**

- Fast blow - slow blow setting
- Manual reset button
- LED fuse tripped indicator
- Operates off single 9V battery (not supplied)
- Two current settings easily adjustable via a pot and calibrated scale
- Housed in a rugged Jiffy Box.

**A must for prototyping and service work. No Electronic workshop should be without one.**

K 2535 **\$39.50**

## Low Cost Temperature Probe

(EA Jan '88)



Here's an easy to build probe which adapts a multimeter or electronic voltmeter into a general purpose thermometer. Measures accurately from -20 deg C to +120 deg C.

K 2570 **\$21.95**

Multimeter Not Included

## Digital Altimeter for Gliders and Ultralights

(SC Sep/Oct '91)

**Why Pay Up To \$500 for a Commercial Unit When You Can Build this Kit and Save a Fortune**



**NEW FOR '92**

This compact digital altimeter can display altitude up to 19,990 feet with 10 feet resolution. It has a barometric pressure offset adjustment for heights up to 5000 feet and is ideal for use in ultralights, gliders, hang-gliders and balloon. Accurate to better than 3.5 percent and responds quickly to changes in height. Operates on 9V battery or external power supply.

K 2580 **\$299.00**

## Colour TV Pattern Generator

(SC Nov '91)

**Makes Servicing and Aligning TV Sets Simple. Absolutely Essential for the Serious Serviceman**



This new colour TV pattern generator produces seven separate patterns:

- Checkerboard • White raster • Crosshatch • • Red raster • Dot • Colour bars • Greyscale

It will enable you to set your TV's convergence and purity for the best possible pictures. Requires 12V AC plugpack M 9020 \$16.95.

K 2710 **\$115.00**

**NEW FOR '92**

## RF Detector Probe

(EA Jan '88)



This simple RF probe is ideally suited for fault findings and troubleshooting in AM radios. It enables you to follow signal progressively through a circuit. Feeds directly into the input of an audio amp. Requires external supply.

Suited for use with the K 2105 Bench Amp/Signal Tracer

K 2565 **\$12.00**

**Note: SC and EA are the abbreviations for Silicon Chip Magazine and Electronics Australia Magazine respectively**

**Basic Car Alarm**

(1 Oct '87)

This ingeniously simple alarm operates by detecting any voltage drop in the electrical system of your vehicle, eg operation of courtesy light, boot light, cut-wiring of ignition etc, will activate alarm.



**Features:**  
Flashing LED to deter would be thieves and vandals  
Installs in minutes  
Easy to build

K4350 **\$15.00****Creacher Car Alarm**

(Aug '86)



**Warning 110db Modulated Tone**  
Now our top selling Car Alarm. Two Sensor inputs — normally open and normally closed enable simple connection door, bonnet, boot light, switches etc.

K4360 **\$49.50****Ultrasonic Proximity Detector**

(1 Jan '89)

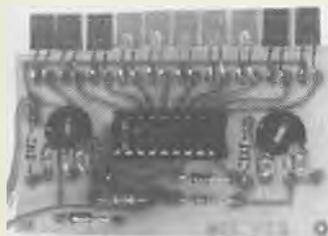
Ever reversed into a parking spot and hit the car behind you? Well this proximity detector is the answer. As you approach any large object be it a car, motor bike, wall etc. at a pre-determined distance, a buzzer starts beeping and just before you hit the object the buzzing becomes continuous, indicating to stop. Simply connects to your reversing light circuit, so in essence comes on automatically every time you reverse. It has an effective range of about 1 metre. Altronic kit comes complete with all parts, boxes and cable.

K4310 **\$34.50****Expanded Scale LED Voltmeter**

(1 Project 328)

Bright single chip design ETI. Ten segment display indicates exact voltage in 0.5V increments from 10.5V to 15V.

Invaluable where voltage monitoring is essential, ie Cad battery charging circuitry etc • Great as state-of-the-art" car battery voltmeter • Easily configured to provide a "Voltage High" or "Voltage Low" alarm output.



Easy to Build Covers a Range of 10.5V to 15V DC

K4325 **\$17.00****LED Digital Tachometer**

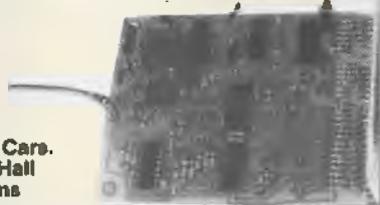
(SC Aug '91)

Have you ever wondered how many revs your car's engine is doing at 100km/h or at any speed for that matter? This digital tachometer will tell you. It works with all ignitions from Kettering to Hall Effect systems and with 4, 6 and 8 cylinder cars. This new tachometer features a bright 4-digit readout that indicates that 0-9900 RPM with a resolution of 100 RPM. This Unit will work with just about any car ignition system. Only three connections are required to connect the unit to your car: one to the negative terminal of the coil and two for power (+12V and GND).

K 4320 **\$31.00**

Box Not Included

Suits all 4, 6, 8 Cylinder Cars.  
Works on Kettering & Hall Effect Ignition Systems

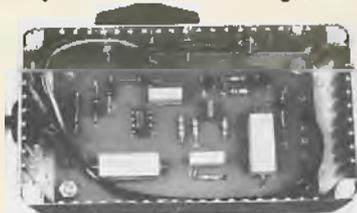
**High Energy Ignition System**

(SC May '89)

This "state of the art" electronic ignition system uses the same semi-conductors as found in modern motor cars. Extends the life of plugs and points. Increases power and improves fuel economy. Compatible for 4, 6 and 8 cylinder engines. Install one into your car and start saving \$\$\$ from the very first day.

K 4015 **\$58.50**

Keep Your Car  
In Top Tune.  
Save Money on  
Petrol, Plugs &  
Points

**DC-DC Converter for Car Amplifiers**

(SC Dec '90)

Input Voltage: 10-13.8V  
Output Voltage: +/-35 to 50V Adj.

This converter can be used to power virtually any amplifier module with an output of up to 100 watts.

As it stands, the circuit can be used to power twin 50W amplifier modules or a single 100 watt amplifier module, the latter possibly being used to drive a sub-woofer loudspeaker.

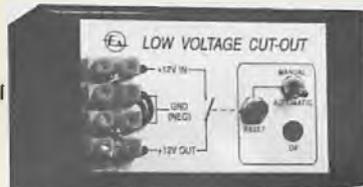
K 4100 **\$139.00****Low Voltage Cut-Out for Cars and Boats**

(SC Jan '92)

Build this simple little device, and avoid getting caught out with a flat battery during your holidays. It simply connects into a 12V accessories power line, and shuts off the flow if the battery voltage drops to a dangerously low level. Ideal for battery powered camping fridges etc.

K 4328 **\$24.95**

Adjustable Cutout Variable from 10.9V to 11.9V. Includes Automatic or Manual Voltage Reset Function.



## Automatic Charger for NiCads

(EA July '89)

Get 100's more recharge cycles from your nicads. It's now well known that correctly charging nicad cells greatly extends their service life.

Here is a fully automatic NiCad battery charger that enables differing charge rates as appropriate for AAA, AA, C, D cells or cells in series up to 9V. Once the battery is charged, the unit automatically switches to trickle charge until you switch it off. It is fully featured, yet surprisingly simple.

Requires M 9020 12V AC Plug Pack \$16.95

### Features:

- Fully punched and screened case
- Variable charge rate
- Variable timer
- Flexible and simple to use
- Visual display of charge mode
- Nicads cannot be over charged

K 1650 \$39.50



## High Capacity Fast Charger for Nicad Batteries

(SC Jan '91)



This charger is designed to operate from a 12V battery. It can charge nicad battery packs from 6-12V at up to 6A, or you can custom wire the circuit to charge battery packs up to 30V at reduced current.

In operation the circuit will recharge a typical nicad racing pack in about 20 minutes.

- ### Features:
- Fast charge rate
  - Switch selectable voltage setting in 1.2V steps from 6V-12V
  - Fully punched and screened front panel
  - State of the art digital circuitry

K 1660 \$129.00

## 12V Gell Cell Charger

(SC July '88)

This simple circuit will recharge your 12V Gell Cells correctly, increasing their life span. Kit consists of one IC and a handful of external components plus the PCB. Charging current and voltage is controlled and over-charging is avoided by the IC switching off when the cell is fully charged.

### Features:

- Automatic charge rate
- Extends life of Gell Cells
- 15V DC - 24V DC input
- Simple to construct

K 1685 \$23.50



## Solar Generator

(ETI Dec '87)

### Charge Your Batteries Free From The Sun

The Solar Generator charges and maintains your standard 12V lead acid car battery via the sun. Fantastic for maintaining batteries which are not used or checked frequently. Ideal for boats, caravans and remote data acquisition stations etc. Note: Must be used in conjunction with a suitable solar panel.

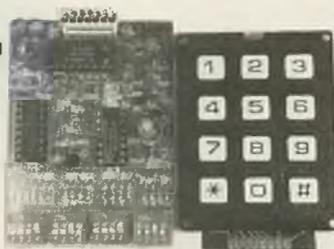
K 1660 \$13.95



## Four Digit Combination Lock

(SC Dec '90)

This simple 4 Digit Combination Lock uses only 3 IC's, and is bound to prove useful in many applications. Such as accessing alarm systems, electronic doors, ignition killers or just about anything that comes to mind.



The code to enable the output is four digits long. All the digits from 0-9, and even the '\*' key can be used in the combination. (This gives you 14641 possible combinations). The circuit is designed to automatically reset if any key is pressed out of sequence during entry of the code. Power for the combination lock can be derived from any 11-30 volts DC power. The circuit also has provision for battery back-up, which is obtained from 8 x AA batteries or a single 9V Nicad battery. Ideal for use with electrical door strike \$ 4390. Electrical switchplate and batteries not supplied.

K 1925 \$39.95

## 2 Sector Alarm System

(EA March/April '89)

Over the last few years, house break-ins have increased dramatically. Now more than ever before, it makes extremely good sense to build and install this alarm kit.

### Features:

- Includes 12V 1.2 Amp hour inbuilt sealed lead-acid backup battery
- Easy to build as it all assembles on a single PCB
- Two sectors - delayed and instant inputs
- Entry and exit delay
- Panic alarm input
- Battery backup
- Line monitoring
- Soft pre-alarm
- Lamp tell-tale output
- Auxilliary relay for external siren etc
- Key switch operation
- Operates on virtually any type of sensor

K 1910 \$89.00



## Build this Infra-Red Light Beam Relay

(C. Dec '91)

This simple project allows you to monitor a doorway or a path using an infrared light beam. When someone walks through the beam, it triggers an alarm for a 1 second period. Ideal door monitor for shops or for security around home or office. Requires 12V DC plugpack (M 9002).

1920 \$32.95

NEW  
IN  
'92



## FM Radio Microphone

This simple FM Microphone Kit can be built in next to no time and only requires an ordinary FM Radio for reception.



Works in the standard FM Range 88-108MHz • Runs from a single 9V battery • High sensitivity microphone insert supplied • Long range transmission approximately 30M.

Uses:

- Wireless Microphone • Professional Eavesdropping • Listen to the TV in the kitchen • Makes an excellent child minder • Could be adapted to an alarm eg. send a tone to your clock radio when your car alarm trips.

K 1106 \$11.50

## Video Enhancer

(Oct '83)

Sharpens up your picture when copying video to video. It's a simple but effective video enhancer that is super easy to build at a fraction of the cost of commercial models.

It sharpens picture detail, and can actually improve the quality of a copy by amplifying the top end of the video signal.

Specifications:

Signal to noise ratio 50db ref. 1V p-p  
Frequency response (flat): 1Hz to 6.5MHz -3db  
Boost and cut plus and minus 6.3db  
Gain 0db  
Input impedance 68 Ohms  
Complete kit supplied with silk screened front panel

5825 \$42.50



## Video Amplifier

(EA Aug '88)

For computers and videos with low video output.

This video amp can greatly improve picture stability and eradicate shimmer, screen swim etc. Two outputs, normal and inverted. Ideal for VCR users. Tired of a grainy or snowy picture? Connect this amp internally to your TV and presto, the improvement is fantastic! (Documentation is quite detailed on connection to TV sets).

K 5850 \$17.50



## Telephone Line Grabber

(Mar '88)

The Telephone Line Grabber has been designed to prevent interruption from one extension to another. When the extension is being used it automatically mutes the other extension(s). This allows complete security for your call no more interruptions from kids lifting and listening in, no more accidental over dialing. Also great for use with extensions. One unit required for each extension.

1415 \$19.95



## FM Stereo Transmitter

(SC Oct '88)

Turn Your CD Player into a Mini FM Transmitter.

Simply connect your CD player or any other source to the mini mitter which converts the audio signal to an FM signal. This FM signal then can be tuned in via any FM radio. Great for listening to your favourite CD while washing the car, mowing the lawn or doing the vacuuming etc, without blasting the neighbours. Powered by single 1.5V penlite battery. Single IC circuit. Simple to build and construct.

K 1120 \$43.50



## Telephone Off Hook Indicator

(Nov '87)

Where 2 or 3 phones are connected on one line. If one extension is in use a LED will flash in each of the other extensions. Requires no external supply. Runs off the telephone line. One module required for each phone.

1400 \$9.95



## TV Transmitter for Video Recorders

(SC Dec '91)

This TV transmitter enables you to transmit signals from the UHF output of your VCR to a second TV set in the house without messy splitters and cables. It uses two IC's and has a range of about 20 metres. Requires 12V DC plugpack (M 9002).

This Kit is available for videos with a UHF and VHF TV output.

K 5860 UHF Version \$74.95  
K 5865 VHF Version \$74.95



NEW FOR '92

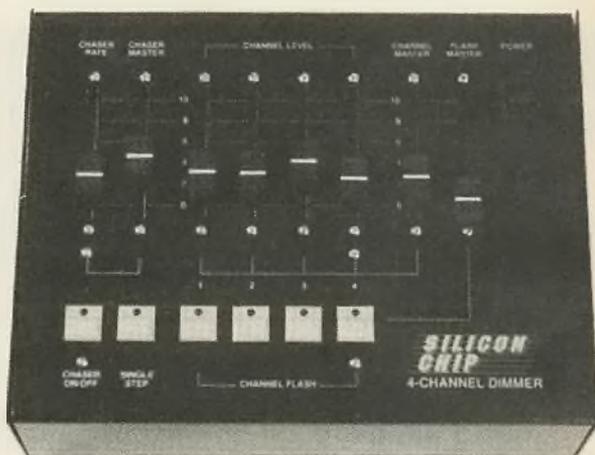
**New 4-Channel Lighting Desk**

(SC June/July '91)

**NEW FOR '92**

Make your stage production a professional show with this new Lighting Mixer. Ideal for amateur theatre groups bands etc.

This 4-channel lighting desk is intended for theatre, disco and music group applications. It has heavy duty circuitry and is able to cope with spotlights rated up to 1000 watts or more. It has been designed and built for the rigours of commercial use. It has been designed in consultation with a professional lighting engineer and has the features normally expected by professional users. You can flash each channel up to any brightness level, as set by the "Flash Master" fader. Similarly, the "Channel Master" control fades all lights up or down, to or from their individual fade settings. Two chaser faders control the rate and lamp brilliance when the unit is operated in chaser mode. The lights can be flashed to full brilliance or to an intermediate setting as set by the "Chaser Master" fader.

K 5815 **\$329.00****DiscoLite Chaser & Colour Organ**

(SC July/Aug '88)

Add Some Colour To Your Next Party. Great For Parties, Shop Displays and Special Lighting Effects.

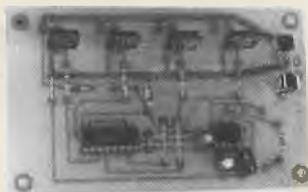


The DiscoLite flashes party lights on and off in beat with music from your amplifier • 4 light channels controlled by 4 separate audio channels • Forward reverse and auto-reversing chaser patterns • Simultaneous strobe on all four channels • Alternating light patterns • Music modulation available on chaser strobe and alternate patterns • Inbuilt microphone for beat triggering or audio modulation of lights • Direct inputs for beat triggering or audio modulation of lights • Sensitivity control • Presettable sensitivity levels for each channel • Front panel LEDs mimic light display • Altronics Kit punched and silk screened

K 5805 **\$159.50****Simple 12/24V Light Chaser**

(SC April '91)

Looking for a simple circuit to sink your teeth into? This 12V light chaser has four separate channels, variable chase rate, fuse protection and uses just two IC's. There are four channels and each channel can handle up to a 36W, 12V light bulb with only a modest amount of heat-sinking. A single rotary control lets you vary the chase rate from about one flash every two seconds to four flashes per second. Will run from a 12V to 24V DC supply.

K 5810 **\$39.95****NEW  
IN  
'92****Beat Triggered Strobe**

(AEM July '85)

Add Some Life To Your Next Party

Designed by Australian Electronics Monthly. Flashes in time to your music. Will also work as normal strobe. Exclusively customised by Altronics into our H 0480 Instrument Case, making construction a breeze and improving stability and overall appearance. Includes silk screened panel. Two tube option available which boosts lighting output.

K 5790 Strobe Kit **\$79.95**K 5795 Two Tube Option **\$16.50****LED Bargraph Display**

(ETI Oct '83)

This easy to build level meter displays a peak reading from -21db to +6db in either dot or bar mode. Incorporates our exclusive imported LED Bargraph Module giving a very professional finish. Great for the car, home Hi Fi, disco console, mixers, audio monitoring.

K 5412 **\$23.95****Voice Operated Relay**

(EA April '82)

This versatile Vox circuit is triggered whenever a noise or sound is made causing a relay to close.

Think of the uses:

- Controlling tape recorders
- Slide projectors
- Eliminate the need for a press to talk button on transmitters
- Turn on external porch lights
- Paging systems
- Hands free intercom switchover
- Reaction sensitivity and "On Time" are fully variable

K 5540 **\$22.00**

**ALTRONIC COMPONENTS • PHONEORDER TOLL FREE 008 999 007**

### Single 'DI' Box

(A Oct '87)

Converts high impedance unbalanced inputs to low impedance balanced outputs. Used in studios, music, PA industry to convert high impedance devices ie electric guitar pickups, synthesizer etc to low level balanced outputs to be fed over long lines. This is done to prevent hum pickup.

- Features:
- Sturdy diecast box
- Black tough indust. powder coat finish
- Professionally screen printed
- Earth isolate switch
- 15db pad switch
- Phantom powered or internal 9V battery.

5550 \$45.00



### New Quad 'DI' Box For Stage & Studio

(EA June '91)



This simple unit will replace four separate direct injection (DI) boxes, but at a fraction of their total cost. It offers excellent performance, and is ideal for connecting a bank of electronic musical instruments to a standard mixing desk. Operates on 9-25V DC or M 9004 plugpack \$15.95.

K 5555 \$79.95

**NEW FOR '92**

### Low Cost 'Karaoke' Adaptor

(A Nov '91)

**NEW FOR '92**

It's time to bring out all those hidden vocal talents that you've always known were there. With this project you can remove the lead vocal from almost any recording, and replace it with your own or a standard microphone. It's a great way to liven up a party! This project works on the assumption that the lead vocal in most stereo recordings has been placed mid-way between the left and right channels, or is in fact a mono signal. Requires 2 9V batteries.

Simply connects in line between CD or Tape Deck and Amp. Mic Socket  
6.5mm Jack

1170 \$34.95



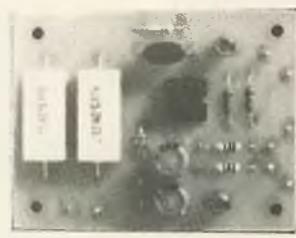
### Bridge Adaptor for Stereo Amplifiers

(EA June '85)

With this simple circuit it is possible to make any stereo amplifier deliver four times its single channel power into a single load. It uses just one economy integrated circuit and a few other components. Full connection details supplied with the kit.

- Specifications
- Input Impedance: 220K Ohm
- Output Impedance: less than 1K Ohm
- Maximum input & output: Greater than 8V RMS
- Frequency response: 10Hz to 300kHz +/-1 dB
- Harmonic Distortion: less than .001% @ 8V RMS

K 5565 \$15.95



### Sub-Woofer Adaptor

(A May '89)

Get an amazing bass improvement from your stereo system. This fantastic adaptor simply "samples" your stereo amp input and provides a single channel output to feed a separate sub-woofer amp. The wanted audio spectrum is removed with the Frequency Control (cut-off threshold adjustable 60-130Hz). Also includes an "out of phase" input enabling the use of stereo amp in a bridge configuration for those who really want to rattle the motorboards. Requires 12V AC or M 9020 plugpack \$16.95.

5560 \$29.95



### Speaker Protection Kit

(ETI Oct '82)

Cheap insurance for that \$1000 Speaker System. Protect your valuable loudspeaker system with this easy to build kit. Based on the ETI design (Oct '82) provides both DC and overpower protection for your valuable Hi-Fi speakers. Self-powered unit disconnects the speakers within 1/10th of a second of a fault occurring yet with no audible effects of the sound quality. Just connects into speaker line. Install it in minutes. No power supply connections required. N.B. one kit is needed for each speaker box.

K 5051 \$35.00



### Baby Room Monitor & FM Transmitter

(S.C. Jan '91)

This Baby Room Monitor allows you to listen to your baby in a remote location using a conventional FM receiver. It is powered from a single 1.5V AA battery and includes a muting facility so that it only transmits sounds above a certain level.

K 1180 \$24.95

Radio Receiver Not Included



### 2 Way Active Crossover

(E.A. Jan '92)

This great new kit enables you to customize your sound system in your car or at home. The circuit simply connects between the audio source and the amplifiers. There are two outputs, one for bass and another provides signal for the upper range. Thus each amp is dedicated to a frequency range (i.e. one for bass, one for midrange and treble). Because no passive crossover is required in the speaker one per channel is required. Operates on + and -15V rails. The result is much better sound with less distortion.

K 5570 \$19.95



## Playmaster "Pro Series One" High Power Mosfet Amplifier

(EA Dec '88/Jan '90)

This design has been carefully developed to produce a high definition audio output with reliability, ease of construction and low cost. Kit comes complete with all components, toroidal transformers and case. The diecast front panel doubles as the heatsink. The chassis is supplied in kit form and assembles in minutes.

**Features:**

- Individual toroidal transformers for each channel for low residual hum
- Individual power supply components for each channel
- Diecast front panel doubles as the main heatsink
- Straight forward construction
- Mosfet technology for ultra-high performance
- Overload indicator indicates when distortion is above 0.05%
- Independent Power Supplies for Total Channel Separation

**Performance:**

**Power Output:** .....140W RMS into 8 Ohm  
200W RMS into 4 Ohms

**Harmonic distortion:** .....0.005% at 100W RMS into 8 Ohms  
0.007% at 140W RMS into 8 Ohms  
0.008% at 200W RMS into 4 Ohms

**Frequency response:** .....10 Hz to 100kHz

**Signal to noise:** .....More than 100dB below rated output

**Sensitivity:** .....0.83V RMS for 100W into 8 Ohms

K 5070 **\$599.00**

*Exceptional Value! Compares Favourably to Other Units Costing \$100's More*

## Studio 200 Stereo Control Unit

(SC June/July '88)



**Outperforms Commercial Units Costing \$600 Or More!**  
The Studio 200 features slim 1u rack mount profile, treble, stereo mono switch and volume control. Inputs include phono, tuner, VCR and tape loop. Virtually all components mount on PCB's, making assembly and construction a breeze. Altronic kit includes fully professionally punched and printed panels.

**Specifications:**

**Frequency Response:** .....20Hz to 20kHz(Phono Input)  
10Hz to 100kHz(High Level Inputs)

**Total Harmonic Distortion:** .....Less than .005%, at rated output

**Tone Controls:** .....Bass: +/-10db at 100Hz  
Treble: +/-12db at 10kHz

K 5015 **\$229.00**

## 50W Mosfet Module

This great module features moderate power output at low harmonic distortion. Simple to build and compact in size this unit makes a great replacement module for your old Hi-Fi or buy two and make your own stereo amplifier.

K 5115 **\$49.95**

**NEW  
IN  
'92**



## Playmaster Pro Series One 200W Mosfet Module

(EA Dec '89)

This amplifier module has all the same high specs as the "Stereo Pro Series One" (K 5070 above), but in short form i.e. One mono module — no power supply or case. Fantastic for use in Juke boxes, amplifier racks (multi-amplifier setups) discos etc. See above for specifications.

K 5170 **\$85.00**

## 20 Watt Utility Amp Module

(EA Nov '84)

All components mount entirely on one printed circuit board, even the heatsinks! Design uses discrete transistors and is very easy to build. In addition, the module presents an ideal opportunity for the hobbyist to gain an understanding of how an audio amplifier works.

DC Supply	Pwr Into 8 Ohms	Pwr Into 4 Ohms
20V	4W	6.6W
30V	8W	12W
35V	15W	19W

**Specifications:**

**Signal to Noise Ratio:** ...58dB with respect to 1W

**Load Impedance:** .....4 Ohms or greater

**Quiescent Current:** .....22mA with 8 Ohms load

K 5112 **\$26.95**

## Stereo 50 + 50W Midi-Style Amplifier

(Feb and March '92)



CB Only Illustrated. Full Picture Not Available at time of Printing. Kit Includes Cabinet.

This fantastic new amp has all the features of commercial units costing hundreds of dollars more using tip 142/147 transistors it is capable of producing a total of 50 Watts per channel RMS. Into 8 Ohms makes an ideal replacement midhi fi.

**Performance:**  
**Input Power:** ..... 55W into 8 Ohms,  
 80 watts into 4 Ohms  
**Harmonic distortion:** ..... typically less 0.05%  
 20Hz to 20kHz)  
**Frequency response:** .... 15Hz to 35kHz +/- 1dB  
**Signal to noise ratio:** .... 105dB unweighted,  
 117dB A-weighted  
**Output Sensitivity:** ..... 900mV

**NEW  
IN  
'92**

Kit #5045 **\$249.00**

## Balanced Input Pre-Amp

(1 Dec '82)

High Performance balanced input. Makes a great mic input stage -30db gain.

**Specifications:**  
 Frequency response 12Hz-20kHz • T.H.D. Less than 0.12% • Input impedance nominal 560 Ohms • Output impedance nominal 260 Ohms • Common mode rejection ratio — easily adjustable to 20dB



Kit #530 **\$19.95**

## General Purpose Pre-Amp

(1 July '76)

Makes a great phono, guitar, mic, and just about any other pre-amp. Based upon a classic LM 382 IC. Requires 10-40V DC. Output automatically limited to about +6V with 100% ripple rejection.



Kit #510 **\$18.50**

## 120 Watt Public Address Amplifier

(SC Nov '88)



### High Performance Low Noise P.A. Amplifier

This professional quality Public Address Amplifier offers performance equal to or better than commercial units, at about half the price. Amplifiers using 100V line outputs are used extensively in everyday situations where numerous speakers and long output lines are employed. Ideally suited for Halls, Churches, Clubs and even temporary setups.

**Inputs:** ..... 2 balanced mics (3 Pin XLR connectors)  
 2 Auxiliaries (RCA connectors)  
**Outputs:** ..... 4 Ohm, 8 Ohm or 100V line.  
**Power Output:** ..... 125W RMS into 4 Ohms  
 90W RMS into 8 Ohms  
 120W RMS into 100V line

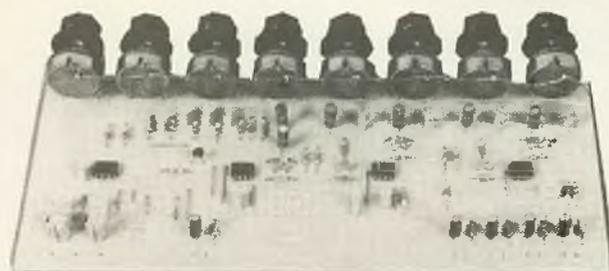
**Frequency Response:** ..... 30Hz to 30kHz  
**Harmonic Distortion:** .. Less than 0.3% from 20Hz to 20kHz

Kit # K 5020 **\$499.00**

## 4 Channel Guitar Mixer and Preamp

(SC Jan 1992)

**NEW  
IN  
'92**



This project takes advantage of the new low noise, low cost op amps available. This unit features separate bass, midrange and treble controls, very low noise and distortion, separate input level controls plus an output level control. Ideal for use with most musical instruments from keyboards to guitars to tape decks. In fact, you can feed it with just about any audio signal — it's not just limited to guitar outputs.

### Specifications:

**Signal to noise ratio:** (at 50mV input @ 1kHz) — All inputs closed: -96dB/All inputs open: -82dB  
**Distortion:** (at 1kHz and 100mV input) less than 0.0075%  
**Graphic Equaliser:** Bass: +/-14dB @ 100Hz (+/-1dB interaction with midrange); +/-19dB @ 50Hz/(+0.3dB interaction with midrange)  
 Midrange: +/-11dB @ 1kHz (+0.8dB interaction with bass, +/-2dB interaction with treble).  
 Treble: +/-11dB @ 10kHz (+/-2dB interaction with midrange).  
**Maximum output:** approx 23V p-p interaction with midrange).  
**Frequency response:** 18Hz-35kHz (+/-3dB).

The kit includes PC Board, potentiometers, input sockets and all specified components. The kit does not include the optional ground plane, nor the 15V power supply board.

Kit # K 5535 **\$49.95**

**PC Voice Recorder**

(S.C. Aug '91)

Enter the world of digitized speech with this low-cost PC Voice Recorder. It can record messages up to 20 seconds long, store them on hard or floppy disc, and then replay them when you wish. This kit provides the interface between the speech and your computer. It takes in speech, turns it into digital data which the computer can use, and then later accepts that digital data and turns it into speech again. Requires 12V DC M9002 pluggack. Note that software is not included and needs to be purchased separately for \$25 plus postage and packing. Full details of where to obtain software is included.

K 9510 **\$32.95****Speech Synthesizer**

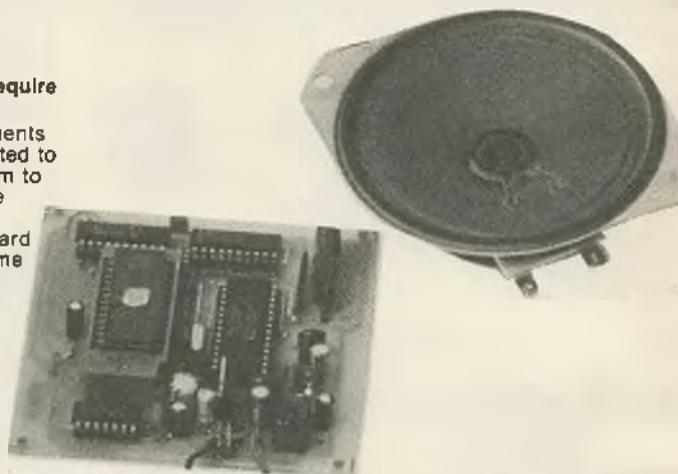
(ETI March '88)

Here is a self contained Speech Synthesizer that does not require a computer to control it.

This small, simple circuit contains all the necessary components to make your favourite possessions speak. It can be connected to almost any appliance, vehicle or home remote control system to let you know when the kettle has switched off, the doors are locked or the water in the radiator is boiling. The inputs are coded and priority message reading means warnings are heard instead of greetings etc., if two messages are sent at the same time. Blank Eprom included to allow you to programme the messages you want.

**Features:**

- Self contained circuitry
- Simple double-sided PCB
- Comes complete with speaker and Eprom
- 12V DC operation

K 9500 **\$95.00**K 9502 Pre-Programmed Eprom to Suit **\$20.00****Digital Voice Recorder**

(SC Dec '89)

The Days Of Tape Decks Are Numbered. This Digital Recorder delivers astonishing reproduction of voice and/or music without any moving parts.

Here is a digital voice recorder that can store 4 different signals, voice, sound or a music source of up to 30 seconds each or one recording of up to 2 minutes.

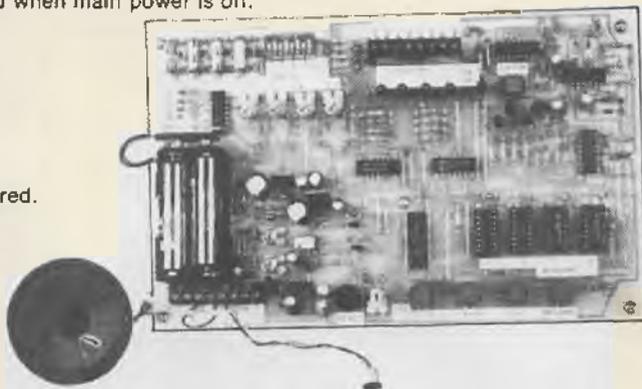
This digital voice recorder uses a special voice recorder/playback IC and 7 other IC's making it both simple to construct and incredibly economical.

Separate 256K Ram chips are used for each channel. These memories can be ganged to provide a total of 2 minutes of message time. There are 4 trigger inputs so that a message can be stored when a certain condition occurs.

Battery backup is provided so that the messages are retained when main power is off.

**Typical applications include:**

- Alarm system messages
- Sales messages for customers put "on hold"
- Experimental telephone answering machine
- Door station announcer
- Talking displays for shops
- Emergency warning message announcement
- Operation instructor for machinery etc
- Countless other applications where voice or music is required.
- \$100's cheaper than imported digital recorders

K 9550 PCB Format **\$129.00**

And for those who want a professional appearance — stand alone product, this kit is also available with a deluxe instrument case and screened front panel.

K 9555 With Instrument Case **\$149.00**

**High Power Car Alarm**  
With Wireless Remote Control



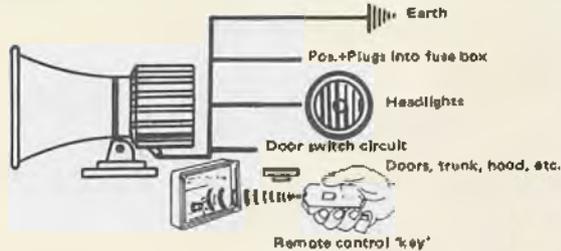
5220 \$99.00

5221 Additional Remote Control \$29.95

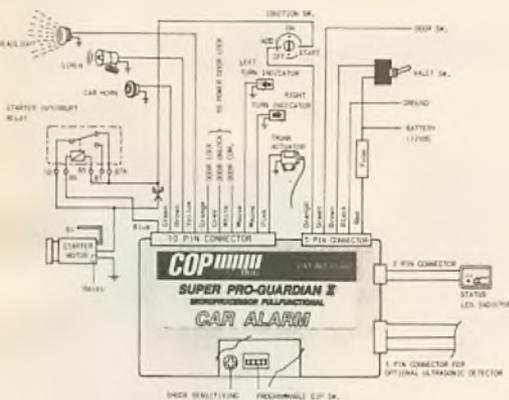
125 dB siren. Visible warning by flashing headlights when the alarm system is triggered.

**Wireless remote control** allows keyless and trouble-free arming and disarming. Chirp confirms when alarm is armed, flashing the headlights confirms dis-arming.

The alarm system will be triggered by unauthorised entrance through the car doors, boot, bonnet (negative trigger inputs) or removal of the car sound unit (normally closed input to earth). Automatically resets after 60 seconds.



**Micro-Processor Controlled Car Alarm**  
With Wireless Multifunction Remote



Protect your car from theft. Install one of these alarms and save hundreds of dollars on comparable systems.

5230 \$249.00

5231 Additional Remote Control \$48.50

**Features:**

- Multi-function keyring remote control
- Built in shock sensing
- Starter inhibitor
- Car location facility - chirps car horn during the day, flashes lights at night, all via remote control
- Emergency panic facility immediately sounds siren once activated by remote
- Boot release can be remotely operated (where fitted)
- Central door locking interface enables doors to be locked/unlocked simultaneously when alarm is armed/disarmed via remote (where fitted)
- Remote transmitter utilises 'Saw Resonator' circuitry for optimum frequency stability
- EEPROM coding on transmitter and receiver enabling 50,000 different codes for high security
- RF lockout safety system eliminates the possibility of accidental activation of alarm while vehicle is driven
- Using the slide switch on the transmitter, one control unit can operate two cars, making it ideal for multi-car families
- Switchable 'chirp' confirmation when alarm is armed/disarmed
- Programmable remote exit delay (5-30 seconds)
- Automatic arming mode — effective when last door is closed
- Valet/override switch for valet parking or when vehicle is serviced
- Alarm will reset after 60 seconds if tripped.

**Satellite Siren**

Connects easily into most car or house alarm systems.

This self contained compact unit delivers a massive 120dB of deafening sound pressure once activated. It connects simply via 3 wires to any alarm system (car or house) that has an output that is normally negative (or low). When the alarm system is activated and the output goes positive (or high) the siren will sound. The siren will also operate if the wires to it are cut. Hence it adds extra security to your system if someone tampers with it to disable it. Simply armed and disarmed via inbuilt key switch.

**Features:** • 120dB output • Built in back up battery • Simple 3 wire connection • Compact design • interfaces with house or car alarm • Could be configured as a stand alone simple alarm • easy key switch operation

5235 \$63.95

NEW FOR '92



Self powered electronic piezo siren with rechargeable built-in battery, 120dB output. In case a thief cuts the wires in an attempt to paralyze it, the siren will sound immediately.

## Protect your Home or Business from Intruders With One of These "State of the Art" Burglar Alarm Security Systems

Theft and burglary have always been with us. However in todays hard economic times It is on the increase rapidly. With "thugs" on the lookout for easy money from the sale of your hard earned goods, it NOW makes sense to protect your family and possessions with one of these systems.

### Economy 3 Sector Alarm Panel

For Homes and Small Commercial Premises

Features:

- 3 Independent Protection Sectors
- All Sectors are Compatible with N.O. and N.C. Switches
- All Sectors are Sealed with End-of-Line Resistors
- Adjustable Timers for Entry Delay and Siren Duration
- Built-in Siren Driver
- Output Relay is Selectable for "Latch" or "Timing" Operation
- Remote Arming and Disarming Control Possible
- Remote and Local Alarm Status Indication
- Key operated arm and disarm
- Requires 16 Volts AC M 9025 Plugpack, and Battery Backup S 5065/7 (Not Supplied)



S 5480 **\$139.00**

### 4 Sector Alarm Control Panel

For Commercial and Residential Premises

4 independent sections accept N.O. and N.C. sensors. Any sector can be individually isolated, (e.g. when at home you may want to turn a perimeter sensors, allowing movement inside). User selectable 4 digit pin number allows you to arm and dis-arm the alarm via digital keypad.

Sector 1 — 24 hour (Panic and Tamper), Sector 2 — Instant, Sector 3 — H/over Feature, Sector 4 — Delayed.

Hand over feature on sector 3 operates as follows:

If sector 3 is tripped the alarm operates instantly. However if sector 4 is violated before sector 3 the alarm triggers on a delay. E.g. the front door reed switch operates on sector 4. A P.I.R. which detects movement as you enter the front door is connected to sector 3. Under normal conditions as you enter your armed house, sectors 4 and 3 are violated in succession resulting in a delayed entry. However any entry other than the front door (e.g. window, or back door) and the P.I.R. on sector 3 is violated first the alarm will be triggered instantly.

Features dual Intelligent siren drivers (i.e. if one speaker wire is cut the other will sound). Constructed in sturdy steel case. Requires 1.2Ah gell cell for battery back-up (S 5065), 16V AC plug pack (M 9025) and 8 ohm horn speakers for sirens (C 2015).

Features:

- 4 Independent User Isolatable Protection Sectors • Dual Siren Drivers with Tamper-Proof Feature • Arm - Disarm by Digital Access Key-Pad • Alarm Recycle or Inhibit Operation Selectable • Adjustable Siren and Entry Delay Timers • Forced Arm or Arm Prohibited Operation Selectable • Multi-Remote Stations possible for Arming and Disarming Control • Built-in Latched and Timing Output Relays • Alarm "Pre-Warning" or "Silent" Selectable • All Sectors are Compatible with N.O. and N.C. Switches • All Sectors are Sealed with End-of-Line Resistors

S 5485 **\$249.00**



### Styllish - Flush/Surface Mount 3 Sector Alarm Control Panel

With styllish and compact good looks this alarm panel can be either surface or flush mounted to blend smoothly into any residential or office decor.

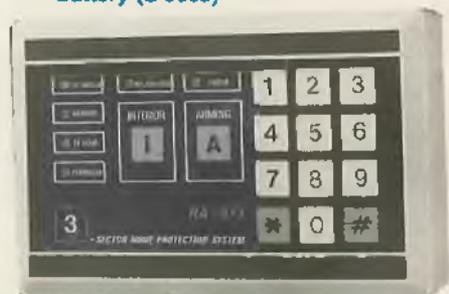
User selectable 4 digit PIN code to arm and disarm panel. 3 sectors — perimeter, interior and 24 hour.

Note: Requires external 16V AC Plugpack (M 9025) and Backup Battery (S 5065)

Features:

- 3 Independent Protection Circuits 24 hour fire/panic, external and internal (isolatable)
- All Sectors are Compatible with N.O. and N.C. Switches
- All Sectors are Sealed with End-Of-Line Resistors
- Adjustable Timers for Entry Delay and Siren Duration
- Auxillary output Relay. Latch or Reset Selectable
- Built in Siren Driver
- Arm - Disarm by Digital Access key pad
- Fits into standard 3 gang wall plate
- Plug in wiring harness supplied
- Ideally suited to small commercial and residential premises

S 5490 **\$119.00**



## Economical Alarm System Kit

Supplied with all major components to complete a working system - Even cable.

This commercial quality kit includes all the major components to install a complete basic security system, easily installed by the Home Handyman.

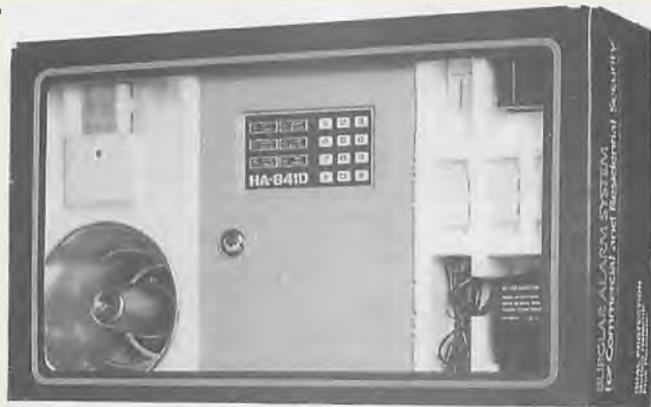
The kit comes complete with the following components: • One Alarm Panel • One Passive Infrared Detector (P.I.R.) • One AC Power Pack • One 8 Ohm Horn Speaker • Three pairs of Magnetic Reed Switches • One 12V/1.2AH Rechargeable Back Up Battery • Emergency Panic Button

As is, the kit will suit most average homes. Using the Magnetic reed switches on external doors and the P.I.R. covering the area containing the most expensive portable equipment, e.g. lounge and games room housing V.C.R., CD, Hi Fi systems, TVs etc.

Naturally, the system is fully expandable and can be fitted with extra sensors if required.

**Alarm Panel Features:** • 5 Protection Circuit Loops • Independent Connections for N.C. and N.O. Sensor Switches • Arm - Disarm by Digital Access Key-Pad • Multi-Station Remote Control • Warble Tone — Steady Tone Siren Driver • Adjustable Timers for Entry Delay and Siren Duration • "Latch" and "Timing" Output Relays • Remote and Local Alarm Status indication

£ 5470 **\$349.00**



This system is easily installed by the Home Handyman. No special tools or equipment are Required. Comprehensive installation instructions supplied.

## Super Small Passive Infra-Red Movement Detector

Incorporates Pulse Count Triggering

Using the latest technology this compact Passive Infra Red Detector (P.I.R.) features Pulse Count Triggering which virtually eliminates false alarms.

Pulse Count Triggering works as follows. The circuit first senses an alarm (pulse 1) and then goes into alarm standby mode for 30 seconds duration. If during the 30 second standby mode a second alarm event occurs (pulse-2) the detector goes immediately into alarm status. If there is no second alarm pulse during the 30 second standby mode, the detector returns to the normal state.

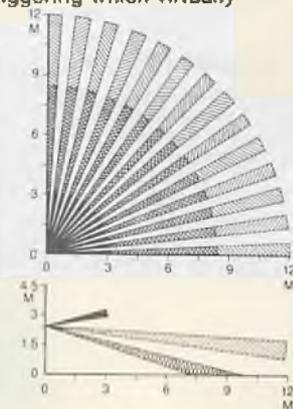
**Features:**

- User selectable Pulse Count On/Off
- Dual Element Pyroelectric Sensor
- Wide 12m x 12m 90° angle Detection Pattern
- Surface or corner mounting (Interior use only)
- Wide operational voltage range 8-16V DC
- Architecturally attractive
- Interfaces with most alarm panels
- N.C. Tamper switch
- User selectable Walk Test LED On/Off

£ 5302 **\$79.00**



**Incredibly Small!**  
Only 55 x 31 x 73mm



## Digital Access Keypad

For Security and Door Strike Applications

This digital access keypad is a 12-button electronic lock. It provides two sets of secret codes. One code is a 4 digit PIN to enable an alarm panel etc. to be remotely armed and dis-armed. The second code is a 2 digit PIN (which are pressed simultaneously) designed for panic function. Both codes can be easily changed by arranging jumper pins on the back of the unit. Designed with the latest electronic circuitry it offers high reliability, security and immunity to all types of EMF, static electricity and RF noise.

The keyboard is mounted on a brushed stainless steel mounting plate, which is designed to fit into a single gang wall box. Also includes N.C. tamper switch. Relay outputs either latched or momentary (adjustable) for both security and panic functions.

**Features:**

- 11880 possible Security Key Combinations • 132 possible Panic Button Combinations • Wide operating voltage 6-16V DC • Momentary or Latch selectable for both security and panic outputs • N.O. and N.C. relay contacts for both security and panic outputs • Inbuilt Tamper Switch • Alarm Status Indicators • Flush or Surface Mount • Interfaces with most alarms • Eliminates the need for keys

£ 4200 **\$69.95**

*Ideally Suited to the Alarm Panels on the Opposite and the Next Page!*



**Why Pay A Commercial Security Firm A Fortune To Wire Your House or Office. This Fantastic System Installs In An Hour or Two And Uses No Wires**

## UHF Microprocessor Controlled Wireless Security System

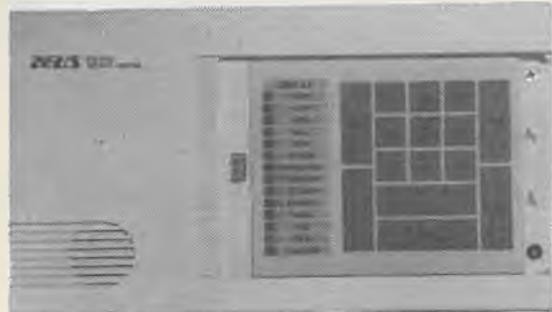
Apart from the flawless operation of the system one of the great features is its application with rented or leased premises — let's face it, money spent on installing a wired system in your home or office, factory, etc is irrevocably lost when you move on. With this system you simply take it with you.

• 5 modes of operation. OFF, HOME, AWAY, PANIC, Bell. • OFF: Control panel ignores all signals from sensors. • HOME: Control panel responds to all sectors except interior ones. i.e. door, windows and 2 perimeter. • AWAY: Control panel responds to all sectors. • PANIC: Alarm sounds immediately. Can be triggered by the personal remote control, control console or door sensor. • BELL: Alarm sounds only when door sector is activated. This mode can be used as a doorbell with buzzer sounding in the control console only. Ideal for use in shop environment. • Fire zone enabling smoke detectors to be connected. • Silent alarm zone. If a telephone dialler is connected alarm will not sound, so intruder is unaware alarm has been triggered. • Trip switch under control panel cover activates alarm if tampered with. • Up to 6 digit security code for alarm system. • Self test system indicates if a zone or alarm system is faulty. • Self test system indicates last zone triggered. • Internal speaker for alarm and doorbell. • Internal piezo electric device for confirmation of entries. • All transmitters have approx 30 metre range from control panel. • Both users manual and installation manual supplied with unit. • 240 volt operated with back-up battery supply. • Optional wireless remote keypad — ideal if both front and back doors are used for entry/exit. • Operates on 303.675MHz, approved by the Dept. Transport and Communications.

### Complete system includes:

- 1 x Control Panel
  - 1 x Passive Infra Red Detector/Transmitter
  - 1 x Door/Window reed Switch/Transmitter
  - 1 x Hand Held remote Control/Transmitter
  - 1 x Horn Speaker — 10 watt/wired
  - 1 x 240V AC adaptor
  - 1 x 1.2Ah Back-up Battery
  - 1 x Set of batteries for all transmitters
- S 5240 Complete System**

Only **\$679.00**



### Wireless Remote Keypad

This allows the owner to control the system via a remote keypad, which would normally be installed close to the door where you enter and leave the house. It allows you to set the mode of the system by entering a private number, without having to use the Personal Remote Control

S 5255 **\$135.00**



### Personal Remote Control

Each button on the Personal remote Control is clearly labelled and self explanatory. The remote control will turn the Control Console OFF, ON (either HOME or AWAY model), and also includes PANIC.

S 5250 **\$62.95**



### External Siren

8 Ohm, 10 watt type.

C 2015 **\$15.95**

### Passive Infra Red Movement Detector

Ideal for the lounge room, family room or hallway i.e. anywhere where an intruder is likely to pass through. Mounts up on the wall or on top of the bookshelves etc. Detects movement within an area of 9M by 9M by sensing intruder body heat movement through the protected area.

S 5245 **\$155.00**

Alternative Lens to suit above  
 S 5246 Vertical Barrier Lens \$7.95  
 S 5249 Long Range Lens \$7.95



### Door/Window Reed Switch & Transmitter

This consists of an enclosed reed switch and compact UHF transmitter. The unit is at rest when magnet and reed are side by side. When the magnet is moved away more than approximately 25mm it signals the transmitter Main Control Receiver and the alarm is sounded.

S 5247 **\$72.95**



### Optional Hard Wired End of Line Board

Enables normal wired reed switches etc to be interfaced into the system. The optional PCB is simply plugged inside the main control unit (full instructions supplied). Will accommodate 8 separate sectors.

S 5257 **\$57.50**



## Passive Infra-Red Lite Aide Floodlight Control

How often have you thought there could be a prowler outside your door? Install a Lite Aide and (once armed) any "guest" will be floodlit when detected by this highly sensitive Infra-Red Detector

The Lite Aide detects a moving person or vehicle by comparing the background temperature with a rapid change of temperature across the detection beams. So when Lite Aide detects movement across the coverage area, it will turn on the floodlight(s) for 10 secs to 15 minutes as pre-adjusted.

### Important Notes:

This unit is suitable for external installation, however, the following points should be followed (A) Unit must be located at least 2.5M above floor/ground level (B) Protection from direct weather by roof eaves or decking is preferred (C) Even through the connection to mains wiring is quite simple (all connectors supplied) purchasers are reminded that wiring to energy authority mains supply should always be performed by a licensed electrician.



### Specifications:

- **Detector:** Dual element pyroelectric PIR sensor
- **Rating:** outdoor all weather operation
- **Photocell** to deactivate sensor during daylight
- **Operating Voltage:** 240V AC 50Hz
- **Operation Time:** Adjustable 10 secs to 15 minutes
- **Sensitivity:** Adjustable 20'-50', 30 beams
- **Adjustable** to desired direction with 2 ball joints
- **Switching Capability:** 2 x 150 Watt max. Incandescent lamps
- **Operation Modes:** Off, Auto, Test, Manual On.

\$ 5350 **\$69.00**

Please note globes not supplied

## Battery Operated Portable Passive Infra-Red Intrusion Alarm

Ward off thieves and intruders at home or when travelling

This is a portable, battery operated passive infrared intrusion alarm. It employs the most advanced circuitry offering fully automatic operation and superb performance. The alarm covers over 100 square metre protection coverage and requires no height adjustment in operation. It works perfectly at 0.5-2 metres above floor level stood on a shelf or cabinet, or it can be fixed to a wall or the corner of a room at a height the owner can reach for ON-OFF control. If anybody enters the protected area, their movement will be detected and will activate the alarm to turn on the built-in ear piercing buzzer.

This is an entirely independent and self-contained alarm unit for ready use. It requires no external connection. In operation, all the owner requires to do is simply switch "ON" the alarm, remove the key and leave the protected area. The alarm will do the rest automatically. The alarm consumes very low power at armed mode, a 9 volt alkaline battery should last for a few months of daily operation.

**Features:** • A ready to use system, no installation • Fully automatic operation, very user friendly • Large coverage, over 100 square metres • Portable wall mounted • Long life 9V battery operation • Battery low warning • Lightweight, compact and attractive • Recommended for home, shop, caravan or when travelling

5305 **\$69.00**



## ALARM SYSTEM ACCESSORIES

### Power Supply

9V AC 1.5 Amp plug pack. Suitable for most alarm panels.

9025 **\$19.95**



### Strobe Signal Lamps

Uses Xenon Strobe tube for high energy flash output at a rate approx 1 per second. 12V DC. 320mA.

**Dimensions:** 97 diam 50H.



S 5455 Blue  
**\$27.95 4 up \$25.00**

S 5450 Red  
**\$27.95 4 up \$25.00**

### Weatherproof Horn Speaker

10 Watt 8 Ohm  
When driven with a square wave oscillator as commonly used in many alarm system panels, this horn speaker will deliver in excess of 120dB of sound pressure.



C 2015 **\$15.95 4 up \$14.80**

### Siren Cover

Suitable for protection of C 2105 and similar sirens, this cover comes complete with a tamper switch mounting bracket and a unique slide in fixing bracket for mounting the siren.



S 5460 **\$28.95**

### Backup Batteries



S 5065 1.2AH **\$29.95**

S 5067 3AH **\$44.95**

S 5069 4AH **\$49.95**

S 5070 6.5AH **\$55.00**

## KEY OPERATED SWITCHES

### Cam Lock



Key removable in either position.  
**Dimensions:** Panel hole 18.8mm, length from rear of front shroud to cam lever 16mm. Supplied with 2 keys.  
**S 2550 \$4.95 10 up \$4.75**  
**S 2552 Blank Key to Suit \$1.20**

### Two Position



Silver plated contacts and terminals. 250V/3 Amps. Key removable in both positions. Supplied with two keys.  
**Dimensions:** Panel hole 19mm, length from rear of front shroud 42mm, 52mm overall.  
**S 2500 SPST \$8.95 10 up \$8.40**  
**S 2501 SPDT \$9.95 10 up \$9.25**

### 4PDT Two Position with Weather Guard



Silver plated contacts and terminals. 300V/5 Amps. Key removable in both positions. Supplied with two keys.  
**Dimensions:** Panel hole 19mm. Depth 345mm from rear of front shroud 60mm overall.  
**S 2510 \$12.95 10 up \$12.15**  
**S 2512 Blank Key to Suit \$1.20**

### SPST Tubular Styl Two Position



**Dimensions:** Panel hole 19.2mm, overall length 37mm length from rear of front shroud 30mm.  
**S 2515 \$9.95 10 up \$9.10**  
**S 2518 Blank Key to Suit \$1.20**

## MULTIPURPOSE KEY OPERATED SWITCHES



2 Pos Type

Connection Details

3 Pos Type

	Pole 1 Makes to:	Pole 2 Makes to:
Pos. 1	8, 1	4, 5
Pos. 2	1, 3	5, 7

	Pole 1 Makes to:	Pole 2 Makes to:
Pos. 1	3, 4	7, 8
Pos. 2	4, 5	8, 1
Pos. 3	5, 6	1, 2

**Dimensions:** Panel hole 19mm length 30mm from rear of front shroud, 36mm overall depth. Overall diameter 22mm. Two keys supplied with each switch.

### DPDT Two Position

Key Removable in Position One Only  
**S 2502 \$10.95 10 up \$9.95**  
**S 2513 Blank Key to Suit \$1.20**

### DPDT Two Position

Key Removable in Either Position  
**S 2504 \$9.95 10 up \$9.45**  
**S 2513 Blank Key To Suit \$1.20**

### Two Pole Three Position

Key removable in centre only.  
**S 2506 \$10.95 10 up \$9.95**  
**S 2513 Blank Key To Suit \$1.20**

### Two Pole Three Position

Key removable in all position  
**S 2508 \$10.95 10 up \$9.95**  
**S 2513 Blank Key To Suit \$1.20**

## PIEZO ALARMS, SIRENS & BUZZERS

### Mini Buzzer



Handy little solid state buzzer. Ideal for audible signalling, alarm panels etc. 5-15V DC. 100mm fly leads. **Dimensions** 23L x 17H x 15W mm  
**S 5162 \$2.50 10 up \$2.25**

### Mini Buzzer



PCB solid state buzzer. Ideal for audible signalling, alarm panels etc. 5-15V DC PCB pins. **Dimensions** 23L x 17H x 15W mm  
**S 5164 \$2.95 10 up \$2.80**

### Mini PCB Piezo



Mini fully sealed PCB piezo buzzer. Compact size 13D x 7H mm makes this ideal for high density PCB's. Operates off a wide voltage range. 3-16V DC  
**S 5165 \$3.25 10 up \$2.95**

### Piezo Alarm



Similar to 'Sonalert' type. Emits a continuous high pitch piercing tone. Operates off a wide voltage range 5-15V DC. Ideal for all types of applications.  
**S 5166 \$7.95 10 up \$7.15**

### Pulsating Piezo



Similar to 'Sonalert' type. Can be configured for either continuous or pulsating tone. Pulsates at about 1Hz. Operates off a wide voltage range. 5-15V DC. Ideal for all types of signalling applications.  
**S 5167 \$8.95 10 up \$8.15**

### Panel Mount Piezo Buzzer



Voltage 5-15V DC 15mA.  
**Dimensions:** 24.5 H x 29.5 D with 18mm panel hole for mounting.  
**S 5168 \$4.95 10 up \$4.50**

### Panel Mount Piezo



Similar to 'Sonalert' type this piezo is panel mounting and can be configured to operate with a continuous or pulsating tone. Ideal for all sorts of warning or signalling systems. Input voltage 12V DC. **Dimensions** 35H x 32D. Panel mounting hole 27.5mm  
**S 5169 \$10.95 10 up \$10.55**

### Micro Piezo Siren



Massive 110dB operates from 6-12V DC 150mA  
**Dimensions:** 39 x 43 x 50mm  
**S 5170 \$18.85 4 up \$17.00**

## Two Tone Piezo



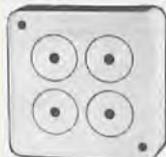
Commercial/Industrial Type. High efficiency SPL/100dB 12V C 200mA. Two tone pulsating signal. Mounting flange allows all or chassis mounting. Dimensions: 85 Diam. 50mm H. S 5175 \$24.50 4 up \$22.75

## High Energy Siren



Absolutely ear splitting SPL 120dB. Handy bracket for wall mounting etc. 12V 300mA. Ideal for industrial applications or alarm systems. Dimensions: 100mm Diam. 125mm L. S 5177 \$29.95 4 up \$27.50

## Wall Mount Piezo



Loud 2 tone warble signal. Unobtrusive wall mount design. Suitable for all types of warning systems. DC input 6-15V. Dimensions 105 x 105 x 45mm. S 5178 \$23.50 4 up \$21.50

## Weatherproof Horn Speakers 10 Watt



When driven with a square wave oscillator as commonly used in many alarm system panels, this horn speaker will deliver in excess of 120dB of sound pressure. C 2015 \$15.95 6 up \$14.80

## Ultrasonic Transducers

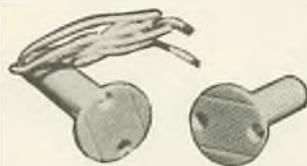
Please note only sold as matched pairs of RX and TX. Sensitivity: TX 106dB RX, 65dB. Dispersion angle: 20 deg. Max Input Voltage: 20V RMS Impedance: TX 500 Ohms, RX 1K Ohm. Operating range: upto 9m. Dimensions: Depth 16mm. Height 12mm. S 5110 \$11.50 4 up \$10.35



## ALARM SYSTEM SENSORS

### Concealed Reed Switch and Magnet Set

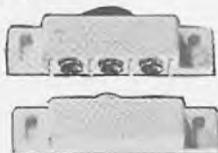
S 5152 \$6.95 4 up \$6.45



### Reed Switch and Magnet Set

Surface mount.

S 5153 \$7.95 SPDT (N.O. or N.C.) 4 up \$7.50



### Pin Switches

Make to frame (earth) when pin is released. As used with many car alarms and interior light systems.

S 5145 52mm 95¢ 4 up 90¢ S 5147 65mm \$1.10 4 up 99¢



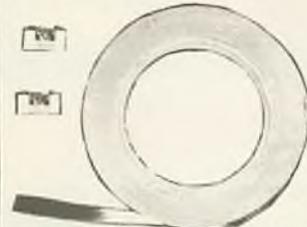
## Pressure Mats



Ultra thin switch mat for under carpet or mat etc. S 5184 \$29.95 4 up \$27.95

## Alarm Circuit Window Foil Tape and Blocks

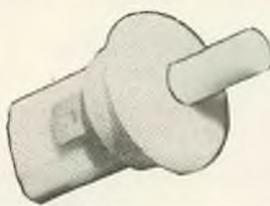
S 5180 \$25.95 4 up \$24.50 Terminating Blocks to Suit S 5182 \$1.95 4 up \$1.45



## Tamper Switch

'Snap in' panel mount switch. Used for protecting alarm panels, siren covers etc. Contacts 250V 250mA. Plunger out contact normally open (as illustrated).

S 5160 \$1.85 10 up \$1.65



## Alarm Stickers

200mm x 75mm S 5400 Pack 4 \$1.95

Sticks to inside of window 70mm x 25mm S 5410 Pack 4 \$3.95



## SECURITY CABLE

### 4 Core

Professional grade multistrand security cable as used by the security industry. 4 inner conductors of 14/20 copper wire - yellow, green, red, blue. Three outer sheath colours to suit any installation.

W 0354 Grey  
W 0355 Black  
W 0356 White

W 0357 \$1.30 metre  
S 139.00 200m roll

### Screened 4 Core

100% Mylar shielded cable with drain wire. 4 inner conductors of 14/20 copper wire - red, black, white, blue, grey outer sheath. Ideal for use with P.I.R., siren strobes etc.

W 0705 \$1.40 metre  
S 115.00 100m roll

### Telephone Cable

Two and three pair telephone cables, cream sheath with .5mm copper conductors. Ideal for use with low current drain components where voltage drop is not a consideration. Ideal for use with P.I.R.'s reed switches etc.

W 0302 2 Pair 60¢ metre  
\$78.00 200m roll  
W 0303 3 Pair 90¢ metre  
\$100.00 200m roll

### Door Strike

Ideal for security access areas, this high quality lock will fit most door jambs. Operates off either 12V AC or DC making it ideal for any type of system. S 4390 \$39.95



## CB, UHF AND CAR RADIO ANTENNAS AND ACCESSORIES

### 5' Whip

Fibreglass helical whip with standard chrome brass ferrules. 5/16" 24 TPI female thread.

L 3200 **\$16.35**

### 5' Tuneable Whip

Sturdy PVC covered helical whip with easily tuneable top whip 120mm long. Standard 5/16" 24 TPI female thread.

L 3205 **\$39.95**

### 12' Lead and Plug

Antenna lead of RG58A/U cable with a PL259 plug one end, and stripped and fitted with terminals to the other.

L 3225 **\$14.50**

### Heavy Duty Tension Spring

Ideal for use with the L 3200 and L 3205 Antennas. 5/16" thread.

L 3230 **\$27.95**

### UHF Antenna

4.5dB gain 61cm whip complete with base, lead and connector.

L 3212 **\$34.75**

### Spring Base Aerial

Heavy Duty Stainless Steel. 1.5m extended length.

C 9410 **\$12.95**

### Coax Alternator Suppressor

Heavy duty 0.5uF 50 volt coaxial capacitor for extreme cases of alternator whine. Connect in series with the output lead of the alternator and earth the case. Will handle up to 60 amps.

C 9525 **\$24.95**

### FM/AM Aerial Extension Lead

1.2 metre length

P 0463 **\$4.95**

### Fully Assembled Whip Lead and Base

The L 3200 helical whip antenna, and a 12' coax lead fully soldered to an L 3220 base. Ready for immediate installation.

L 3210 **\$34.75**

### Standard Base

5/16" male fitting, low profile design.

L 3220 **\$4.25**



### Capacitor Noise Suppressor

Secures to chassis. Cable attaches to positive rail.

C 9520 **\$3.95**

### Hot Line Noise Suppression Kit

For alternator and ignition noise suppression. Connects in series with power supply to radio, cassette player etc. Will handle up to 10 amps.

C 9530 **\$13.95**

## BATTERIES

### Replacement Batteries

#### Alkaline

##### Long Life Alkaline

Cat No.	Pack/Size	Price
S 4950	2 of D	\$5.95
S 4960	2 of C	\$4.95
S 4970	2 of AA	\$1.45
S 4985	2 of N	\$3.40
S 4990	1 of 9V	\$4.95
S 4995	1 of 12V	\$3.40

#### Mercury Free

Environmentally safe. 99.99% Mercury Free

Cat No.	Pack/Size	Price
S 4921	4 x AA	\$1.80
S 4931	4 x AAA	\$1.45
S 4933	2 x C	\$1.60
S 4935	2 x D	\$2.10
S 4941	1 x 9V	\$1.20

#### Zinc Chloride

##### Heavy Duty Zinc Carbon/Zinc Chloride Batteries

Cat No.	Pack/Size	Price
S 4920	4 of AA	\$2.50
S 4930	4 of AAA	\$2.50
S 4940	2 of 9V	\$2.50



### Nicad Rechargeable Batteries

Premium Grade — Good for up to 1000 re-charges. Charge Rate 45-50mA for AA, 20mA for AAA, 10-15mA for 9V 120ma.

Cat No.		1-9	10+
S 5020	AA 1.2V 500mAh	\$3.90	\$3.25
S 5021	AAA 1.2V 180mAh	\$4.50	\$3.95
S 5022	C 1.2V 1.8Ah	\$12.00	\$10.50
S 5023	D 1.2V 4Ah	\$19.50	\$18.00
S 5024	216 9V .12Ah	\$16.95	\$15.30



### Battery Snap & Holders

	Each	10+
P 0455 9V Battery Snap	.30	.25
S 5025 2 x AA Cells	.60	.55
S 5028 4 x AA Cells Long	\$1.00	.90
S 5030 4 x AA Cells Flat	.90	.80
S 5031 4 x AA Cells Square	.90	.80
S 5032 6 x AA Cells	\$1.00	.90
S 5034 8 x AA Cells	\$1.40	\$1.20
S 5035 10 x AA Cells	\$1.75	\$1.60
S 5036 4 x C Cells	\$1.50	\$1.25
S 5038 4 x D Cells	\$1.60	\$1.45
S 5046 1 x D Cells	.75	.65



### Sealed Lead Acid Batteries

As used in security systems, battery backup for computers, solar power systems etc.

#### Premium Grade Long Life

S	V	AH	Price	Width	Height	Length
S 5065	12V/1.2AH	\$29.95	42	50	96	
S 5067	12V/3AH	\$44.95	60	60	132	
S 5069	12V/4AH	\$49.95	68	100	90	
S 5070	12V/6.5AH	\$54.95	65	94	150	



### Calculator And Watch Batteries

Silver Oxide	Hitachi	Maxwell	Eveready	National	Price
S 5000 G13	SR44		396		\$3.45
S 5002 G12	SR43		392	WL1	\$2.75
S 5004 G10	SR1130		393	WL6	\$2.95
S 5006 G8	SR1120W		391	G8	\$3.45
S 5008 G5	SR48		289	WL10	\$2.95
S 5010 G3	SR41		386	WL11	\$3.45
S 5012 G2	SR726		357	WL14	\$3.45
Alkaline					
S 5014	LR44	A76		LR44	\$2.25
S 5016	LR43	186		LR43	\$2.25
S 5018	LR1130	189		LR1130	\$2.25



TV ACCESSORIES

TV Balun Indoor

5 to 300 Ohms. 75 ohm coax termination to 300 ohm ribbon type flyleads with spade connectors.



1010 \$2.95 10 up \$2.80

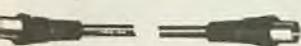
TV Balun

00 to 75 Ohm. 75 ohm male terminal plug to 300 ohm screw terminals for ribbon type cable.



1012 \$2.30 10 up \$1.95

TV Fly Leads 1.8m long



10755 Male/Male \$3.70  
10757 Male/Female \$3.70

Outdoor Weatherproof Balun

Complete with aluminium plates which can easily be bent to fit most outdoor TV antennas. To connect from antenna screw terminals to 75 ohm coaxial cable.



L 1020 \$4.50 10 up \$4.15

Outdoor Diplexer

Weatherproof coupler allows connection of VHF and UHF antennas into one down lead.



L 1404 \$11.50

TV Splitters

Low Loss TV Splitters

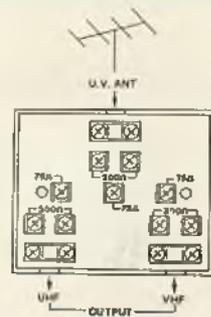
Suitable for VHF/UHF TV and FM Spring loaded cable clamps enable super quick termination. PCB facilities good screening. High isolation leg to leg (40dB min.) Silk screened circuit on PCB. Insertion loss - L 1310 3.5dB - L 1320 6.5dB.

75 Ohm 2 Way

L 1310 \$4.95

75 Ohm 4 Way

L 1320 \$13.50



Single TV Outlet

Surface Mount. Terminations for 75 ohm coax. Female pal socket output.

L 1030 \$2.95 10 up \$2.40



TV Antenna Loft Mount



L 2030 \$9.95

Antenna Facia Bracket



L 2035 \$15.75

VHF & VHF/UHF TV ANTENNAS

New release **STORMBIRD** Antennas offer several advantages over their competitors. Namely they are fully 100% Australian made, and constructed from fully extruded aluminium giving a durable long lasting finish. The end result is a strong robust aerial producing a quality picture for many years to come.

All **STORMBIRD** antennas come complete with hot dipped galvanized mounting brackets and 300-75 Ohm weather proof balun for connection to 75 Ohm coaxial cable. All models cover the following bands 1, 2, 3, 4, 5 FM stereo and teletext information i.e. VHF and UHF bands.

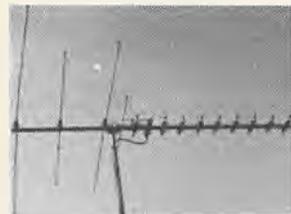
**STORMBIRD 1:** Standard gain general purpose aerial for use in areas of strong signal strength.

L 2001 \$79.00



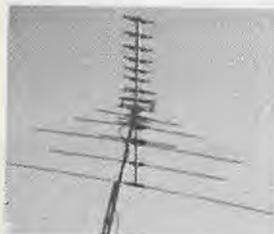
**STORMBIRD 2:** Medium to high gain aerial for use in areas of weak signal.

L 2002 \$119.00



**STORMBIRD 3:** Super high gain aerial for use in fringe or difficult signal strength areas.

L 2003 \$149.00



For cable suitable for use in TV point installations refer to Wire and Cables section of this catalogue.

For connectors as used with TV installations refer to Plugs and Sockets section of this catalogue.

Spiromatic Indoor Antenna

For good reception areas. Channel 0 to 11.

2016 \$11.95



UHF Antenna

Channel 28 band 4 antenna can be coupled to existing VHF antenna.

L 2020 \$45.00



## Stereo Car Radio with Auto Stop Cassette Player

COVERED BY FULL  
12 MONTH WARRANTY

With Electronic Tuning Radio  
and Digital Display

C 9120 **\$139.00**



- AM/FM MPX stereo receiver • Special short chassis 178W x 44H x 125D mm • Digital frequency display • Full night illumination • Stereo cassette player • Locking fast forward • LO/DX AM/FM recall function • Separate balance/tone control • auto stop tape function • Manual radio tuning control • Digital clock

## AM/FM Stereo Car Radio Cassette Player

COVERED BY FULL  
12 MONTH WARRANTY

AM/FM Stereo Radio digital receiver

C 9125 **\$219.95**



- LCD digital display and quartz clock • Auto stop tape function • Preset scan/auto store • Station memory programme search • Night illumination • 30 station preset (18FM/12AM) • Pushbutton controls for up/down channel tuner • 4-way fader control • PLL synthesizer tuner • Chassis 178W x 50H x 150D • IAC noise reduction

## Auto Reverse Car Radio Cassette Player

COVERED BY FULL  
12 MONTH WARRANTY

Includes Portable  
CD Input Socket

C 9128 **\$349.95**



- AM/FM Stereo • High Power 50 watts • LED digital display, digital quartz clock • Auto reverse tape function • Locking fast-forward and rewind • Loudness button • Preset scan/auto store • Station memory program search • Night illumination • CD auxilliary input • Separate treble slide control • Separate bass slide control • 30 Station preset (18FM/12AM) • PLL synthesizer tuner • 4-way fader control • Pushbutton controls for up/down channel tuner • RCA line level outputs for use with optional amplifier • Chassis 178W x 50H x 150D • IAC noise reduction

## 7 Band Graphic Equalizer/Booster

COVERED BY FULL  
12 MONTH WARRANTY

Enhances Your  
Car Sound

C 9140 **\$109.95**



- 7-Band graphic equalizer • 12dB boost/cut • Power on/off-defeat • 2-channel high power amplification • Two or four speaker hookup • 100 watts RMS, 2 x 50 watts • 200 watts max, 2 x 100 watts • Dual LED power meter display • Fader control • Volume slide control • Night illumination around all controls • Input impedance: High 47K Ohms via RCA jacks, Low 100 Ohm • Common or floating ground hook-up • Frequency response: 20Hz-20kHz • Output impedance 4 Ohms, (4-8 Ohm allowable) • Slimline design • Dimensions 150L x 30H x 144W mm

**ALTRONIC**  
COMPONENTS

**PHONEORDER TOLL FREE 008 999 007**

## Deluxe 7 Band Graphic Equalizer

COVERED BY FULL  
12 MONTH WARRANTY

With In Built  
Spectrum Analyser

C 9150 **\$176.95**



• 12db boost/cut • Power on/off • 2 channel high power amplification • Two or four speaker hook up • 100 Watts RMS, 2 x 50 Watts • In built spectrum display • Fader control • Slider adjustment controls • Night illumination • Input impedance: High 47K Low 100 Ohm • Frequency response 20 - 20,000Hz • Output impedance 4 Ohm (4-8 Ohm allowable) • Slimline design • Dimensions 180W x 28H x 157D mm.

## 30 Watt Flush Mount

- High performance 4" dual cone
- Power handling 30 watts max
- 4 Ohms impedance
- Hi grade barium magnet
- Frequency response 90 to 18,000Hz
- Ideal for door or kick panel mount
- Complete with wire and hardware
- Dimensions 48D x 109W mm

COVERED BY FULL  
12 MONTH WARRANTY

C 9327 **\$34.95**

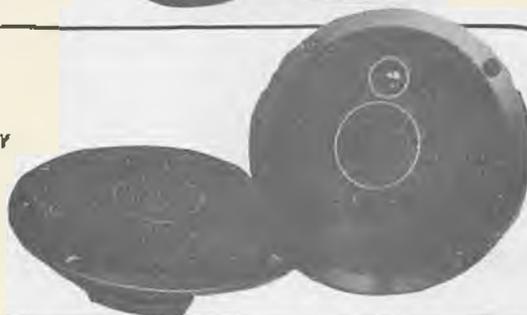


## 3 Way 40 Watt Flush Mount

- 5" 3-Way slimline speaker system
- Power handling 40 watts max
- 4 Ohms impedance
- Hi-grade 5oz barium magnet
- Ideal for shallow mounting locations
- Dimensions 45D x 142.5W mm
- Steel mesh grill for easy mounting
- Mounts in front kick panel, doors side panels and rear deck
- Frequency response 140 to 20,000Hz
- Complete with wire and hardware

COVERED BY FULL  
12 MONTH WARRANTY

C 9328 **\$59.95**

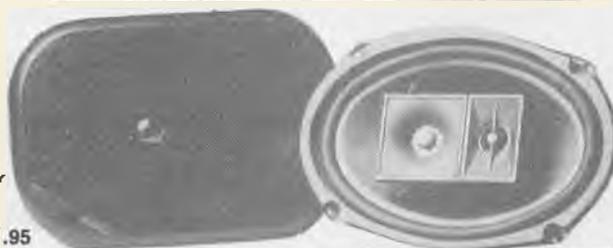


## 160 Watt 6" x 9" Triaxials

- High performance 6" x 9" 3-way speaker
- Power handling 160 watts max
- 4 Ohms impedance
- Poly carbon mica coated cone
- Dome tweeter
- Hi grade barium ferrite magnet
- Frequency response 50 to 22,000Hz
- Complete with wire and hardware
- Dimensions 244W x 170H x 111D mm

COVERED BY FULL  
12 MONTH WARRANTY

C 9334 **\$139.95**



## 2 Way 30 Watt Flush Mount

- High performance 6.5" 2-way speaker system
- Power handling 60 watts max
- 4 Ohms impedance
- Hi grade barium magnet
- Frequency response 50-20,000 Hz
- Centre mounted tweeter
- Complete with wire and hardware
- Dimensions 600 x 165W mm

COVERED BY FULL  
12 MONTH WARRANTY

C 9337 **\$79.95**



## 4 Way Bass Reflex Wedge Speakers

- High performance 4-way bass reflex speakers
- Power handling 100 watts max
- 4 Ohms impedance
- High impact heat resistant case
- Surface mount enclosure
- 5" Air suspension woofer
- Frequency response 60 to 21,000Hz
- Complete with wire and hardware
- Dimensions 322W x 136H x 175D mm

COVERED BY FULL  
12 MONTH WARRANTY

C 9340 **\$124.95**



PHONEORDER TOLL FREE 008 999 007. **ALTRONIC**  
COMPONENTS

## TELEPHONE ANSWERING MACHINES

**AUDIOLINE RELIABILITY** The average answering machine is in operation for more hours than almost any other item of home electronic equipment. Audioline answering systems and telephones are specially designed to withstand continuous use. They exceed standard requirements, are fully approved for connection to your line and the latest circuit technology and components ensure excellent audibility, superb speech transmission and outstanding reliability.

**EXCHANGE GUARANTEE** All audioline answering systems and telephones carry a fully comprehensive twelve month exchange guarantee. In the unlikely event that your equipment develops a fault, it will immediately be exchanged if within twelve months of purchase.

**AUDIOLINE HELPLINE** Should you experience difficulty or need help, the helpline service manned by Audioline engineers is available — simply dial (008) 24 9957 whenever you need expert assistance.

**AUDIOLINE TELECOM APPROVAL** Naturally all models are Telecom approved and connect directly to existing telephone sockets. Installs in minutes. Full instructions included with each model.

### Basic Telephone Answering Machine

**NEW  
IN  
'92**



**Features:**

- Micro-processor control
- Full logic micro-cassette mechanism
- Condenser microphone for high quality recording
- Message received LED indicator/counter
- Variable length outgoing message (maximum 30 seconds)
- Memo recording facility
- Rewind, Playback, Fast-Forward

- Remote turn on
- Security code access for remote
- Call screening
- Answers after 2 or 4 rings or to announcement only
- Volume Control
- 12 month replacement guarantee
- Austel permit; A91/16A/0244
- Optional Full function DTMF Remote Control for Playback, Reset, Save, Outgoing message change (Part No. BP-10)

Cat. No.: A 0492 **\$119.95**

Optional Remote A 0493 **\$24.95**

AUDIOLINE 830

*Telecom approved*

### Remote Control Answering Machine

**Features:**

- Full logic micro-cassette deck
- Micro-processor control
- Call screening
- Message received indicator/counter
- Variable length outgoing message (maximum 30 seconds)
- Memo recording facility
- Rewind, Playback, Fast-Forward
- Full function remote control for Playback, Reset, Save and Outgoing message change

- Condenser microphone for high quality recording
- Answers after 2 or 4 rings or to announcement only
- Volume control
- 12 month replacement guarantee
- Austel Permit No.: A91/16A/0244

AUDIOLINE 850

Cat. No.: A 0495 **\$145.95**

*Telecom approved*



**NEW  
IN  
'92**

### Combination Telephone And Remote Control Answering Machine



*Telecom approved*

**Features:**

- Dual Recording - digital and micro cassette for incoming message
- 2 x 256k D-Ram micro processor for high quality digitally recorded OGM (max 16 secs)
- Personal message minder
- Day and Time stamp
- Micro Cassette records incoming messages
- Call Screening
- Volume control
- Message received LED Indicator/Counter
- Memo recording Facility

- Remote Turn-On
- Ten Memory Telephone
- Tone/Pulse Switchable
- Adjustable ringer volume
- Recall for access to 'Easy Call'
- Pause for use with PABX systems
- Last number redial
- Hearing Aid compatible Handset
- Wall mountable using optional bracket (TWB222)
- 12 month replacement guarantee
- Austel Permit; A91/30E/0145
- Full function Remote Control included for playback, reset, save, OGM Change

AUDIOLINE 915

Cat. No.: A 0497 **\$269.00**

A 0499 Optional Wall Mounting Bracket **\$19.95**

**NEW  
IN  
'92**

**ALTRONIC**  
COMPONENTS

**PHONEORDER TOLL FREE 008 999 007**

## Telephone Line Isolation Units

### Telecom Approved

**Model 0610** Designed to interface paging input of PABX or Commander phone systems to public address amplifier. Connects to aux. input.

**0610 \$99.00**

**Model 0615** Provides 'music on hold' to your commander phone system. Programme can be radio, tape deck, landline etc. Max output 800mV P-P. Suits 'SB' Commander.

**0615 \$99.00**

**Model 0620** Similar to type 2 (A 0615) accepting max output is 2.8V P-P. Suits 'S' Commander.

**0620 \$99.00**



Telecom approved

## Auto Fax/Phone Switch

### Minimises Dedicated Fax Lines

Provides automatic fax/phone switch allows your phone and fax or modem to share a single telephone line.

Auto/phone switch automatically distinguishes between voice and data signals.

Buttons for switching calls to telephone, fax or modem.

Buttons to push or fax calls to answer.

**Incoming Calls** — The fax/phone switch instantly senses incoming call and says to the caller "To reach our phone, say 'telephone' at the tone. To reach our fax, please remain silent". The incoming signals are then analysed and determined to be silence or a fax/modem tone or speech. When the ring is answered, the switch connects the incoming line to the appropriate device.

**Outgoing Calls** — The switch senses whether the phone fax/modem goes off-hook and immediately connects it unit to the phone line.

**0600 \$299.95**

Telecom approved



## Push Button Telephone

With memory Re-dial. Great for use as a second phone around the house or office. This nifty little phone has all the features of units selling near twice the price!

Fast number re-dial memory and mute. Ring, on/off switch and ringing indicator.

**0490 \$19.95**

Models fitted with standard telephone plug.



## U.S. Modular Plugs and Sockets

### SB Mount Sockets

**402** 4 Way/4 Wire \$1.95 ea

**405** 6 Way/6 Wire \$2.75 ea

**408** 8 Way/8 Wire \$3.85 ea

### Imp Type Plugs

**412** 4 Way/4 Wire 55¢ ea

**414** 6 Way/4 Wire 55¢ ea

**415** 6 Way/6 Wire 65¢ ea

**418** 8 Way/8 Wire \$1.50 ea



## Modular Connector Crimping Tool

**T 1560 \$39.95**

## Australian Telephone Wall Socket (610W)

**P 0988 \$5.50** Telecom approved



## Australian Telephone Line Socket (610T)

Standard telephone socket in combination with P 0985 lets you wire your own extension cord to any length.

**P 0987 \$4.35** Telecom approved



## Australian Telephone Plug (605A)

Standard telephone plug.

**P 0998 \$4.95**

Telecom approved



## Telephone Double Adaptor (M600)

Converts sockets into a double socket to allow you to plug in two phones

**P 0995 \$4.95**

Telecom approved



## Adaptor Plug (605M)

Converts an American modular plug into an Australian plug.

**P 0998 \$4.95**

Telecom approved



## Telephone Adaptor (610M)

Australian line socket to US modular socket

**P 0999 \$6.95**

Telecom approved



## Extension Cord

Available in convenient lengths.

**P 0990 5m \$12.95**

**P 0992 10m \$15.95**

Telecom approved



## Telephone Extension Cord

U.S. modular type 694C plugs, 3m length.

**P 0989 \$9.50**

Telecom approved



## Conversion Cord

Changes from American modular plug, now common on imported equipment, to an Australian plug. 2m length

**P 0994 \$9.50**

Telecom approved



## Telephone Extension Bell

Connects via P 0995 double adaptor to telephone line. NOT SUITABLE FOR COMMANDER PHONE SYSTEMS.

**P 0996 \$29.50**

Telecom approved



## Pin Point Ultrasonic Cleaner

Gently cleans Computer Connectors, PCB's, Switches, Relays, Jewellery, Glasses, Watches etc.



### How does it work?

The Pin Point Ultrasonic Cleaner uses a transducer generator to produce millions of activated microscopic cleansing bubbles, which blow dirt, grease and grime off surfaces, and penetrates deep into cracks and holes. This personal ultrasonic cleaner won't scratch precious jewellery or glass.

### Specifications:

**Power Supply:** 240V 50Hz, **Power Consumption:** 300mA, **Frequency:** 40 +/-2KHz, **Dimensions:** 224 x 114 x 124mm, **Capacity:** 570ml, **Weight:** 1kg, **Body Material:** ABS Plastic, **Tank Material:** Stainless Steel, **On/Off:** 3 minute auto timer.

A 0100 \$199.00

## Solar Powered Desk Top Calculator

New technology now allows powering of large desk top type display as used.

**No more leaky batteries!**

**No more batteries!**

### Features:

• 8 digit mini desk top calculator • 3 key memory • Percent key with add on/discount calculation • Square root key • Large plus key • Size: 123 x 107 x 23.5mm • Weight: 110g

X 1060 \$19.95



## Casio Two Colour Printing Calculator

Superb new model features:

• Black print and red print for subtractions • Sub-total/total • Item counting • Average function • 3 digit comma markers • Full decimal system

Operates on 4 x AA batteries (included) or power supply. Includes one roll of 58mm paper and dust cover. Fantastic for the student and accountant alike.

X 2125 \$149.95



## Clock Movement

Fit your own custom clock face. Great for novel applications such as fitting to pictures etc. Very accurate, runs for approx. 1 year on one AA battery.

X 1010 \$13.50



## Universal Remote Control

This Universal Remote Control makes all other remote control units superfluous. One remote control unit, operating with infra red technology can now operate all your existing remote control home systems. From garage doors, CD player, videos, TV's to stereo's etc can all be operated with this one programmable remote control unit.

**Features:** • Controls up to 6 different appliances • Simple LED indication of selected functions • Effective range 7 metres • Frequency range 21.74kHz - 62.5kHz • Easy to use and programme from existing functional unit

A 1000 \$69.95



**NEW FOR '92**

## Famous TDK Audio Cassette Tapes



		ea	10+
A 4020	D60	\$3.95	\$3.50
A 4022	D90	\$4.50	\$4.20
A 4024	AD60	\$4.95	\$4.55
A 4026	AD90	\$5.50	\$5.15
A 4028	SA60	\$6.50	\$5.95
A 4030	SAD90	\$7.50	\$6.95
A 4032	SA100	\$7.95	\$7.50

## Head Cleaners

**That Really Do A 100% Job**

Our exciting range of head cleaners are the best we've seen and more importantly they are gentle on your heads. Why risk damaging your video or audio cassette player with inferior units.

### Audio Cassette

A 9200 \$3.95

### VHS Video

A 9310 \$12.50

### Compact Disk Cleaner

Gently cleans the CD. Eliminates problems caused by finger prints and some fine scratches. A must for the enthusiast.

A 9220 \$17.95



**HIGH PERFORMANCE FANS**

240V 50HZ Models

**40V 80mm Type**

**Specification:**  
 Air flow 30CFM  
 Input Power 14W  
 Speed 2300 RPM  
 Noise level 31dba  
 Material Diecast Alum. Frame  
 Size 80 x 80 x 38mm  
**D 1020 \$22.25 10 up \$20.00**

**240V 120mm Type**

**Specification:**  
 Air flow 85CFM  
 Input Power 20W  
 Speed 2550 RPM  
 Noise level 43dba  
 Material Diecast Alum. Frame  
 Size 120 x 120 x 38mm  
**F 1030 \$24.25 10 up \$21.60**

Low Voltage DC Models

**2V 80mm Type**

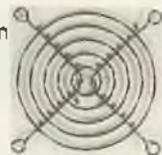
**Specification:**  
 Air flow 26CFM  
 Input Power 1.6W  
 Speed 2300 RPM  
 Noise level 24dba  
 Material Thermoplastic  
 Size 80 x 80 x 25mm  
**D 1050 \$17.50 10 up \$16.00**

**24V 120mm Type**

**Specifications:**  
 Air flow 106CFM  
 Input Power 6W  
 Speed 3000 RPM  
 Noise level 49dba  
 Material Diecast Alum. Frame  
 Size 120 x 120 x 25mm  
**F 1040 \$23.90 10 up \$21.50**

**Fan Finger Guards**

**1 Metal Construction**  
**1022 suits 80mm Fan**  
**1032 suits 120mm Fan**  
**2.45 10 up \$2.25**



**D25 LEADS AND ADAPTORS**

**D25 Male to Centronics (used for IBM) 1.8m**  
**0758 \$12.50**

**D25 Male to Centronics (used for IBM) 3.6m**  
**0759 \$15.50**

**D25 Male to D25 Female Lead 1.8m**  
**0762 \$19.95**

**D25 Male to D25 Female Lead 1.8m**  
**0764 \$19.95**

**D25 Male to D9 Female Adaptor**  
**0761 \$6.95**

**D25 Female to D9 Male Adaptor**  
**0766 \$6.95**

**D25 Male to D25 Male Gender Changer**  
**0765 \$9.75**

**D25 Female to D25 Female Gender Changer**  
**0760 \$9.75**



**White PVC Wall Plate with D25 Cutouts**

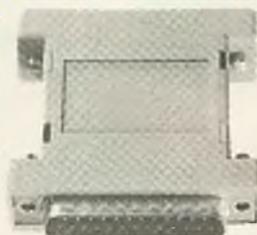
**0766 Single ea 10+ \$1.80 \$1.60 P 0767 Double \$1.95 \$1.75**



**RS 232 ACCESSORIES**

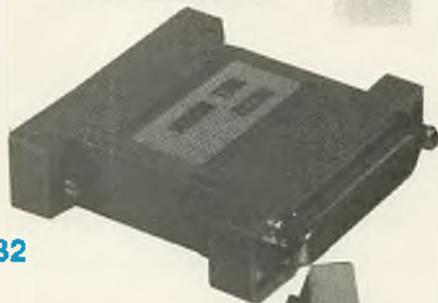
**RS-232 Jumper Box**

Used to make custom RS-232 interfaces. By custom wiring, many different interfaces can be built: null modems, pin reversers, etc.  
**D 1520 \$9.95**



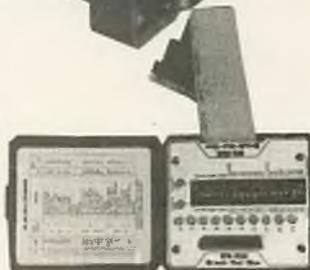
**Null Modem**

Use when Transmit DATA and Receive DATA need to be reversed.  
**D 1530 \$6.95**



**In-Line RS-232 Break Out Box**

Designed for circuit testing, mounting and patching. It has ten signal powered LED's as well as two spares to indicate which lines are in use at any one time. It also has 24 switches as well as jumper leads to allow you to break out circuits or reconfigure and patch all of the 24 active lines.  
**D 1540 \$99.95**



**A/B Switch Box D25/D25**

Two way printer/peripheral/computer switch with D25 sockets. Allows two printers to be run off one computer and individually selected or allows one printer to be run off two computers and individually selected.  
**D 1570 \$49.95**



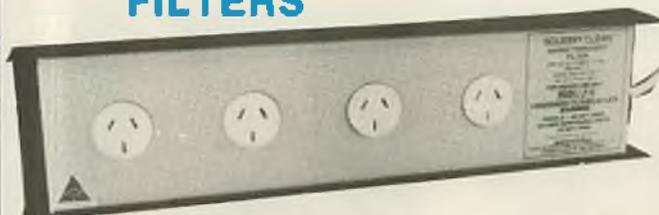
**NEW IN '92**

**Disk Cleaners**

Now-a-day's computer hardware and software doesn't come cheap, and is often difficult to replace. So protect your valued investments with our 5 1/4" floppy disc cleaners.  
**D 1807 3 1/2" Kit**  
**D 1809 5 1/4" Kit**  
**\$5.95**



## SQUEEKY CLEAN MAINS FILTERS



### P 8150 Single Filtered Double Outlet Model.

Just the shot for home computer or for individual located peripherals e.g. remote printer, computer terminal etc.

### P 8160 4 Outlets

Each individually filtered. A must for 'serious' computer installations e.g. for Schools, Business etc.



## Clean Up Your Power Act!

The supply authority actually superimpose a range of frequencies from 1KHz to over many MHz for the control of hot water systems, and other industrial remote control services.

Additionally both industrial and domestic motors turning off and on can induce large spikes into the mains supply.

For you to ensure maximum safety to both your hardware and software against RF noise, control tones and voltage spikes the equipment should be pre-filtered by a Squeeky Clean Mains Filter.

Most modern personal computers and their peripheral equipment are fitted with basic type filtering components. In most instances this protection offers only minimal protection and is not capable of handling many mains supply problems.

Many unexplained errors, program corruption and general inconvenience are eliminated by a Squeeky Clean.

All Squeeky Clean filters are approved by the Energy Authority for connection to the electrical power circuits in all states of Australia, and are guaranteed for 12 months from date of sale.

### P 8150 Specifications:

Load Rating: 10 Amps Maximum Load at 240V AC  
Clamping Voltage: 390V Peak or 275V RMS  
Peak Impulse Current: 2000A (8 x 20u)  
Protection Modes: Active-Neutral, Active-Earth  
Earth Leakage: Will not trip a 20mA Earth leakage breaker  
Outlets: GPO's single filtered  
Cable Length: 1m (approx)  
Dimensions: 120mm (L) x 75mm (W) x 50mm (D) App. No. N10717

### P 8160 Specifications:

Load Rating: Continuous 10 Amps, with circuit breaker at 240V AC.  
Clamping Voltage: 390V Peak or 275V RMS  
Peak Impulse Current: 2000A (8 x 12u)  
Production Modes: Active-Neutral, Active-Earth and Neutral Earth (on special order)  
Earth Leakage: Will not trip a 20mA Earth leakage breaker.  
Outlets: 4 GPO's individually filtered  
Cable Length: 1m (approx)  
Dimensions: 435mm (L) x 100mm (W) x 65mm (D) Metal Case App. No. N10716

P 8150 **\$119.00**

P 8160 **\$289.00**

## 240V MAINS COMPONENTS

### Mains Lead

- A 2400 7.5 Amp 1.8m **\$4.15**
- A 2405 10 amp 1.8m **\$5.95**
- A 2410 IEC Power Lead 1.8m **\$9.85**



### Mains Plug

P 8210 **\$2.70**

### Mains Plug Clear

P 8215 **\$2.70**



### Extension Lead Socket

P 8230 **\$5.95**



### Surface Mount Socket

P 8234 **\$6.10**



### IEC Mains Connector

P 8310 **\$1.95**



### IEC Mains Chassis Socket

P 8320 **\$2.95**



### Mains Plug IEC Male Line

P 8328 **\$9.95**



### IEC Mains Socket With Fuse Holder

Holds M205 fuse plus a spare!

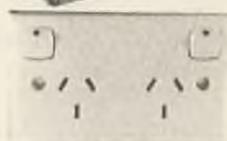
P 8324 **\$4.50**



### Power Outlets

P 8240 Single **\$9.55**

P 8245 Double **\$17.00**



### Blank Plate

P 8040 **\$3.20**



### 38mm Deep Mounting Block

P 8045 **\$3.20**

### 13mm Deep Mounting Block

P 8047 **\$2.90**



**Breadboards**

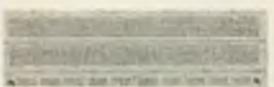
Standard 0.1 inch spacings. Accepts all LSI's semis, resistors, diodes, leds and passives. Uses 22-30 gauge solid hook up wire for interconnections. Boards are 'keyed' to enable easy expansion.



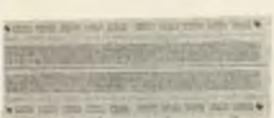
P 1000 100 Holes \$3.60



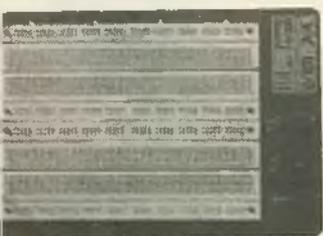
P 1005 640 Holes \$12.50



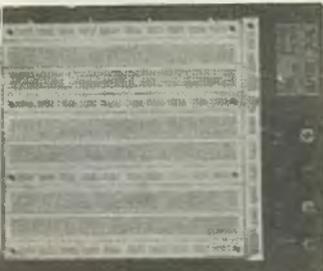
740 Holes (100 + 640)  
P 1007 \$14.50



840 Holes (640 + 200)  
P 1009 \$16.95



400 + 1280 Holes  
Accepts up to 16 x 16 pin DIL IC's. Terminals for PS connections.  
P 1012 \$44.60



500 + 1920 Holes  
Accepts up to 24 x 16 pin DIL IC's. Metal backing plate for shielding of sensitive circuitry.  
P 1015 \$65.00

**Vero Type Strip Board**

Alpha numeric grid. Pre-drilled. .9mm holes 2.5mm spacing.



H 0711 95 x 304mm \$5.95  
H 0712 95 x 152mm \$3.50  
H 0714 95 x 76mm \$1.95

**Blank Fibreglass PC Board**

Single-sided, copper clad. 300 x 300mm.  
H 0755 \$19.50



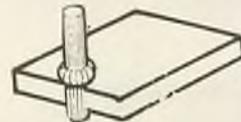
**Dalo Pen**

Etch Resistant Ink  
T 0033 \$5.95



**Matrix Pins**

H 0805 Pk 50 \$5.80  
H 0806 Pk 1000 \$85.00



**Ferric Chloride Beads**

Makes 1 Litre of Solution.  
H 0800 \$4.95



**Strap Handle**



1" long all plastic matt black. Very strong suitable for speaker boxes, amplifiers, cabinets etc.  
H 1020 \$4.95

**Pocket Handle**



For heavy amp enclosures and speaker boxes. Cutout 48mm x 102mm.  
H 1010 \$2.95

**INSULATING KITS TO3 Insulating Kit**



H 1580 Pk 4 \$2.50  
H 1582 Pk 100 \$31.95

**TO3 Cap**

H 1590 .65 ea



**TO220 Insulating Kit**



H 1585 Pk 4 \$1.60  
H 1587 Pk 100 \$16.70



Attention Manufacturers, Contractors, Wholesalers, Retailers and Bulk users. Contact our Wholesale Company Altronic Distributors (09) 3282199 for prices on bulk quantities of any product in this catalogue.



**Velostat**

Non-static sheeting for storing CMOS IC's LSI's etc. TN 3M type. 225mm x 150mm sheet.  
H 0600 \$6.35



### 240V Neon Indicator Single Red

Panel Cutout  
13mm x 19mm  
S 4005 \$1.75



### 240V Neon Indicator Green

Panel Cutout  
13mm x 19mm  
S 4006 \$1.75



### 240V Neon Indicator Dual Red & Green

Panel Cutout  
22mm x 19mm  
S 4007 \$3.95



### 240V Neon Indicator Miniature Red

Chrome Bezel Housing.  
S 4020 \$3.20



### 240V Neon Indicator Red

Panel Mount.  
S 4015 \$1.65



### 240V Neon Indicator Pigtail Type

90-250V AC.  
S 4010 .45c



### 12V Panel Lamps

S 4025 Red \$1.20  
S 4026 Green \$1.20



### Xenon Tube

S 4040 \$5.95  
M 0104 Trigger  
Transformer to Suit \$1.95



### LED and Bezel Indicators

Attractive LED bezels complete with bright LED. Available in either plastic or chrome for 5mm and plastic only for 3mm.

Z 0200 Led & Bezel 3mm Red	.65c
Z 0202 Led & Bezel 3mm Green	.65c
Z 0204 Led & Bezel 3mm Yellow	.65c
Z 0210 Led & Bezel 5mm Red	.80c
Z 0212 Led & Bezel 5mm Green	.80c
Z 0214 Led & Bezel 5mm Yellow	.80c
Z 0220 Led & Chrome Bezel 5mm Red	\$1.35
Z 0222 Led & Chrome Bezel 5mm Green	\$1.35
Z 0224 Led & Chrome Bezel 5mm Yellow	\$1.35



NEW  
IN  
'92

### Filament Globes

S 4045 MES 6V .45c  
S 4047 MES 12V .45c  
S 4051 Lilliput 6V .65c  
S 4053 Lilliput 12V .65c



### MES Globe Holder

S 4055 MES Holder .45c



### Panel Indicators

S 1550 Red \$7.95  
S 1552 Green \$7.95  
S 1554 Yellow \$7.95  
S 1556 White \$7.95



### LAMPS TO SUIT

S 1580 12V \$2.55  
S 1585 24V \$2.55

## 19" RACK MOUNT CASES

### Rack Cases

#### Nine Great New Models Now Available

Available in 44mm, 88mm or 132mm high models. Mounting hole centres conform exactly to International Racking Specifications both vertically and horizontally.

- Raw aluminium, black or natural anodised finish on front panels.
- Aluminium construction with removable top and bottom steel cover panels.
- All dimensions conform to the International Standard.
- Ventilated lid.
- Deluxe finish front panel. • Quality black powder coated chassis
- Individually cartoned.
- Supplied in Flat Pack Form — Easily assembled in minutes.

Cat No.	Unit Height	A	B	C	Front Panel Finish	
H 5011	1U	44	32	38	Raw Alum.	\$64.95
H 5012	2U	88	76	79	Raw Alum.	\$79.95
H 5013	3U	132	54	122	Raw Alum.	\$89.95
H 5021	1U	44	32	38	Nat Anod.	\$74.95
H 5022	2U	88	76	79	Nat Anod.	\$89.95
H 5023	3U	132	54	122	Nat Anod.	\$99.95
H 5031	1U	44	32	38	Blk Alum.	\$74.95
H 5032	2U	88	76	79	Blk Alum.	\$89.95
H 5033	3U	132	54	122	Blk Anod.	\$99.95



EXCLUSIVE  
TO ALTRONICS

• Revolutionary new extruded design eliminates the need for visible boltheads through the front panel

Side Elevation:  
D=254mm  
C=Internal Chassis Height  
B=Mounting Bolt Centres



### Blank Rack Panels

Cat No.	Unit Height	Finish	
H 5111	1U	Raw Alum.	\$9.45
H 5112	2U	Raw Alum.	\$16.75
H 5113	3U	Raw Alum.	\$22.25
H 5121	1U	Nat Anod.	\$10.75
H 5122	2U	Nat Anod.	\$17.95
H 5123	3U	Nat Anod.	\$24.00
H 5131	1U	Blk Anod.	\$11.25
H 5132	2U	Blk Anod.	\$19.00
H 5133	3U	Blk Anod.	\$26.30

### High Energy Rack Case

The use of heavy duty heatsinks as rack case sides now allows a myriad of amplifiers, power supplies, battery chargers etc. to be built in an "Off the Shelf" rack case.

For very high heat dissipation this design allows the simple fitting of computer type fans to inside back of rear panel, adjacent to each respective heatsink.

- Heatsinks Altronics H 0590 • Front Panel 3 unit Rack size 480mm x 132mm x 3mm • Base 1.0mm steel, ventilation slots provided • Top Cover 1.0mm steel, ventilation slots provided • Internal Dimensions 125mm x 370mm x 250mm • External Dimensions 130mm x 440mm x 252mm plus standard front panel.

H 0417 Natural Anodised Aluminium Front Panel \$129.95  
H 0418 Black Anodised Aluminium Front Panel \$129.95

### PROUDLY MADE IN AUSTRALIA



VENTED LID  
NOT SHOWN

**ALTRONIC**  
COMPONENTS

PHONEORDER TOLL FREE 008 999 007

## AUSTRALIAN DESIGNED AND MANUFACTURED PROFESSIONAL SERIES MODULAR RACK FRAMES

### Rack Frames and Panel Sets

Suitable for home or commercial use, these fantastic rack frames are durable, strong, good looking, light weight and easy to assemble.

The frames are available in either Natural Anodised aluminium or Black Powder Coat aluminium and the side panels are either Electric Blue or Black Powder Coat finish.

Ideal for use in home Hi-Fi systems, professional audio installations, Band Gigs, Computer patch panels etc.

**Assembly.** Each frame system is supplied complete with 12 custom extruded aluminium sections, 8 ABS corner connector pieces, 6 M6 captive nuts and 6 M6 mounting screws. The sections and corner pieces simply push-fit together. A rubber or wooden mallet is recommended to fit together the self aligning pieces. Further strength can be obtained by pop riveting the various overlapping extruded sections if desired.

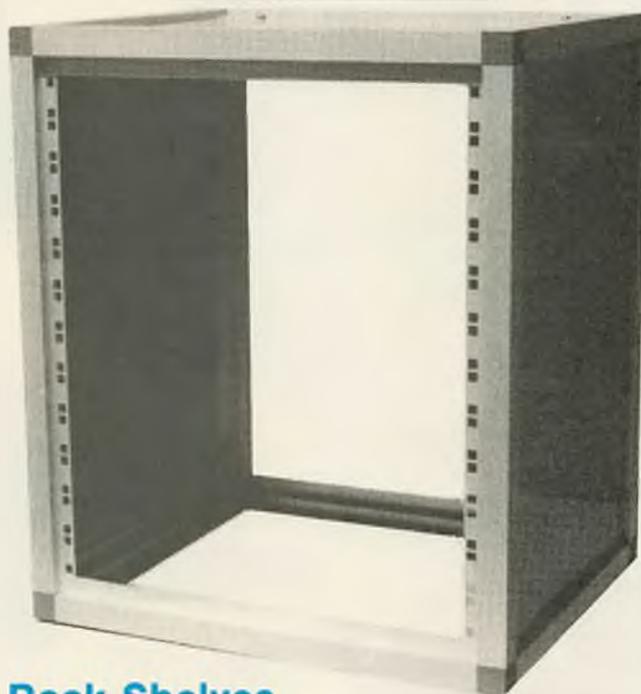
H 5204	Rack frame 4U (280mm) Nat	\$139.00
H 5205	Panel set for H 5204	\$49.00
H 5206	Rack frame 6U (370mm) Nat	\$149.00
H 5207	Panel set for H 5206	\$55.00
H 5212	Rack frame 12U (630mm) Nat	\$169.00
H 5213	Panel set for H 5212	\$89.00
H 5218	Rack frame 18U (900mm) Nat	\$189.00
H 5219	Panel set for H 5218	\$110.00
H 5230	Rack frame 30U (1450mm) Nat	\$229.00
H 5231	Panel set for H 5230	\$159.00
H 5238	Rack frame 38U (1780mm) Nat	\$269.00
H 5239	Panel set for H 5238	\$195.00
H 5304	Rack frame 4U (280mm) Black	\$139.00
H 5305	Panel set for H 5304	\$49.00
H 5306	Rack frame 6U (370mm) Black	\$149.00
H 5307	Panel set for H 5307	\$55.00
H 5312	Rack frame 12U (630mm) Black	\$169.00
H 5313	Panel set for H 5312	\$89.00
H 5318	Rack frame 18U (630mm) Black	\$189.00
H 5319	Panel set for H 5318	\$110.00
H 5330	Rack frame 30U (1450mm) Black	\$229.00
H 5331	Panel set for H 5330	\$159.00
H 5338	Rack frame 38U (1780mm) Nat	\$269.00
H 5339	Panel set for H 5338	\$195.00

### Front and Side Panel Fixing Hardware



H 5385	Rack screw M6 Nat. Pk 12	\$3.20
H 5386	Rack screw M6 Nat. Pk 100	\$13.40
H 5387	Rack screw M6 Nat. Pk 1000	\$99.30
H 5390	Rack screw M6 Black Pk 12	\$3.30
H 5391	Rack screw M6 Black Pk 100	\$14.00
H 5392	Rack screw M6 Black Pk 1000	\$105.50
H 5394	Captive Nuts M6/No. 6 Pk 1000	\$399.00
H 5395	Captive Nuts M6/No. 6 Pk 12	\$5.95
H 5396	Captive Nuts M6/No. 6 Pk 100	\$45.50
H 5397	Nylon Protect Washer Pk 1000	\$69.70
H 5398	Nylon Protect Washer Pk 12	\$2.10
H 5399	Nylon Protect Washer Pk 100	\$8.50

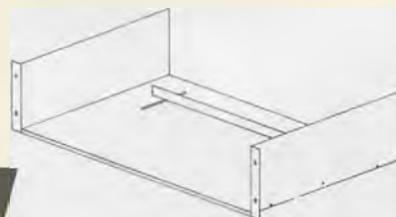
**PROUDLY MADE IN AUSTRALIA**



### Rack Shelves

**Rack Frame Equipment Shelves:** In some cases heavy equipment, eg. large amplifiers, tend to sag at the rear when installed in racks. With the addition of one of these shelves this tendency is eliminated. Simply screws to the main frame. Also suitable for equipment that does not rack mount, eg. C.D. players, tuners, videos etc.

H 5352	2 Unit	\$49.95
H 5353	3 Unit	\$49.95
H 5354	4 Unit	\$59.95



**EXCLUSIVE TO ALTRONICS**

### Rack Frame Data

1U (unit) = 44.45mm (1.75 inches)  
Depth overall 450mm all models  
Overall Width 550mm

	Panel Space	Overall Height
4u	180mm	280mm
6u	270mm	370mm
12u	535mm	635mm
18u	800mm	900mm
30u	1334mm	1434mm
38u	1690mm	1790mm

Note: These dimensions are approximate.

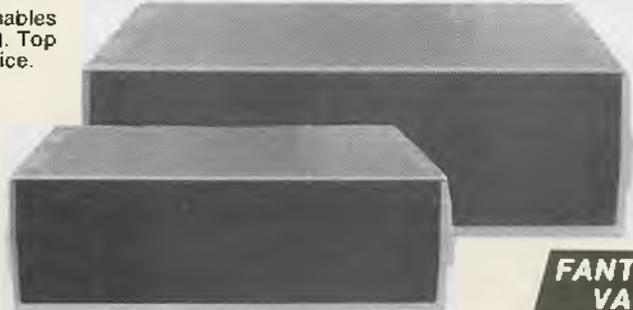
**PHONEORDER TOLL FREE 008 999 007. ALTRONIC COMPONENTS**

## ABS Instrument Cases

Internal mounting posts enable a wide combination of PCB's, or transformers, etc to be accommodated. PCB guide rails provided internally allow vertical PCB positioning to several locations. Removable front and rear panels. Attractive textured finish one side and plain the reverse side. (Enables direct engraving, silk screen printing, etc to plain side). Top and bottom split apart for ease of construction or service. Integral feet included.

- H 0480 Light Grey with Black Panels \$15.65
- H 0481 Black Case with Black Panels \$15.65
- H 0482 Light Grey with Black Panels \$20.85
- H 0483 Black Case with Black Panels \$20.85
- H 0484 Nat. Ali. Panel for H 0480/1 \$3.95
- H 0485 'ABS' PVC Panel for H 0480/1 \$1.65
- H 0486 Black Ali. Panel for H 0480/1 \$7.95
- H 0487 'ABS' PVC Panel for H 0482/3 \$2.20
- H 0488 Bk Ali. Panel for H 0482/3 \$9.95
- H 0489 Nat. Ali. Panel for H 0482/3 \$4.50

*As used in many kit projects, these instrument cases offer several advantages over sheet metal cabinets, namely: very easy to machine or 'metal bash' • Light weight • Stylish appearance • Always the same size • Low cost.*



**FANTASTIC VALUE**

**Dimensions:**  
Small H 0480/1 203W x 156D x 67H mm  
Medium H 0482/3 262W x 190D x 82H mm

## Super Large Instrument Case

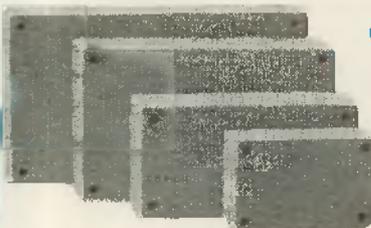
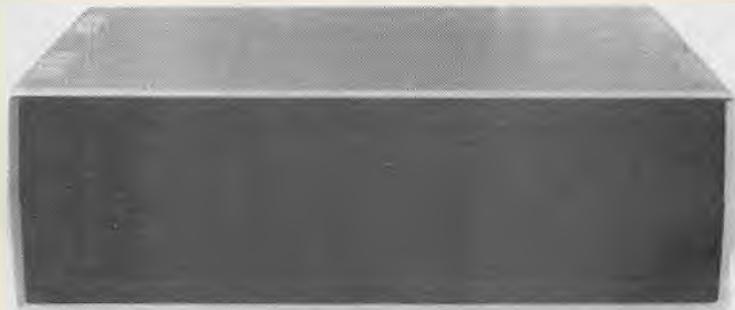
The case has generous ventilation slots on both the top and bottom panels, a myriad of mounting posts are provided for PCB's and "extra tough" mounting posts are included for securing transformers. Additional ventilation has also been provided for the mains transformer and power supply locality. • Designed to house amplifiers, inverters, power supplies, micro-processor equipment, etc  
• Mounting posts provided for PCB's, transformers. • Vented for efficient air-flow cooling. • Extra tough, super finish front and rear panels.

• Dimensions: 355x 250 x 122

- H 0490 Grey Case \$39.95
- H 0491 Black Case \$39.95
- H 0492 Blue Case \$39.95

**PROUDLY MADE IN AUSTRALIA**

- H 0494 Base Plate To Suit \$11.50
- H 0495 Blank Black Front Or Rear Panel To Suit \$3.95



## Jiffy Boxes

**PROUDLY MADE IN AUSTRALIA**

Box	Colour	Dimensions	PCB Width		ea
			Vert.	Horiz.	
H 0201	Black	150 x 90 x 50	90	87	\$3.95
H 0202	Black	195 x 113 x 60	106	103	\$6.95
H 0203	Black	130 x 68 x 41	62	60	\$3.50
H 0205	Black	83 x 54 x 28	50	47	\$2.50
H 0151	Grey	150 x 90 x 50	90	87	\$3.95
H 0152	Grey	195 x 113 x 60	106	103	\$6.95
H 0153	Grey	130 x 68 x 41	62	60	\$3.50
H 0155	Grey	83 x 54 x 28	50	47	\$2.50
<b>With Metal Lid</b>					
H 0103	Black	130 x 68 x 41	62	60	\$2.95
H 0105	Black	83 x 54 x 28	50	47	\$2.25

## Deluxe Cabinets

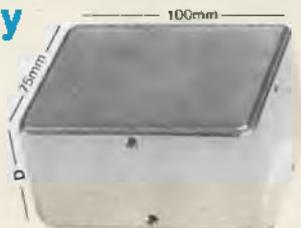
Natural finish aluminium chassis with black steel ventilated cover. Fitted with 4 rubber feet.

- H 0441 83 x 55 x 102 \$6.75
- H 0442 150 x 61 x 103 \$9.75
- H 0443 150 x 76 x 134 \$12.00
- H 0444 184 x 70 x 160 \$14.25



## Horwood Utility Cases

- H 0456 25mm \$11.95
- H 0457 50mm \$12.95
- H 0458 100mm \$15.95
- H 0459 150mm \$18.95



## Horwood Cases

- 153 x 102 x 203mm
- H 0461 \$39.95
- 254 x 102 x 203mm
- H 0463 \$49.95
- 203 x 76 x 228mm
- H 0465 \$39.95
- 305 x 76 x 228mm
- H 0468 \$49.95



*Finished in attractive 'Marvi Plate' these cases are ideal for power supplies, chargers, audio projects etc.*

**KW Instrument Cases**

The base is constructed from aluminium for easy "metal bashing" and finished in "frosty silver". The lid is steel finished in blue hammer tone and is provided with generous ventilation slots.

(No. C 1066) 255 x 158 x 154mm

H 0496 \$25.95

(No. C 1284) 305 x 90 x 204mm

H 0498 \$25.95

**Die Cast Boxes**

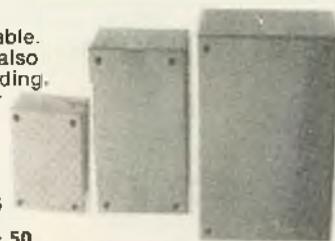
Robust and virtually indestructible. Apart from the sturdiness they also offer a high degree of RFI shielding. All models have inbuilt slots for accepting PCB's

Three sizes to choose from:

H 0451 98 x 50 x 25mm \$7.95

H 0453 118 x 60 x 40mm \$9.95

H 0455 188 x 108 x 60mm \$24.50

**Siemens Ferrite 'E' Cores and Formers****EC-35**

Built size — 47mm x 36mm x 26mm Core Pair Inc. Former

A 34.5

B 17.5

C 9.8

D1 22.8

D2 9.8

E 11.9

L 5050 \$14.75

**EC-41**

Built size — 40mm x 45mm x 37mm. Core pair included

A 40

B 19.1

C 11.6

D1 27

D2 12

E 13.8

L 5055 \$15.75

**EC-52**

Built size — 58mm x 61mm x 44mm Core Pair inc. Former and Mount

A 52.2

B 24.4

C 13.8

D1 33

D2 13.8

E 15.5

L 5060 \$17.95

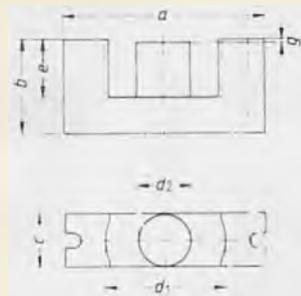


Siemens 'E' cores use Hi-quality N27 Siferit material, featuring an extremely high flux density and a frequency range of 0 to 0.1MHz. Ideally suited to —

- Super compact power transformers • Chokes • Pulse transformers • TV line transformers • Transducers • Ignition coils • Interference suppressors etc.

All coil formers are glass fibre, reinforced, thermoplastic, flame retardant polyester.

Dimensions Reference

**Transformer Pot Cores**

Size OD x 26 ID 11.1 x H 16

Material FA Ferrite

Equivalent to Fx 2240 pot core.

As used in the Megohm Meter

L 5305 Bobbin .95¢ ea

L 5300 Core \$5.95

**Balun Core (Large)**

7.4mm x 13.2mm x 13.5mm

Part No. 1050/1/F14

Operating frequency 40-

220MHz Material - F14

L 5230 .75¢ ea

**Balun Core (Small)**

7.4mm x 13.2mm x 6.6mm

Part No. 10 50/2/F14

Operating frequency 40 -

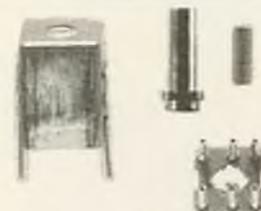
220MHz Material F 14

L 5235 .85¢ ea

**Sub Miniature Former with Core, Can and Base**

6mm type 722/1 - use with 4mm F16 slug or as open air type.

L 5210 \$2.65

**Ferrite Aerial Rod**

Dimensions: 9.5mm Dia.

200mm length.

Material: F 14

Wavelength: up to 12MHz

Part No.: 9.5 x 200/F14

L 5240 \$5.95

**Ferrite Suppression Beads**

Size OD 4.0 x ID 2.0 x L 5.0mm Material F8

Part No. 35-032-28 Frequency Range 50KHz - 500KHz

L 5250 .20¢ ea

**Toroidal Cores**

Our Toroids are 'Powdered Iron' type for excellent durability.

Size OD 14.8 x ID 8 x H

6.35 Grade 1003 Part No.

17/732/22 Saturation flux

density 15000 gauss Max.

operating frequency 500

KHz

L 5110 \$3.95

Size OD 33 x ID 20 x H 10

Grade 1001

Part No. 17/742/22

Saturation flux density

15000 gauss Max. operating

frequency 500 KHz.

L 5120 \$9.45

Size OD 44 x ID 24 x H 16.5

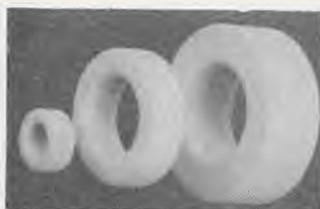
Grade 1001 Part No.

17/745/22 Saturation flux

density 15000 gauss Max

operating frequency 500

KHz



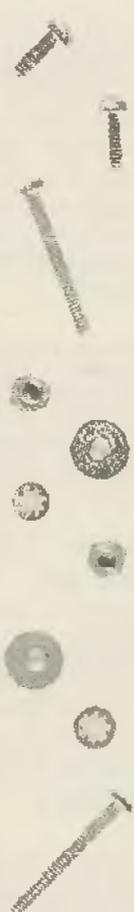
L 5130 \$11.75

# HARDWARE

# Nuts, Bolts, Spacers & Storage Trays

## 3mm and 4mm Metric Bolts, Nuts and Washers

		Pack	
H 3110	Bolt 3 x 6mm	25	\$1.25
H 3115	Bolt 3 x 6mm	200	\$4.20
H 3116	Bolt 3 x 6mm	1000	\$6.60
H 3120	Bolt 3 x 10mm	25	\$2.25
H 3125	Bolt 3 x 10mm	200	\$4.75
H 3126	Bolt 3 x 10mm	1000	\$8.45
H 3130	Bolt 3 x 15mm	25	\$1.30
H 3135	Bolt 3 x 15mm	200	\$4.95
H 3136	Bolt 3 x 15mm	1000	\$10.40
H 3140	Bolt 3 x 20mm	25	\$1.45
H 3145	Bolt 3 x 20mm	200	\$6.20
H 3146	Bolt 3 x 20mm	1000	\$15.95
H 3150	Bolt 3 x 25mm	25	\$1.50
H 3155	Bolt 3 x 25mm	200	\$7.40
H 3156	Bolt 3 x 25mm	1000	\$21.30
H 3160	Bolt 3 x 32mm	25	\$1.60
H 3165	Bolt 3 x 32mm	200	\$6.50
H 3166	Bolt 3 x 32mm	1000	\$26.20
H 3175	Nut 3mm Hex	25	\$1.55
H 3177	Nut 3mm Hex	200	\$6.95
H 3178	Nut 3mm Hex	1000	\$19.50
H 3180	Washer 3mm Flat	25	\$1.35
H 3182	Washer 3mm Flat	200	\$4.65
H 3183	Washer 3mm Flat	1000	\$9.20
H 3185	Washer 3mm S/proof	25	\$1.55
H 3187	Washer 3mm S/proof	200	\$7.45
H 3188	Washer 3mm S/proof	1000	\$21.60
H 3310	Bolt 4 x 10mm	25	\$1.55
H 3315	Bolt 4 x 10mm	200	\$7.20
H 3316	Bolt 4 x 10mm	1000	\$19.90
H 3320	Bolt 4 x 15mm	25	\$1.60
H 3325	Bolt 4 x 15mm	200	\$7.60
H 3326	Bolt 4 x 15mm	1000	\$23.20
H 3380	Nut 4mm Hex	25	\$1.45
H 3382	Nut 4mm Hex	200	\$6.60
H 3383	Nut 4mm Hex	1000	\$17.75
H 3385	Washer 4mm Flat	25	\$1.40
H 3387	Washer 4mm Flat	200	\$5.35
H 3388	Washer 4mm Flat	1000	\$12.25
H 3389	Washer 4mm S/proof	25	\$1.65
H 3391	Washer 4mm S/proof	200	\$7.95
H 3392	Washer 4mm S/proof	1000	\$24.20



## Self Tapping Screws

		Pack	
H 1100	No. 4 x 6mm Normal head	25	\$2.40
H 1102	No. 4 x 6mm Normal head	200	\$5.95
H 1103	No. 4 x 6mm Normal head	2000	\$14.90
H 1140	No. 4 x 9mm Universal head	200	\$5.20
H 1141	No. 4 x 9mm Universal head	1000	\$11.65
H 1110	No. 4 x 12mm Normal head	25	\$2.65
H 1112	No. 4 x 12mm Normal head	200	\$7.65
H 1113	No. 4 x 12mm Normal head	1000	\$15.50
H 1116	No. 6 x 9mm Normal head	25	\$2.65
H 1117	No. 6 x 9mm Normal head	200	\$7.80
H 1118	No. 6 x 9mm Normal head	1000	\$23.25
H 1130	No. 6 x 9mm Universal head	25	\$2.85
H 1132	No. 6 x 9mm Universal head	200	\$9.25
H 1133	No. 6 x 9mm Universal head	1000	\$29.65
H 1120	No. 8 x 12mm Normal head	25	\$2.70
H 1122	No. 8 x 12mm Normal head	200	\$7.95
H 1123	No. 8 x 12mm Normal head	1000	\$27.50



## Brass Spacers

### UNTAPPED 3MM CLEARANCE

	Length	Pack	
H 1355	6mm	8	\$2.45
H 1359	6mm	100	\$9.90
H 1360	6mm	1000	\$9.95
H 1362	9mm	8	\$2.60
H 1365	9mm	100	\$11.75
H 1366	9mm	1000	\$84.65
H 1372	12mm	8	\$2.85
H 1373	12mm	100	\$14.30
H 1374	12mm	1000	\$107.75
H 1375	25mm	8	\$2.95
H 1376	25mm	100	\$24.50
H 1377	25mm	1000	\$199.00

### TAPPED 3MM

	Length	Pack	
H 1390	10mm	8	\$3.25
H 1391	10mm	100	\$19.40
H 1392	10mm	1000	\$153.20
H 1393	15mm	8	\$3.70
H 1394	15mm	100	\$24.80
H 1395	15mm	1000	\$199.00
H 1396	25mm	8	\$5.00
H 1397	25mm	100	\$41.20
H 1398	25mm	1000	\$347.80



## Rack Nuts, Bolts & Washers

		Pack	
H 5385	Rack screw M6 silver	12	\$3.20
H 5386	Rack Screw M6 silver	100	\$13.40
H 5387	Rack screw M6 silver	1000	\$99.30
H 5390	Rack screw M6 silver	12	\$3.30
H 5391	Rack screw M6 black	100	\$14.00
H 5392	Rack screw M6 black	1000	\$105.50
H 5394	Captive nuts M6	1000	\$399.00
H 5395	Captive nuts M6	12	\$5.95
H 5396	Captive nuts M6	100	\$45.50
H 5398	Nylon washer suit M6	12	\$2.10
H 5399	Nylon washer suit M6	100	\$8.50
H 5397	Nylon washer suit M6	1000	\$69.60



## Countersunk Allen Key Bolts

		Pack	
H 3410	Natural 4mm	25	\$1.70
H 3415	Natural 4mm	100	\$5.35
H 3416	Natural 4mm	1000	\$27.50
H 3420	Black 4mm	25	\$1.75
H 3425	Black 4mm	100	\$5.45
H 3426	Black 4mm	1000	\$27.50



## Interlocking Parts Drawers

Unique design allows units to be "dovetailed" together. Drawers will not stick or seize. Single or double drawers available.



H 0235	Single	\$4.95 ea, 10up \$4.50
H 0236	Double	\$5.50 ea, 10up \$4.95

## Utility Parts Case

Featuring a clear plastic lid. Simple slide lock. 48 partition combinations. Very sturdy ABS plastic.



H 0249 \$28.95

## Economy Parts Case

Available in 3 sizes.

H 0246	15 Way (260 x 175 x 43mm)	\$10.50
H 0247	6 Way (210 x 110 x 44mm)	\$5.25
H 0248	5 Way (175 x 95 x 38mm)	\$3.50



**ALTRONIC** COMPONENTS • PHONEORDER TOLL FREE 008 999 007

## Cordgrip Grommets

To suit cables 7.4 - 8.2mm. Up to 1.6mm chassis thickness. Nylon type.

- H 4270 Pk 10 \$2.80
- H 4272 Pk 100 \$20.50

To suit cables 7.4mm - 8.2mm. Up to 3.2mm chassis thickness. Nylon type.

- H 4280 Pk 10 \$2.80
- H 4282 Pk 100 \$20.50

To suit cables 6.2 - 7.4mm. Up to 2.5mm chassis thickness. Nylon type.

- H 4250 Pk 10 \$2.20
- H 4252 Pk 100 \$14.60



## Rubber Grommets

For chassis to 16 gauge

	Chassis Hole	Cable Hole	Pack Qty	Price
H 1450	9.5mm	6.0mm	8	\$3.45
H 1452	9.5mm	6.0mm	100	\$20.75
H 1453	9.5mm	6.0mm	1000	\$170.00
H 1456	12.7mm	9.5mm	8	\$3.75
H 1458	12.7mm	9.5mm	100	\$24.95
H 1459	12.7mm	9.5mm	1000	\$205.00



## Cable Ties

100mm

- H 4010 Pk 25 .90¢ ea
- H 4012 Pk 100 \$2.60
- H 4014 Pk 1000 \$21.95

200mm

- H 4020 Pk 25 \$3.55
- H 4022 Pk 100 \$12.00
- H 4024 Pk 1000 \$97.60



## Self Adhesive Cable Tie Mounts

Constructed of nylon and backed with high quality self-adhesive tape. Screw mounting holes provided for heavy duty support.

21mm x 21mm

- H 4110 Pk 25 \$6.45
- H 4112 Pk 100 \$22.45
- H 4114 Pk 1000 \$186.60

28mm x 28mm

- H 4120 Pk 25 \$10.55
- H 4122 Pk 100 \$37.40
- H 4124 Pk 1000 \$315.75



## Rubber Feet

	Size	Pack Qty	Price
H 0914	15mm	8	\$3.25
H 0913	15mm	100	\$21.95
H 0912	15mm	1000	\$190.00
H 0917	20mm	8	\$3.40
H 0916	20mm	100	\$23.75
H 0915	20mm	1000	\$255.00
H 0940	Stick on 12mm	4	\$1.20
H 0942	Stick on 12mm	100	\$20.15
H 0944	Stick on 12mm	1000	\$174.50
H 0950	Stick on 20mm	4	\$1.70
H 0952	Stick on 20mm	100	\$33.00
H 0954	Stick on 20mm	1000	\$278.00



## Nylon Cable Clamps

6.7mm

- H 4210 Pk 6 .85
- H 4212 Pk 100 \$9.50
- H 4214 Pk 1000 \$81.00

9.5mm

- H 4220 Pk 6 \$1.55
- H 4222 Pk 100 \$11.95



## LED Bezel/Holder



For 5mm LEDs. With leg insulation. 9.5mm mounting hole required.

- H 1560 Pk 10 \$2.95
- H 1565 Pk 100 \$24.50

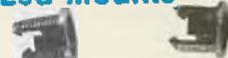
## Snap-in Bushings



Black Nylon bushings to insulate raw edged chassis holes. Takes up to 12.2mm cables. Fits up to 3.2mm chassis thickness. Chassis hole 16mm.

- H 4350 Pk 10 \$2.40
- H 4352 Pk 100 \$17.95

## Led Mounts



One piece type. Quick to install.

- H 1550 Pk 10 \$2.65
- H 1552 Pk 200 \$19.75
- H 1551 Pk 1000 \$89.95

## Cable Clips

	Suits Cable Type	Pack	Price
H 1700	Fig 8 Cable	50	\$5.95
H 1702	Fig 8 Cable	200	\$21.95
H 1704	Fig 8 Cable	1000	\$86.95
H 1710	Tele Cable	50	\$5.95
H 1712	Tele Cable	200	\$21.95
H 1714	Tele Cable	1000	\$86.00
H 1720	Coax Cable	50	\$6.95
H 1722	Coax Cable	200	\$23.95
H 1724	Coax Cable	1000	\$96.00
H 1730	7-9mm Cable	30	\$4.55
H 1732	7-9mm Cable	200	\$26.00
H 1734	7-9mm Cable	1000	\$97.00
H 1740	10-12mm Cable	20	\$3.75
H 1742	10-12mm Cable	200	\$30.80
H 1744	10-12mm Cable	1000	\$125.00



## Locking Wire Saddles

For directing and gathering cables. Self adjusting to various panel thicknesses. 4.8mm chassis hole required.

H = 14.4mm A = 17.9mm

B = 8.6mm Nylon

- H 4180 Pk 10 \$2.95
- H 4182 Pk 100 \$23.00



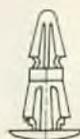
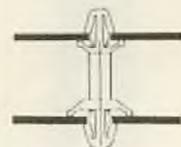
## PCB Supports

4mm PCB hole required. 4.8mm chassis hole required. Gives PCB 9.6mm clearance above chassis.

- Nylon 66 (UL 94V-2)
- H 1420 Pk 10 \$2.45
- H 1422 Pk 100 \$17.25
- H 1424 Pk 1000 \$130.00

4mm PCB hole and 4.8mm chassis hole required. Nylon 66 (UL 94V-2)

- H 1430 6.4mm Pk 10 \$1.75
- H 1433 6.4mm Pk 100 \$17.40
- H 1436 6.4mm Pk 1000 \$149.85
- H 1440 12.7mm Pk 10 \$2.75
- H 1445 12.7mm Pk 100 \$20.00
- H 1447 12.7mm Pk 1000 \$173.75



## Female Quick Connect

	Wire Size	Stud Size	Pk.	Price
H 2000 Fem Red	A	6.3	8	\$1.70
H 2002 Fem Red.	A	6.3	100	\$18.15
H 2005 Fem Blue.	B	6.3	6	\$1.50
H 2007 Fem Blue.	B	6.3	100	\$18.50



## Male Quick Connect

	Wire Size	Stud Size	Pk.	Price
H 2020 Male Red.	A	6.3	8	\$1.20
H 2022 Male Red.	A	6.3	100	\$10.40
H 2025 Male Blue.	B	6.3	6	\$1.50
H 2027 Male Blue.	B	6.3	100	\$10.40



## Ring Type

	Wire Size	Stud Size	Pk.	Price
H 2030 Red	A	3.5	8	\$1.50
H 2032 Red	A	3.5	100	\$10.40
H 2035 Red	A	4	8	\$1.60
H 2037 Red	A	4	100	\$10.40
H 2040 Red	A	5	8	\$1.80
H 2042 Red	A	5	100	\$10.40
H 2045 Blue	B	4	6	\$1.70
H 2047 Blue	B	4	100	\$13.75
H 2050 Blue	B	5	6	\$1.45
H 2052 Blue	B	5	100	\$13.75
H 2055 Blue	B	6	6	\$1.70
H 2057 Blue	B	6	100	\$17.25
H 2060 Yellow	C	5	4	\$1.45
H 2062 Yellow	C	5	50	\$10.40
H 2065 Yellow	C	6	4	\$1.70
H 2067 Yellow	C	6	50	\$10.75



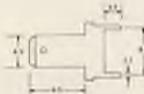
## Fork Type

	Wire Size	Stud Size	Pk.	Price
H 2070 Red	A	4	8	\$1.60
H 2072 Red	A	4	100	\$10.40
H 2075 Red	A	5	8	\$1.70
H 2077 Red	A	5	100	\$10.75
H 2080 Blue	B	4	6	\$1.80
H 2082 Blue	B	4	100	\$11.75
H 2085 Blue	B	5	6	\$1.45
H 2087 Blue	B	5	100	\$13.75



## PCB Male Quick Connect

	Wire Size	Stud Size	Pk.	Price
H 2090 6.3mm PCB Tag			10	\$2.75
H 2091 6.3mm PCB Tag			100	\$10.95
H 2092 6.3mm PCB Tag			1000	\$79.90



## Female Bullet

	Wire Size	Stud Size	Pk.	Price
H 2120 Red	A	3.9	8	\$2.00
H 2122 Red	A	3.9	100	\$12.95
H 2125 Blue	B	3.9	8	\$2.00
H 2127 Blue	B	3.9	100	\$12.95



## Male Bullet

	Wire Size	Stud Size	Pk.	Price
H 2150 Red	A	4	8	\$1.60
H 2152 Red	A	4	100	\$10.40
H 2155 Blue	B	4	8	\$1.60
H 2157 Blue	B	4	100	\$10.40



## Double Adaptor

CONNECTS 2 FEMALES TO 1 MALE QUICK CONNECTORS

	Stud Size	Pk.	Price
H 2100	6.3	4	\$1.60
H 2102	6.3	100	\$13.25



## Piggyback Adaptor

CONNECTS WIRE TO ONE FEMALE AND ONE MALE QUICK CONNECTOR

	Stud Size	Wire Size	Pk.	Price
H 2010 Red	A	6.3	4	\$1.45
H 2012 Red	A	6.3	50	\$7.65
H 2015 Blue	B	6.3	4	\$1.45
H 2017 Blue	B	6.3	50	\$8.60



## Cable Joiner/Splicer

	Wire Size	Pk.	Price
H 2200 Splicer	B	4	\$1.50
H 2205 Splicer	B	20	\$3.95



## Solder Lugs

	Stud Size	Pk.	Price
H 1500	3	50	\$3.70
H 1501	3	1000	\$27.50



DIN WIRE SIZE A = .75 - 1.0mm  
B = 1.5 - 2.5mm C = 4 - 6mm



## Crimping Tool

Combination crimping tool and wire stripper. Ideally suited to crimping all above terminals. Has built in wire cutter and stripper to suit cables from 0.75mm to 6.0mm. Very easy to use. Makes terminating cables a breeze.

T 1550 \$4.95



## Automatic Wire Stripper

For jobs where you have to accurately strip many cables, either one of these two models will make the job a lot easier. Automatically adjusts to any size wire and insulation. Also includes a built in wire cutter.

T 1520 Economy Stripper \$10.95

T 1522 Professional Stripper \$16.95  
T 1525 Spare Blades to Suit T 1522 \$1.85 ea

# Fuses, Fuseholders & Circuit Breakers

# HARDWARE

## 3AG Fuses



Value	Pk. 10	Pk. 100	Pk. 1000
100mA	\$ 5770	\$ 5771	\$ 5772
150mA	\$ 5775	\$ 5776	\$ 5777
250mA	\$ 5780	\$ 5781	\$ 5782
500mA	\$ 5785	\$ 5786	\$ 5787
800mA	\$ 5790	\$ 5791	\$ 5792
1A	\$ 5795	\$ 5796	\$ 5797
1.5A	\$ 5800	\$ 5801	\$ 5802
2A	\$ 5805	\$ 5806	\$ 5807
3A	\$ 5810	\$ 5811	\$ 5812
5A	\$ 5815	\$ 5816	\$ 5816
7.5A	\$ 5820	\$ 5821	\$ 5822
10A	\$ 5825	\$ 5826	\$ 5827
15A	\$ 5830	\$ 5831	\$ 5832
20A	\$ 5835	\$ 5836	\$ 5837
25A	\$ 5840	\$ 5841	\$ 5842
30A	\$ 5845	\$ 5846	\$ 5847

## 3AG Slow Blow Fuses



Value	Ea	Pk. 10	Pk. 500
500mA	\$ 5860	\$ 5861	\$ 5862
1A	\$ 5865	\$ 5866	\$ 5867
1.5A	\$ 5870	\$ 5871	\$ 5872
2A	\$ 5875	\$ 5876	\$ 5873
3A	\$ 5880	\$ 5881	\$ 5882
5A	\$ 5885	\$ 5886	\$ 5887
7.5A	\$ 5890	\$ 5891	\$ 5892
10A	\$ 5895	\$ 5896	\$ 5897

### ★ Fuse Pricing ★

Fuses are supplied individually or in pack sizes as shown.

	3AG/M205	3AG Slow Blow
1-9	.30¢ ea	\$1.65 ea
10 up	.25¢ ea	\$1.45 ea
100 up	.20¢ ea	\$1.20 ea

## M 205 Fuses



Value	Pk. 10	Pk. 100	Pk. 1000
100mA	\$ 5700	\$ 5701	\$ 5702
150mA	\$ 5705	\$ 5706	\$ 5707
250mA	\$ 5710	\$ 5711	\$ 5712
500mA	\$ 5715	\$ 5716	\$ 5717
800mA	\$ 5720	\$ 5721	\$ 5722
1A	\$ 5725	\$ 5726	\$ 5727
1.5A	\$ 5730	\$ 5731	\$ 5732
2A	\$ 5735	\$ 5736	\$ 5737
3A	\$ 5740	\$ 5741	\$ 5742
5A	\$ 5745	\$ 5746	\$ 5747
7.5A	\$ 5750	\$ 5751	\$ 5752
10A	\$ 5755	\$ 5756	\$ 5757

### ★ Fuse Data ★

3AG Dimensions 32mm x 6mm Dia.  
M205 Dimensions 19mm x 5mm Dia.  
5AG Dimensions 37mm x 10mm Dia.

## Standard 3AG

Panel mount. Cap can be unscrewed by hand.



\$ 6000 \$1.20

## Safety 3AG

Panel mount. Safety Type. Small screwdriver required to 'pop' open cap.



\$ 5995 \$1.90

## Inline 3AG

In line type with leads. Typically used in automotive trade.



\$ 6001 \$1.10

## PCB Mount Fuse Clips 3AG



PCB pin spacing 7mm  
\$ 5980 Pk 8 \$1.60  
\$ 5981 Pk 100 \$15.95

## Standard M205

Panel Mount. Cap can be unscrewed by hand.



\$ 5990 \$1.25

## Safety M205

Panel mount. Safety type. Cap is unscrewed by screwdriver.



\$ 5992 \$1.75

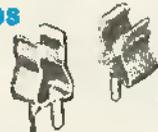
## PCB Mount M205

PCB type with cover utilizing clips.



PCB pin spacing 23mm  
\$ 5985 .60¢

## PCB Mount Fuse Clips M205



PCB pin spacing 5mm  
\$ 5983 Pk 8 \$1.55  
\$ 5984 Pk 100 \$14.95

## 30 AMP Panel Mount 5AG Fuse Holder and Fuses

Fuse size 10mm x 38mm fuses. Standard type fuse holder can be opened by hand.

\$ 6030 Fuse Holder \$4.45  
\$ 5975 20A Fuse To Suit \$1.75  
\$ 5976 25A Fuse To Suit \$1.75  
\$ 5977 30A Fuse To Suit \$1.75



## Thermal Switch Circuit Breaker

Self resetting type. Rated at 10A at 80°C  
\$ 5610 \$3.55



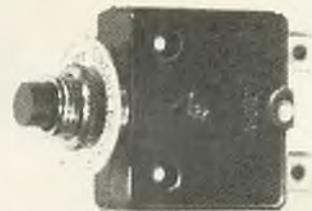
## Circuit Breakers

USA Underwriters Laboratories listed.

### Performance Data:

- Will hold 100% of rated current indefinitely at 25°C
  - Will trip within 1 hour at 125% of load at 25°C
  - Will trip within 4-40 seconds at 200% rated load.
  - Terminates via 6.3mm push on quick connect tags
  - Dimensions 35H x 30D x 14W
- Note depth does not include quick connect tags.

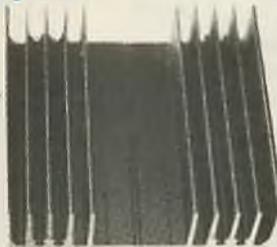
\$ 5503 3 Amp \$5.35  
\$ 5505 5 Amp \$5.35  
\$ 5515 15 Amp \$5.35  
\$ 5520 20 Amp \$5.35  
\$ 5525 25 Amp \$5.35  
\$ 5530 30 Amp \$5.35  
\$ 5535 35 Amp \$5.35



PHONEORDER TOLL FREE 008 999 007. ALTRONIC COMPONENTS

## High Efficiency Multi-Purpose

Black anodised. Incorporates a number of recessed "channels" on the flat side to enable self tapper screw fixing from chassis etc, without the need to drill holes. Other recesses are provided to mate with 1mm sheet metal thus allowing the construction of complete box enclosures with integral heatsinks with just four flat pieces of metal/aluminium etc. Made in W.A.



**Cat No Length Thermal Res.**

H 0580	75mm	1.4°C/W	\$9.95
H 0582	100mm	1.3°C/W	\$11.80
H 0585	125mm	1.2°C/W	\$12.80
H 0590	250mm	0.9°C/W	\$24.50
H 0592	300mm	0.7°C/W	\$27.50

All  
125mm  
Wide

## High Efficiency Fan Type

Black Anodised. Undrilled



Cat No	Length	Thermal Res.	ea
H 0520	55mm	2.5°C/W	\$5.50
H 0522	72mm	2.2°C/W	\$8.25
H 0524	135mm	1.1°C/W	\$9.95
H 0526	225mm	0.9°C/W	\$16.95
H 0530	300mm	0.7°C/W	\$19.95

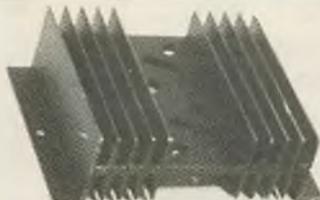
All  
105mm  
Wide

## Economy Power

102W x 25H x 72D.  
Black anodised.  
Thermal resistance 2.7° C/W

H 0570 Undrilled \$6.95

H 0571 Drilled \$7.50



## Versatile Heavy Duty

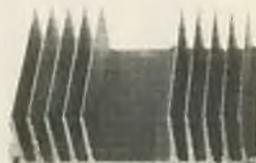
This heatsink has tongue and grooved ends enabling 'ganging' of heatsinks together.

Size: 110W x 33H x 72D mm  
Thermal Resistance: 2.2° C/W

H 0560 Undrilled \$6.95

H 0561 Drilled 2 x TO3 \$9.95

H 0563 Undrilled (110W x 33H x 100D mm Version) \$9.95



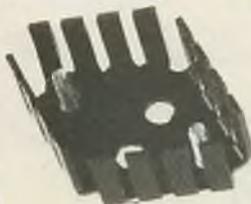
## TO-3 Mini-Fin



50mm x 50mm x 25mm H.  
Thermal resistance 5° C/W.

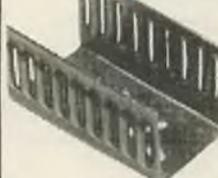
H 0500 \$2.90

## Thermalloy TO-3



H 0503 \$1.50

## Universal U



Use with  
flat pack  
or TO 3  
package.

Ideal for PCB mounting.  
Thermal resistance 6° C/W.

H 0501 \$1.50

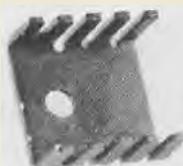
## Mini U



Suits flat pack semis.  
Thermal resistance 10° C/W.

H 0502 .95c

## Mini U



Ideal for T 0126 and T 0220 flat pack semis

Dimensions: 18W x 19L x 10H mm

H 0504 .75c

## PCB Mount T 0220



Suits T 0220 flat pack semis. Heatsink mounts vertically and incorporates 2 x PCB pins for stability and has 3mm tapped hole to fix semi to.

Dimensions: 16W x 16L x 20H mm

H 0506 .85c

## PCB Mount T 0220



Suits T 0220 flat pack semis. Heatsink mounts vertically and incorporates 2 x PCB pins for stability and has 3mm tapped holes to fix semi to.

Dimensions: 16W x 10L x 20H mm.

H 0507 .75c

## PCB Mount TOP-3



Suitable for flat pack semis up to TOP-3 size. Heatsink mounts vertically and incorporates 2 x PCB pins for stability and has hole to fix semis to.

Dimensions: 34W x 12L x 50H

H 0509 \$1.65

## TO-5



High efficiency press on.  
Thermal resistance 30° C/W.

H 0512 .60c

## 'Clip On' TO-220



Multi-Fin efficient design, simply push on over TO-220.

Thermal Resistance 25° C/W.

H 0505 .75c

## Heatsink Compound



H 1600 10g \$3.20

H 1610 150g \$22.50

H 1615 Syringe 50g \$9.95



## Colour Cap Series

15mm diameter.  
1/4" shaft with  
grubscrew.



		ea	
		ea	10 up
H 6001	Red	.80	.75
H 6003	Blue	.80	.75
H 6005	Green	.80	.75
H 6007	Yellow	.80	.75

## Black PVC

WITH ALUMINIUM CAP

20mm diameter.  
With  
larger grooves for  
easy grip.  
1/4" shaft with  
grubscrew.



		ea	
		ea	10 up
H 6080		\$1.40	\$1.30

## Polished Aluminium

18mm diameter.  
1/4" shaft with  
grubscrew



		ea	
		ea	10 up
H 6305		\$1.65	\$1.45

## Natural Aluminium

15mm diameter.  
1/4" shaft with  
grubscrew.



		ea	
		ea	10 up
H 6310		\$1.95	\$1.80

## Brushed Black Aluminium

1/4" shaft with  
grubscrew.



		ea	
		ea	10 up
H 6211	16mm	\$1.90	\$1.70
H 6213	22mm	\$2.20	\$2.00
H 6224	30mm	\$2.15	\$1.90
H 6228	40mm	\$3.95	\$3.60

## Collett Knobs

All knobs are  
light grey  
plastic. NB.  
caps and bases  
are purchased  
separately.



		ea	
		ea	10 up
H 6410	15mm Knob. 6mm shaft	\$1.40	\$1.30
H 6415	21mm Knob. 6mm shaft	\$2.10	\$1.90
H 6420	15mm Knob. 6.4mm shaft	\$1.40	\$1.30
H 6425	21mm Knob. 6.4mm shaft	\$2.10	\$1.90



## CAPS TO SUIT

		ea	
		ea	10 up
H 6440	15mm Red	.25	.20
H 6442	15mm Blue	.25	.20
H 6444	15mm Yellow	.25	.20
H 6446	15mm Green	.25	.20
H 6460	21mm Red	.30	.25
H 6462	21mm Blue	.30	.25
H 6464	21mm Yellow	.30	.25
H 6466	21mm Green	.30	.25

## BASES TO SUIT

		ea	
		ea	10 up
H 6470	21mm Red	.25	.20
H 6472	21mm Blue	.25	.20
H 6474	21mm Yellow	.25	.20
H 6476	21mm Green	.25	.20

## Black PVC Fluted

1/4" shaft  
with grubscrew.



		ea	
		ea	10 up
H 6040	15mm	.90	.85
H 6042	20mm	\$1.10	\$1.00

## Black PVC

WITH ALUMINIUM CAP

1/4" shaft with  
grubscrew.



		ea	
		ea	10 up
H 6060	24mm	\$1.35	\$1.25
H 6066	32mm	\$1.50	\$1.35

## Calibrated Line

WITH ALUMINIUM  
CAP AND BASE

30mm diameter.  
1/4" shaft  
with grubscrew.



		ea	
		ea	10 up
H 6092		\$1.55	\$1.40

## Black PVC

WITH ALUMINIUM CAP

20mm diameter.  
Push on type.



		ea	
		ea	10 up
H 6099		.60	.50

*Whether your a manufacturer or electronics  
enthusiast this range of knobs will help  
enhance any product you are making.*

## Black PVC

23mm diameter.  
1/4" shaft with  
grubscrew.



		ea	
		ea	10 up
H 6050		.80	.75

## Brushed Aluminium

1/4" shaft with  
grubscrew.



		ea	
		ea	10 up
H 6331	16mm	\$1.95	\$1.85
H 6333	22mm	\$1.95	\$1.80
H 6335	28mm	\$2.55	\$2.35

## Calibrated 1-10

WITH ALUMINIUM  
CAP AND BASE

30mm diameter.  
1/4" shaft  
with grubscrew.



		ea	
		ea	10 up
H 6090		\$1.55	\$1.40

## Black PVC

WITH RED CAP  
15mm diameter.  
For 18 teeth  
splined shafts.



		ea	
		ea	10 up
H 6501	16mm	.80	.75

## Black PVC Fluted

For 18 teeth  
splined shafts.



		ea	
		ea	10 up
H 6540	15mm	.85	.80
H 6542	20mm	.95	.90

## Caps For Push Button Switch

Suits switch S 1410 and switch  
bank S 1430. (See SWITCHES  
section). 12.5mm pitch.



		ea	
		ea	10 up
H 6610	White	.35	.30
H 6620	Grey	.35	.30
H 6630	Black	.35	.30
H 6640	Red	.35	.30

## High Quality At Low Cost Polypropylene Speakers

Most of the "state-of-the-art" high performance speaker systems (especially the European ones) use either bextrene or polypropylene cone material in their woofers. This development, as well as system designs based on Theile/Small parameters, has yielded significant improvement in bottom-end frequency response performance and cabinet size reductions for a given level of performance. The lightweight plastic cones offer levels of performance above that of conventional cardboard cones which have been around since loudspeakers were first made. The cone is more rigid and does not "break-up" (flex) as much as its counterparts.

### 6½" Midrange

30 Watts RMS 50W Max

With Sealed Frame

Rated Power Input..... 30W  
 Max. Power Input..... 50W  
 Impedance (400Hz)..... 8 Ohm  
 Frequency Response..... 10-6kHz  
 Resonant Frequency..... 400Hz (&/-80Hz)  
 Sensitivity..... 98dB/W (0.5m)  
 Voice Coil..... 25mm  
 Nett Weight..... 770gm  
 Magnet..... 263gm/10oz

C 3045 **\$27.50**

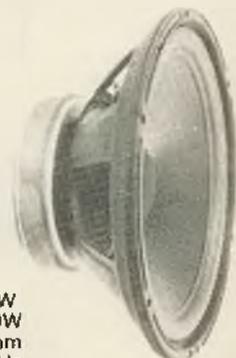


### 10" Woofer

60 Watts RMS 100W Max

Rated Power Input..... 60W  
 Max. Power Input..... 100W  
 Impedance (200Hz)..... 8 Ohm  
 Frequency Response..... 10-4kHz  
 Resonant Frequency..... 45Hz (&/-9Hz)  
 Sensitivity..... 98dB/W (0.5m)  
 Voice Coil..... 38mm  
 Nett Weight..... 2350gm  
 Magnet..... 848gm/30oz

C 3065 **\$69.00**



### 6½" Woofer/Midrange

30 Watts RMS 50W Max

Rated Power Input..... 30W  
 Max. Power Input..... 50W  
 Impedance (400Hz)..... 8 Ohm  
 Frequency Response..... 10-4kHz  
 Resonant Frequency..... 40Hz (&/-12Hz)  
 Sensitivity..... 96dB (0.5m)  
 Voice Coil..... 25mm  
 Nett Weight..... 740gm  
 Magnet..... 283gm/10oz

C 3055 **\$29.95**



### 12" Woofer

100 Watts RMS 150W Max

Rated Power Input..... 100W  
 Max. Power Input..... 150W  
 Impedance (200Hz)..... 8 Ohm  
 Frequency Response..... 10-3kHz  
 Resonant Frequency..... 30Hz (&/-6Hz)  
 Sensitivity..... 98dB/W (0.5m)  
 Voice Coil..... 38mm  
 Nett Weight..... 2500gm  
 Magnet..... 848gm/30oz

C 3070 **\$99.00**



### 8" Woofer

60 Watts RMS 100W Max

Rated Power Input..... 60W  
 Max. Power Input..... 100W  
 Impedance (300Hz)..... 8 Ohm  
 Frequency Response..... 10-4kHz  
 Resonant Frequency..... 35Hz (&/-7Hz)  
 Sensitivity..... 97dB/W (0.5m)  
 Voice Coil..... 39mm  
 Nett Weight..... 2150gm  
 Magnet..... 848gm/30oz

C 3060 **\$49.95**



### 15" Woofer

120 Watts RMS 200W Max

Rated Power Input..... 120W  
 Max. Power Input..... 200W  
 Impedance (200Hz)..... 8 Ohm  
 Frequency Response..... 10-3kHz  
 Resonant Frequency..... 30Hz (&/-6Hz)  
 Sensitivity..... 98dB/W (0.5m)  
 Voice Coil..... 38mm  
 Nett Weight..... 2550gm  
 Magnet..... 848gm/30oz

C 3075 **\$129.00**



**Redford High End Poly Emulsion Coated Cone Woofers at Direct Import Prices**

Altronic Distributors announces the release of a new generation of high end woofers. The development of high grade driver components in Japan, such as Barium ferrite magnets and specially formulated paper cones impregnated with poly emulsion, have enabled us to offer our customers drivers of quite remarkable power handling, performance and extremely low distortion. We believe the performance exceeds that obtainable from many European "name" brands; and the direct import prices from Altronics compare favourably with the considerably inferior standard cone varieties offered by our competitors.

**Cone Materials.** This series of loudspeaker features a specially selected fibre impregnated paper cone which is coated with a layer of polypropylene to add the desired rigidity. An added benefit of this coating is its resistance to water and moisture ingress.

**Voice Coil Construction.** All voice coils are wound on aluminium. The magnet pole pieces are vented for heat dissipation. Bump back plates are employed to allow extra voice call excursion.

**6 1/2" PECC Woofer**

30 Watts RMS 60W Max.

Rated Input Power ..... 40W  
 Max. Input Power ..... 60W  
 Impedance (400Hz) ..... 8 Ohm  
 Frequency Response ..... FO-5kHz  
 Resonant Frequency . 70Hz (+/-14Hz)  
 Sensitivity ..... 96dB/W(0.5m)  
 Nett Weight ..... 1680gm  
 Magnet ..... 567gm/20oz

C 3022 **\$49.95**



**12" PECC Woofer**

80 Watts RMS 160W Max

Rated Input ..... 80W  
 Max. Input Power ..... 160W  
 Impedance (300Hz) ..... 8 Ohm  
 Frequency Response ..... FO-3kHz  
 Resonant Frequency . 25Hz (+/-5Hz)  
 Sensitivity ..... 98dB/W(0.5m)  
 Nett Weight ..... 4810gm  
 Magnet ..... 1408gm/50oz

C 3030 **\$125.00**



**8" PECC Woofer**

60 Watts RMS 100W Max

Rated Input Power ..... 60W  
 Max. Input Power ..... 100W  
 Impedance (300Hz) ..... 8 Ohm  
 Frequency Response ..... FO-4kHz  
 Resonant Frequency . 60Hz(+/-12Hz)  
 Sensitivity ..... 98dB/W(0.5m)  
 Nett Weight ..... 2600gm  
 Magnet ..... 848gm/30oz

C 3024 **\$69.00**



**12" Guitar Speaker**

60 Watts RMS 100W Max

Paper cone, super large magnet. Ideal for use as replacement guitar amp boxes, bass bins etc. Exceptional quality and performance at an economical price. Very efficient.



*Designed and Manufactured for a very famous USA guitar Amp maker*

Rated Power ..... 60W  
 Max. Power Input ..... 100W  
 Impedance (300Hz) ..... 8 Ohm  
 Frequency Response ..... 10-5kHz  
 Resonant Frequency ..... 95Hz  
 Sensitivity ..... 94dB/W (0.5m)  
 Voice Coil ..... 50mm  
 Nett Weight ..... 4000gm  
 Magnet ..... 1420gm/50oz

**Wall Mount Speakers**

Great for PA Systems or as extension speakers for the back patio. Attractive black cloth with Jarrah look timber sides.



- C 0900 Box Enclosure Only **\$33.95**
- C 0910 Fitted with 8" 8 ohm 10W Dual Cone Speaker (C 2000) **\$44.95**
- C 0920 Fitted with C 2000 Speaker and 100V Line Transformer (M 1109) **\$52.95**
- C 0922 Fitted with C 2000 Speaker & M 1109 Transformer with Volume Control **\$59.95**

**10 Watt Megaphone PA**



Range: Depending on conditions approx. 300M  
 Requires 8 x AA batteries.

A 1980 **\$147.00**

## QUALITY REPLACEMENT SPEAKERS

### Square Micro 30mm

Super small. 8 Ohm. As used in telephones, fax machines, modems etc. Amazingly only 5mm thick!



C 0606 **\$3.20**

### Mini 57mm

250mW. 8 ohm. Large ferrite magnet.

C 0610 **\$2.30**



### Mini 82.5mm

3 Watt. 8 ohm. Mounting holes at 71mm centres.

C 0612 **\$6.50**



### 100mm

Dual Z 4 and 8 ohm taps. 3 Watt. Mounting hole centres at 82mm.

C 0616 **\$6.50**



### 125mm

Dual Z 4 and 8 ohm taps. 3 Watt. Mounting hole centres at 85mm.

C 0618 **\$7.95**



### High Performance 100mm

15 watts. New high efficiency dual cone quality driver. Excellent midrange "presence". Roll edge cone suspension. 8 ohm.

C 0626 **\$17.50**



### 125mm

High efficiency dual cone quality driver. Excellent midrange "presence". Roll edge cone suspension. Used with the Redford weatherproof sound column range. Mounting holes at 120mm centres. 16 Ohms.

C 0632 **\$19.50**



### Dual Cone 200mm

8". Applications include public address background music. Ideal Hi Fi extension speaker. Includes transformer holes at 51mm. Speaker mounting hole centres at 198mm centres.

C 2000 10 Watt.

**\$16.50**

C 2001 15 Watt. High

Power Version. **\$24.50**



## TWEETERS

### Economy Dome Tweeter

Tweeter with polymer diaphragm. Very smooth clean response to 200kHz. High power handling and excellent damping. Use with speaker systems to 50 Watts.

C 3010 **\$15.00**



### Dome Tweeter

Ferro Fluid cooled voice coil. 30 watts power capability. Silky smooth frequency response 1.5kHz to 20kHz. Wide angle dispersion. Incredible low price.

C 3016 **\$39.50**



### Piezo Ceramic Speakers

Piezo Ceramic Speakers offer several advantages over conventional speakers, such as — • No bulky magnet structure • No voice coil • No crossover network required • Excellent transient response • Extremely low distortion • High impedance as Piezo appears as capacitive rather than inductive load • Light weight • High power capability.

### Round Piezo Tweeter

95.3mm Diam Piezo Speaker. Suitable for Hi Fi applications. Freq. Res. 3K to 40KHz Sens: 104db @ 2.8V.

C 6100 **\$19.50**



### Hi Fi/PA Piezo Tweeter

Suitable for Hi Fi and Sound Reinforcement. Full 90 deg horizontal dispersion angle. Freq Res: 3K to 40 KHz Sens: 110db @ 2.8V. 144.8 x 54mm.

C 6120 **\$19.50**



### High Performance Vifa Tweeter

D25T G-55-06 model. 25mm dome tweeter with polymer diaphragm. High power. Smooth and detailed performance. Ferro fluid cooled voice coil makes this tweeter suitable for high powered 2 and 3 way systems up to 150 watts.

C 3155 **\$74.00**



### Motorola KSN 1141A

177.8 x 82.6mm. Rectangular Piezo Horn speaker suited to Hi Fi and PA and sound reinforcement. Incorporates special audio protection circuit to enable speaker to handle 400W continuous power, and also makes it "Blow up Proof". 90 deg. Dispersion Angle Freq Res 1.9K to 40KHz Sens: 100db @ 2.8V.

C 6150 **\$39.50**



**ALTRONIC COMPONENTS** • PHONEORDER TOLL FREE 008 999 007

## High Performance 2 Way Flush Mounting Full Range 60W Speaker System

Designed to install into ceilings or walls this slim profile attractive speaker system/grille assembly will compliment any sound system.

**Installation:** Installation is simplified by the use of a mounting frame (which could be installed during construction) which the speaker assembly attaches to. Full mounting kit (even screws) supplied.

**Weather Resistant Construction:** With the use of Poly Carbonate Cone Speakers and carefully selected plastic materials these speakers are suitable for outdoor use. We suggest though for prolonged life they are not installed in exposed conditions. They should be installed under eaves etc. where possible.

**Features** • 6.5" Woofer • Tweeter • 2 Way Crossover • Weather Resistant • Frequency Response 50Hz-22KHz • 8 OHM Impedance • Sensitivity 90db • Dimensions 307 (H) x 219 (W) x 84 (D).

**Note:** For large PA/BGM installations they can be fitted with a 100V line transformer similar to M 1130 40W model.

C 0880 **\$125.00** each

*"Highly recommended. I found it difficult to pick the difference between the Altronics C 0880, the American Sonance and Boeton Acoustic Systems, both costing around \$600 a pair"*

— John Hegus leading WA Audiophile



Front Grille Not Illustrated

Available with Light or Dark Grey Inner



**8 Ohm**

C 0980 White Rim With Light Grey Inner **\$29.50**

C 0981 White Rim With Dark Grey Inner **\$29.50**

## Down Light Lookalike Ceiling Speaker

Another fantastic innovation from Redford. The body of this fine loudspeaker has been designed to imitate the appearance of a "Down Light". Excellent for domestic use and architecturally sensitive situations from Office Buildings to Restaurants and Art Galleries. Supplied with the superb Redford C 0626 Dual Cone wide range 100mm (4") 15 watt driver. Excellent reproduction. Easy to install. Available in 8 ohm (15 watts) or fitted with M 1109 100 volt line transformer with 0.5W, 1W, 2W, and 5W taps for PA/BGM applications.

**100V Line**

C 0982 White Rim With Light Grey Inner **\$35.00**

C 0983 White Rim With Dark Grey Inner **\$35.00**

## REDFORD AUDIO CONTROLLERS

Each of these controllers has been designed to install to a standard electrical flush box or HPM mounting block. All components are neatly contained on a single PCB. Screwdriver terminals enable a simple and neat connection in minutes.

### Stereo 8 Ohm 60 Watt Volume Control

For years most of us have covered countless miles dashing from the patio to the lounge or family room to 'Turn it down!' or 'That's not loud enough!' etc. Massive 100 watt music power capacity. Five volume settings plus "off" includes mounting block.

A 2300 **\$49.95**



## For 100V Line PA and BGM Systems

### 10 Watt 100V Line Resistance Control

A 2320 Standard Model **\$29.95**

A 2325 With Over-ride Relay **\$35.00**

### 40 Watt 100V Line Attenuator Control

Uses Switched Low Loss Transformer

A 2330 Standard Model **\$39.50**

A 2335 With Over-ride Relay **\$44.50**



The Controller PCB is fitted with a two position selector switch and bypass relay. Selector switch to Normal: energising the relay (24V DC to terminals 5, 6) bypasses the controller ie. Full input power is directed to speaker load. De-energising the relay configures the device to normal level control function. Selector switch to fail safe: Energising the relay is necessary for normal level control function. De-energising relay by passes the controller ie. Full Power is directed to speaker load.

**PHONEORDER TOLL FREE 008 999 007. ALTRONIC COMPONENTS**

**PA Speakers with 100V line Transformers**

These quality Redford dual cone loudspeaker and transformer combinations are now the "Industry Standard" throughout Australia. The 100mm and 200mm drivers incorporate TDK magnets and a special composition cone material. The transformers are wound on high quality silicon steel.

The resultant reproduction and sound pressure level of each of these speaker units is of a high standard.

Each 100V speaker is fitted with our M 1109 transformer. Primary taps .5W (20k ohm), 1W (10k ohm), 2W (5k ohm), 5W (2k ohm). A two way terminal block is provided (normally terminated to common and 1 Watt taps). 8 ohm secondary.

**For Public Address and Background Music**

C 2102 100mm (4") **\$24.50**

C 2108 200mm (8") **\$24.50**



**For Fire Evacuation Communication Installations**

These speaker units are fitted with our M 1109 transformer and wire protect type terminals. A separate pair of terminals is provided for the incoming and outgoing cable loop. Normally supplied connected to the 1W tap. Isolation capacitors for line monitoring can be fitted at a nominal additional cost.

C 2104 100mm (4") **\$29.50**

C 2110 200mm (8") **\$29.50**

**100mm**

Attractive grille includes push in flush caps to hide fixing screw recesses. Ideal for architecturally sensitive applications, eg office buildings or domestic situations etc. Overall diameter 130mm.



C 0810 White Talc Filled Polypropylene **\$3.95**

C 0811 Black Talc Filled Polypropylene **\$3.95**

C 0812 White Flame Retardant Polystyrene **\$4.95**

**CEILING SPEAKER GRILLES**  
**200mm Ultra Slim**

Super slimline grille with screw flush caps. Ideal for architecturally sensitive applications. E.g. Office Buildings or Domestic situations etc. Available in flame retardant or hi-impact polystyrene. Overall diameter 250mm.



**NEW IN '92**

C 0805 White High Impact Polystyrene **\$4.95**

C 0806 White Flame Retardant Polystyrene **\$5.50**

**200mm**

Ideal for PA/Background Music systems, extension speakers etc. Traditional louvered ceiling grille. Includes mounting posts, for standard 200mm speaker. Available in white only. Overall diameter 250mm.



C 0800 White Talc Filled Polypropylene **\$3.95**

**REDFORD WEATHER PROOF RE-ENTRANT HORN SPEAKERS**  
**100 Volt Line Series**

With in-built line transformer. Recommended for voice applications in Schools, Industry, Commerce and recreation. Screw terminals eliminate the need for soldering. On the 10W model power output is selected by a multiway connector and lead. The 15W and 30W models power output is selectable via screw driver shaft switch housed behind a clear perspex cover plate. All external screws are stainless steel. The finish is textured Mocha Tan epoxy.

**10 Watt**

Power Taps: 10, 7.5, 5, 2.5, 1.25W  
Frequency Response: 225-14KHz  
Dispersion: 110deg.  
Sound Level: 110dB.  
Dimensions: 15 x 15 x 20cm

C 2027 **\$69.00**



**15 Watt**

Power Taps: 15, 10, 5, 2.5W  
Frequency Response: 275-14KHz  
Dispersion: 110deg  
Sound Level: 121db  
Dimensions: 20 x 20 x 23cm

C 2032 **\$89.00**



**8 Ohm Economy Series**

Ideal for PA, CB extension speakers, boats and alarms etc. 10 Watt. PVC construction.

C 2015 **\$15.95**



15 Watt Aluminium Construction

C 2025 **\$39.50**

**30 Watt**

Power Taps: 30, 15, 10, 5W  
Frequency Response: 300-12KHz  
Dispersion: 110deg  
Sound Level: 125dB  
Dimensions: 35 x 24 x 27

C 2037 **\$110.00**

## Weather Proof Speakers and Sound Columns By REDFORD

- Rugged extruded aluminium construction
- Superb black or white powdercoat industrial paint finish
- Engineer designed in Australia
- Excellent reproduction
- Superior to imports — yet just a fraction of the price!

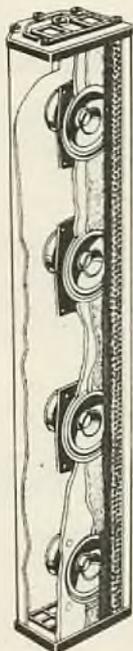
Redford is the solution for high quality sound reproduction outdoors. The Ten Models to choose from "Fit the Bill" from applications on boats to high grade paging and music entertainment installations.

### Rugged Extruded Construction

These vibration free enclosures are constructed from die extruded heavy gauge aluminium and finished with incredibly durable industrial powder coat enamel. The speaker ends are sealed via gaskets and tough moulded "LURAN S" UV resistant end caps. The end result is "Good Looks" together with assured rugged durability for the Australian environment.

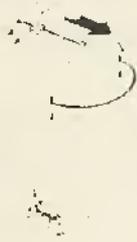
### Excellent Reproduction

The drivers have been chosen for wide range, low distortion, mid range "presence" (essential for high grade vocal work) and high efficiency in general. **Power Capacity** for short term use the drivers will safely handle 150% of rated power. Acoustic wadding is used to dampen Bass resonance. **Weather Proof Construction and use of "Doped Cones"**. Foam plastic and cloth is sandwiched between baffle and front grill to prevent water ingress. A first for Redford is the use of a patented cone moisture repellent process for all models.



### Redford Sound Columns are Great for Indoors Too!

The directional characteristics of Redford sound column speakers eminently suit them to indoor applications such as Halls, Shopping Centres, Air Terminals, Churches, Gymnasiums, Squash Courts and 1000 and 1 other applications. Sound columns are especially helpful in overcoming reverberation echo and microphone "feed back" or whistle. When mounted vertically, Redford sound columns can be "focused" to provide an (almost uncanny) even sound pressure level from front to rear of audience.



### Installation Hardware

Each speaker system is supplied with wall mounting brackets. These enable quick and easy speaker installation and allow simple adjustment in the vertical and/or horizontal plane.

### Sound Column to Mic Stand Adaptor

Ideal for portable PA systems. Adaptor simply screws into column speaker and onto standard 3/8" 27 (TPI) microphone thread. Suits all speakers/sound columns. Suitable for use on C 0505, C 0510 type mic stands.



C 0990 \$9.95



## HI FI EXTENSION SPEAKERS

Massive 100 Watt Input Rating Make These Models Simply Brilliant as Extension Speakers for Home, Club, Hotels etc.

The new versions of these models include a natty little built-in protector allowing around 100 watt input without damage to the drivers. Another fantastic feature from Redford.

### Single Driver 16 Ohm 10 Watt

Single dual doped cone driver 16 Ohm impedance is employed to give generally correct volume balance with main speakers — an added bonus is your amplifier load is kept to respectable limits. Great for back patio, den, boat deck etc.

C 0938 White, C 0940 Black **\$115.00 ea, \$220.00 pair**

### Dual Driver 8 Ohm 20 Watt

Uses 2 dual doped cone drivers for those wanting a bit more oomph!

C 0944 White, C 0943 Black **\$149.00 ea, \$280.00 pair**

## PA SOUND COLUMNS

### 10 Watt 100V Line

Uses 1 doped cone driver and fitted with grain oriented steel multitapped transformer. Output cable allows connection to 10W, 5W or 2.5W as desired. Polar output pattern reduced acoustic feedback.

C 0942 White, C 0941 Black **\$125.00 ea, \$240.00 pair**

### 20 Watt 100V Line

Uses 2 doped cone drivers also fitted with grain oriented steel multitapped transformer. Output cable allows for connection 20W, 10W and 5W as desired.

C 0946 White, C 0945 Black **\$179.00 ea, \$330.00 pair**

### 40 Watt 100V Line

Double the size-double the power of the 20 Watt version. Apart from the power handling capacity the big advantage is directivity for use with vocal entertainment systems. Output cable allows for connection 40W, 20W or 10W as desired. Super directive polar pattern greatly reduces acoustic feedback.

C 0955 White, C 0950 Black **\$245.00 ea, \$450.00 pair**

## Altronics Aviation Headset SERIES II

- High performance, noise attenuating earphones. • Noise cancelling microphone • Cushioned head pad • Super sturdy • Great performance • Superb, professional pilot's headset will last a lifetime with reasonable treatment • Includes standard aircraft jacks.



C 9070 **\$189.00**

## Stereo Headphones with Dynamic Mic

Simply brilliant Mylar stereo headsets and dynamic mic combination.

**Speaker Specifications:** 20Hz-20,000Hz, 32 Ohm, 3.5mm stereo jack, 6.35mm stereo jack adaptor.

**Microphone specs:** Dynamic type, 300 Ohm, 100Hz-15,000Hz -80db @ 1 KHz, 3.5mm Mono Jack

C 9055 **\$44.95**



## Mini Headphones

Fitted with 6.5mm stereo plug. Light weight and comfortable. Amazing performance for low cost phones.

C 9001 **\$8.95**



## Headphone Foam Earmuffs

Suit Sennheiser style headphones. 2 pairs per pack.

C 9025 **\$4.95 pack**



## Innabond Wadding

Used in speaker box enclosure lining. 1.5 metre wide x 40mm thick. Sold in 1 metre lengths.

C 3510 **\$10.95 per metre**



## Aviation Headset PTT Switch

Quality microswitch unit. Velcro band enables mounting on Aircraft control column. Lead mounted male and female connectors allow in line connector from headset to communications set input sockets.

C 9090 **\$29.95**



## High Performance Mini Headphones

Superb lightweight Hi-Fi stereo headphones. Super comfortable foam ear muffs. 29mm samarium cobalt speakers. Sensitivity 100db. 7' coiled lead. 3.5mm gold plated stereo plug and 6.35mm gold plated stereo adaptor. Impedance 32 Ohms, maximum input 250mW.

C 9002 **\$24.95**



## Magnetic Earpiece

For radios, tape recorders, etc. Magnetic 8 Ohm earpiece with 3.5mm plug, as used extensively in tape recorders, radios, etc. Ultra-thin cord for non-tangle use.

C 9000 **.95¢**



## Crossovers

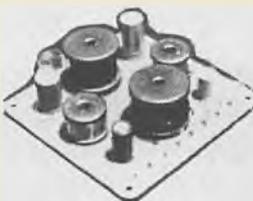
C 4005 2 Way 80 Watts **\$11.95**

C 4006 3 Way 80 Watts **\$20.95**



C 4007 2 Way 150 Watts **\$26.95**

C 4008 3 Way 150 Watts **\$49.95**



## Speaker Cloth

'Easy fit' acoustic cloth. Very pliable, one way stretch. Allows neat and easy application to speaker box front. Extra wide 1.5m. One metre length does a pair of average Hi-Fi speaker boxes.

C 3520 Black **\$15.95** C 3522 White **\$15.95 per metre**



## Harris Four Channel Digital Recorder/Announcer

Designed around the TMS 3477 digital recorder IC, this brilliant Australian made recorder has no moving parts and will play indefinitely. This Remarkable product can be simply switch select programmed to fulfill an amazing variety of functions.

The Harris A 2100 provides 4 channels of natural speech recording and play-back.

Recording time for each channel is internally selectable to 10, 15, 20 or 30 seconds. The sound quality is outstanding on the lower settings and "industrial" on the higher ranges.

Channels can be used separately or linked to provide one long recording/announcement.

### FACILITIES/FEATURES

- **Microphone Inputs** — Balanced line, low Z, 5 Pin DIN socket (mates with Redord C 0372 desk mic).
- **Auxiliary Input** — 100K, 0.2V sensitivity, eg. for CD, tape deck, tuner, BGM line.
- **Channel Select Pushbuttons** — A, B, C, D or all, ie. when activated will playback which ever is selected.
- **Timer Switch** — Automatically initiates the play back of the selected channel. Intervals are 10, 20, 30 seconds, 3, 6, 12 and 30 minutes and off.
- **Remote microphone** operation and PTT.
- **Remote switch** message actuation input.
- **Cycle Push button** — enables playback of each channel in sequence via the Timer Switch.
- **Paging Playback Switch** — allows selection to 'instant replay', ie: an announcement or recording is played back immediately after being recorded. Ideal for situations where feedback is a problem.
- **Line In/Line Out** — zero gain circuit enables you to 'pipe' a music source such as BGM on tuner, cassette deck etc, through the recorder. The line will interrupt with the recorded announcements as desired.
- **Back Up Battery** — retains recordings in memory in the event of mains failure for approx 36-48 hours.



### LITERALLY DOZENS OF APPLICATIONS

- **Music on Hold Adviser** — Over 50% of phone calls are placed on hold — use this time to promote your business or products.
- **Information Guide** — Great for displays trade shows, self guided tours and even art galleries.
- **A Security Guard** — Good weather or bad, holidays and weekends, it stays on duty 24 hours a day to query and direct all personnel at stores, warehouse, plants, offices, hospitals and parking facilities. And for apartments, hotels, estates and more — whenever you wish to screen traffic.
- **PA System Feedback Eliminator** — With the Harris Announcer, feedback is eliminated. Just operate on Paging Playback mode and once the announcement is recorded it will automatically page. Self resets ready for the next message.
- **Emergency Signals** — and/or security warnings can be generated automatically or at the push of a button.
- **Advertisement Announcer for Retail Stores** — Either record your own ads or have them commercially produced — play through your PA/BGM system as often as desired with the internal timer.

A 2100 **\$799.00**

## Sensational Sound at a Sensational Price

2 Way Acoustic Suspension Speaker System With One Rear Firing Tweeter to Extend Sound Image And Presence

The sound purity and clarity of this latest design HI-FI speaker system must be heard to be believed. From the highs of cymbals and violins, through to pianos and the lows of bass drums, are all easily identified.

The design incorporates unparallel sides to eliminate standing waves. An important factor in obtaining optimum performance.

### Specifications:

- **Dimension:** 250W x 450H x 316/228D at 2 side. Internal volume: 19.6 liters • **Woofer:** 8" (17.7 + 0.6) oz magnet, carbon fiber reinforced polypropylene diaphragm with rubber surround, 1 1/2" 4 layer voice coil • **Front Tweeter:** 1" voice coil, aluminium diaphragm with polymer suspension dome, 8oz magnet, ferrofluid cooled • **Rear Tweeter:** 3/16" voice coil P.E.I. diaphragm cone/dome type, 1.76oz magnet, Ferrofluid cooled • **Impedance:** 8 Ohms • **Crossover Point:** 4000, 10,000Hz 12dB/Octave for tweeter, impedance equalized circuit for woofer • **Frequency Response:** 50-20,000Hz, 86 + 2.0 DB/1W-1M • **Power Handling:** 80W RMS, 100W Max • **Measurement:** 4.1 Cu'feet/pr.

Cabinets in classy black woodgrain finish, enables these speakers to blend smoothly into any decor. Pre-assembled cabinets, make construction of these speakers easy, without the use of special tools.

C 3220 Speakers and Crossover Only **\$299.00** per pair

C 3222 Pre-Assembled Speaker Enclosure **\$199.00** per pair

C 3223 Hi-Fi Speaker Floor Stand **\$99.00** per pair



**NEW FOR '92**

**PHONEORDER TOLL FREE 008 999 007. ALTRONIC COMPONENTS**

### Electret Mic Insert

Omni directional. 20Hz - 10kHz. Great little replacement for tape recorders etc. Handy for hobby projects. Includes data and application sheet.



C 0170 \$2.20

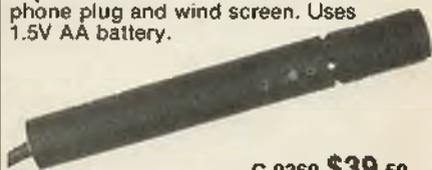
### Electret Tie Clasp Microphone

Omni directional.  
**Frequency Response:** 50-18kHz  
**Impedance:** 1K Ohm  
**Sensitivity:** -65dB +/-3dB  
 C 0350 \$31.95



### Uni Directional Cardioid

Recommended for vocalist, public address and general purpose entertainment use.  
**Frequency res.** 20Hz - 15kHz.  
**Impedance** 600 Ohm. Inc. 6M lead with phone plug and wind screen. Uses 1.5V AA battery.



C 0360 \$39.50

### Uni Directional Low Z Budget Dynamic Mic

Sturdy "ABS" body, metallic appearance. Frequency response 100-10kHz, 600 Ohm, -74+/-3db, on/off switch, 3M lead. Includes 6.35mm plug and mic holder.

C 0368 \$19.50



### Entertainers Cardioid Microphone

Balanced mic with unbalanced canon to 6.5mm lead. Includes vinyl carry case and mic holder.  
**Polar pattern:** ..... Cardioid  
**Impedance:** ..... 600 Ohm  
**Freq. response:** ..... 50-15000Hz  
**Sensitivity:** ..... -75 +/-3dB  
**Diaphragm material:** ..... Polyester film  
 C 0375 \$79.95



### Superior Ultra Cardioid Microphone

Extremely low feedback incidence. In-built wind filter to help eliminate "Pops". Balanced line mic and lead to unbalanced 6.5mm plug. Simply add Canon connector for complete balanced circuit. Includes vinyl carry box and mic holder.  
**Polar pattern:** ..... Cardioid  
**Impedance:** ..... 600 Ohm  
**Freq. Response:** ..... 50-15000Hz  
**Sensitivity:** ..... -77 +/-3dB  
**Diaphragm material:** ... Laminated metal vacuum film



C 0385 \$119.95

### Standard CB Type Microphone

Low impedance Dynamic mic with curly cord (incl switch pair). Suitable for CB's, radio transceivers etc. Does not include plug.

**Frequency Response** ..... 300-8kHz  
**Impedance** ..... 500 Ohm  
**Sensitivity** ..... -70dB

C 0332 \$17.95

### Noise Cancelling Type

Noise cancelling type for professional 2 way radios on aircraft, boats, vehicles and also industrial PA systems etc. Omni-directional.

**Frequency Response** ..... 200Hz-5kHz  
**Impedance** ..... 500 Ohms  
**Sensitivity** ..... -72dB

C 0335 \$27.95



### Professional Paging Mic

Has tapered low frequency response for articulate speech reproduction. Low impedance balanced line. PTT switch for remote switching muting etc.

**Polar Pattern** ..... Cardioid  
**Impedance** ..... 600 Ohm  
**Freq. Response** ..... 200Hz-8kHz  
**Sensitivity** ..... -70 +/- 3dB  
**Dia. Material** ..... Polyester Film  
**Switching** ..... Electronic  
**Housing** ..... Die cast zinc  
**Dimensions** ..... 85 x 125 x 291mm  
**Cable** ..... Twin plus shield plus muting pair terminated in 5 pin din plug

C 0372 \$89.00



### High Performance FM Mic

With ALC (Automatic Level Control) With use of ALC technology these microphones suffer from little or no overmodulation distortion when input levels are too high. Includes built-in antenna. Operates on 88-108 MHz FM band. Exceptional performance.

**Specifications:**  
 Cardioid-uni directional pick-up pattern.  
**Frequency response:** 50Hz - 15kHz  
**Current consumption:** Less than 32mA  
**Battery:** 1x9V  
**Weight:** 235g

C 0328 \$129.50



### Lavalier Type FM Mic

Clips to tie, shirt etc. Requires 1 x AA battery. Operates on 88-108 MHz FM band.

C 0323 \$39.95



**Super Heavy Duty Tripod**

**NEW  
IN  
'92**



**DIRECT  
IMPORT  
PRICE**

This great new model holds an amazing range of equipment. With rubber feet for sure and stable grip. Anti-sway bars on legs prevents wobbling. Adjustable height from approx 1 to 2 metres. Lightweight aluminium construction and collapsable for easy transportation. Removeable mounting plate makes this tri-pod ideal for amplifiers, speakers, lighting etc.

C 0520 \$129.95

**Telescope Floor Stand with Boom**

Height adjustable from 96cm to 160cm. Boom extends 70cm from vertical tube.

C 0515 \$94.95



**Telescope Floor Stand**

Quality, stable floor stand single draw telescope stem litted with friction grip and dual screw adaptor, 3/8" and 1/2" for microphone holder. Height: 96cm to 154cm. Weight: 3.4kgs.

C 0510 \$69.10



**Mic Holders**

Two models available, with spring loaded jaws (illustrated) or standard type. Both use standard 5/8" thread.



C 0401 Standard Type \$4.50

C 0405 Spring Loaded Type \$5.95

**Desk Stand**

Die cast base, telescopic height adjustment from 220mm to 360mm. Weight 1kg. Dual purpose 3/8" and 1/2" mic holder threaded adaptor included.

C 0500 \$29.50



**Banquet Desk Stand**

Stand telescopes in both vertically and horizontally. Swivel adjustment on horizontal arm Dual 3/8" and 1/2" thread adaptor supplied. Heavy cast base.

C 0505 \$49.80



**Mini Microphone Stand**

Mic stand has fold in legs and stands 86mm high when extended. With standard 5/8" thread. (Microphone and holder not included.)

C 0490 \$7.95



**Gooseneck Extension Arms**



C 0410 300mm Length \$9.50

C 0412 450mm Length \$12.50

**Gooseneck Bench Mount**

C 0420 \$2.95



**Mic Stand Reducer**

Reduces from 5/8" to 3/8".

C 0990 \$9.95



**Microphone Windscreens**

C 0340 20mm \$1.95

C 0342 27mm \$1.95

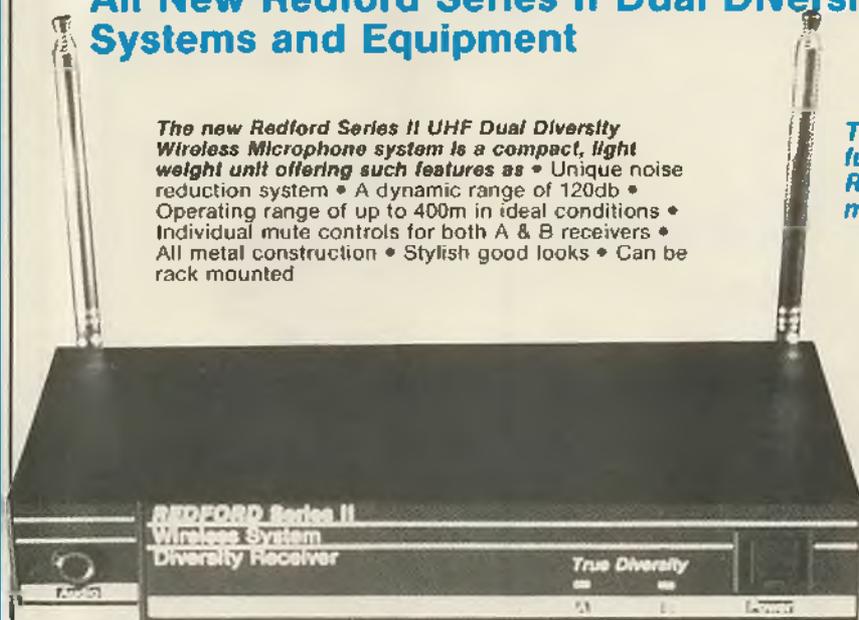
C 0344 40mm \$2.20



## All New Redford Series II Dual Diversity Wireless Microphone Systems and Equipment

The new Redford Series II UHF Dual Diversity Wireless Microphone system is a compact, light weight unit offering such features as • Unique noise reduction system • A dynamic range of 120db • Operating range of up to 400m in ideal conditions • Individual mute controls for both A & B receivers • All metal construction • Stylish good looks • Can be rack mounted

The New Redford Series II system is fully compatible with previous Redford/Chlayo range of radio microphones.



### UHF Wireless Receiver

A diversity wireless receiver with these special features: • Two complete front ends for true diversity reception assuring dropout free performance • Fold down retractable antenna • Audio output adjustable via inbuilt volume control • Individual mute controls for both A & B receivers.

Also available with famous Shure SM58 insert



**Please Note:** 4 different operating frequencies are available. You will need to nominate desired frequency only if the equipment is being used in proximity with other systems on the 200MHz band

### Handheld Microphone Transmitter

A compact tapered design with these special features: • YD-04 dynamic element designed to deliver sound and performance virtually identical to the Shure SM-58 • Compact Rugged Aluminium housing with inbuilt antenna, which means no dangling wires • Input level control for easy adjustment • Low battery indicator • Uses standard 9V battery • Comfortable in the hand • Also available with Shure SM-58 cartridge

### Lavalier Microphone Transmitter

• Rugged compact housing incorporating lavalier microphone • Audio on/off and transmitter on/off switches for ease of use • Microphone lead acts as the antenna, no extra leads required • Input level control for easy adjustment • Low battery indicator • Hinged battery compartment • Uses standard 9V battery.

### Guitar/Instrument Transmitter

• Rugged compact housing incorporating instrument pickup lead • High input impedance to suit any musical instrument (guitar, bass, sax etc) • Pickup lead acts as the antenna, with no extra leads required • Input level control for easy adjustment • Low battery indicator • Hinged battery compartment • Uses standard 9V battery.

### 19" Rack Mountable

One or two units can be rack mounted in a 1U rack space with the use of the optional rack mount escutcheon.

**Massive Saving**  
Save up to \$150 on our competitors price for an equivalent system

C 7225	Wless RX UHF non diversity	203.7MHz	\$335.00
C 7232	Wless RX D/Diversity	202.4MHz	\$520.00
C 7235	Wless RX D/Diversity	202.5MHz	\$520.00
C 7238	Wless RX D/Diversity	202.9MHz	\$520.00
C 7242	Wless RX D/Diversity	203.7MHz	\$520.00
C 7248	Rack Mount for two wless Rx		\$25.00
C 7250	Rack Mount Blanking Unit		\$11.95
C 7255	Road Case for Diversity RX		\$149.00
C 7262	Wless Mic H/held	202.4MHz	\$295.00
C 7265	Wless Mic H/held	202.5MHz	\$295.00
C 7268	Wless Mic H/held	202.9MHz	\$295.00
C 7271	Wless Mic H/held	203.7MHz	\$295.00
C 7274	Wless Mic Shure SM58	202.4MHz	\$423.25
C 7277	Wless Mic Shure SM58	202.5MHz	\$423.25
C 7280	Wless Mic Shure SM58	202.9MHz	\$423.25
C 7283	Wless Mic Shure SM58	203.7MHz	\$423.25
C 7286	Wless Mic Lavalier	202.4MHz	\$230.00
C 7289	Wless Mic Lavalier	202.5MHz	\$230.00
C 7292	Wless Mic Lavalier	202.9MHz	\$230.00
C 7295	Wless Mic Lavalier	203.7MHz	\$230.00
C 7301	Guitar Pick-up/Tx	202.4MHz	\$149.00
C 7303	Guitar Pick-up/Tx	202.5MHz	\$149.00
C 7305	Guitar Pick-up/Tx	202.9MHz	\$149.00
C 7309	Guitar Pick-up/Tx	203.7MHz	\$149.00

**EXCLUSIVE TO ALTRONICS**

**ALTRONIC COMPONENTS • PHONEORDER TOLL FREE 008 999 007**

## Portable PA System With Inbuilt Dual Diversity Radio Microphone

Powered by either 240V mains or batteries, this portable system really does allow freedom of speech. The sound quality is quite amazing for a portable system, making it ideal for any public speaking, demonstrations or spruiking applications.

### Features:

- Built in 50 watt amplifier
- Full range loudspeaker
- Auxillary input
- Record out jack
- Standard mic input
- Tone Control
- Compact size: 443H x 298W x 223D mm
- Light Weight: 13.2kgs

### Powerful 50 Watts RMS Amplifier

(20 watts on DC battery power). Surprisingly powerful for a compact portable system this amplifier is ideally suited to auditoriums, dance halls sporting areas etc.

### Wireless Microphone Receiver

Fitted with a dual diversity UHF wireless microphone receiver system; the user has all the freedom a cordless system offers without interference noise, fade or sound quality degradation. The microphone can be used up to 200 metres from the amplifier with absolute clarity. Naturally all microphone and guitar pickups function perfectly with these amplifiers.

### Inbuilt Tape Deck

Models C 7212, C 7216 have an inbuilt Cassette tape deck. These have proven fantastic for aerobics groups.

### Microphone Features:

- No dangling Antenna on Microphone to get in your way
- High Dynamic range
- Standard 9V batteries give long powerful operation



Please note 2 different operating frequencies are available. You will need to specifically nominate desired frequency only if the equipment is being used in proximity with other systems on the 200MHz band.

#### AMPLIFIERS

<b>C 7205</b>	Dual Diversity Portable P.A.	202.4MHz	<b>\$985.00</b>
<b>C 7209</b>	Dual Diversity Portable P.A.	203.7MHz	<b>\$985.00</b>
<b>C 7212</b>	D/Diversity Portable P.A. with Cassette Deck	202.4MHz	<b>\$1395.00</b>
<b>C 7216</b>	D/Diversity Portable P.A. with Cassette Deck	203.7MHz	<b>\$1395.00</b>

#### ACCESSORIES

<b>C 7262</b>	H/Held Mic	202.4MHz	<b>\$295.00</b>
<b>C 7271</b>	H/Held Mic	203.7MHz	<b>\$295.00</b>
<b>C 7274</b>	H/Held Mic Shure SM58	202.4MHz	<b>\$423.25</b>
<b>C 7283</b>	H/Held Mic Shure SM58	203.7MHz	<b>\$423.25</b>
<b>C 7286</b>	Lavalier Mic	202.4MHz	<b>\$230.00</b>
<b>C 7295</b>	Lavalier Mic	203.7MHz	<b>\$230.00</b>
<b>C 7301</b>	Guitar Pick-up	202.4MHz	<b>\$149.00</b>
<b>C 7309</b>	Guitar Pick-up	203.7MHz	<b>\$149.00</b>



## 30 Watt Line Output Public Address Amplifier

**INCLUDES TWO YEAR WARRANTY**

**PROUDLY MADE IN AUSTRALIA**

### With Balanced Mic Input and Muting.

The Altronics A 2000 utilizes a balanced input, output drive and balanced feedback circuitry to achieve performance and stability unheard of with low cost amplifiers. The A 2000 will operate happily into all sorts of capacitive and inductive loads, long lines, speaker transformers etc. Eminently suited for use by schools, sporting clubs, function centres as well as with professional installations (paging systems, background music).

**Features:** • Switchable VOX circuit on balanced mic input to mute auxiliary input for voice over announcements • Treble and Bass Controls • Individual boost and cut controls for auxiliary channel • Bass cut switch for mic input

**Constant Voltage Design:** Output power level will not audibly alter with wide variations in speaker load. i.e. with several speaker circuits the operator may page a varying number of speakers without an audible change-of volume.

A 2000 **\$279.00**



### Specifications:

**Balanced Mic Impedance:** .....200-600 Ohm  
Input socket 5 pin Din  
(line 1 and 3, earth pin 2)

**Unbalanced Mic Impedance:**.....200-600 Ohm  
6.35mm JACK socket

**Auxiliary Input Impedance:** ..... RCA 100K Ohm

**Output Line:** ..... 100V line (balanced)

**Power Output:**.....30 Watts RMS into either  
4 OHM or 100V line

**Distortion:** ..... Typically less than 1%

**Frequency Response:**.....40Hz to 15kHz

## Rack Mounting Professional Public Address Amplifiers Deliver Stunning Performance on 240V AC and 24-28V DC

**Amplifier Models A 2022 125W and A 2032 250W.**

**3 Mic Inputs:** 200-600 Ohm 5 pin din socket balanced pin 1 and 3 signal, pin 2 earth unbalanced input. Jack socket on mic 1 only.

**2 Auxiliary Inputs:** 100K Ohm 200m V sensitivity for full output. 2 x RCA input socket (stereo to mono conversion).

**Treble and Bass Control:** On auxiliary inputs only &/- 10dB at 100Hz and 10KHz.

**Output Terminals:** Screwdriver terminal strip 100V, 4-16 Ohm, 24V DC input.

**Power Amplifier Models: A 2020 125W and A 2030 250W** input 3 pin XLR type socket earth pin 1 balanced line 2 and 3. Switch allows selection to balanced input 10K Ohm or unbalanced input 100K Ohm. **Input Sensitivity** 200mV .

Note: Master Level Control mounted on rear panel, set and forget. **Output terminals** screwdriver type 100V, 4-6 Ohm, 24V DC input.



**PROUDLY MADE IN AUSTRALIA**

**Balanced Drive, Output and Feedback Circuit Design Ensures Unconditional Stability Under All Load Conditions.**

This excellent series of PA amplifiers, engineered right here in Australia is eminently suited to live entertainment PA in addition to commercial public address systems in schools, hotels sports arenas etc. Costing \$100's less than equivalent imports these amplifiers deliver full rated output on 24V DC making them ideal for use with emergency power back up installations ie fire evacuation systems. Each is guaranteed for 2 years. Housed in attractive 3 unit (132mm H) rack case, each is thus suited for rack mounting as well as bench mounting.

	<b>A 2020</b>	<b>A 2022</b>	<b>A 2030</b>	<b>A 2032</b>
<b>Output Power</b> .....	125W	125W	250W	250W
<b>Output Line</b> .....	100V Line or 4-16 Ohm	100V Line or 4-16 Ohm	100V Line or 4-16 Ohm	100V Line or 4-16 Ohm
<b>Inputs</b> .....	100K Unbalanced (Switchable) or 10K balanced	3 Mic, 2 Aux	100K Unbalanced or 10K balanced	3 Mic, 2 Aux
<b>Output Level Regulation</b> ..	Better than 2dB	Better than 2dB	Better than 2dB	Better than 2dB
<b>Signal to Noise Ratio</b> .....	Better than 75dB	Better than 75dB	Better than 75dB	Better than 75dB
<b>Frequency Response</b> .....	40Hz to 14KHz	40Hz to 14KHz	40Hz to 12KHz	40Hz to 12KHz
<b>Typical Distortion at Full Power Output</b> .....	(less than 1%)	(less than 1.5%)	(less than 1%)	(less than 1.5%)
	<b>\$599</b>	<b>\$699</b>	<b>\$799</b>	<b>\$899</b>

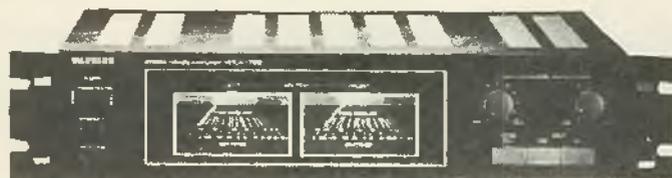
**ALTRONIC COMPONENTS PHONEORDER TOLL FREE 008 999 007**

## High Performance Stereo 90W Amp

This stereo amp is ideal for background/foreground music applications. Fantastic for restaurants, shops, disco's, PA sound systems and home.

- 90 watts RMS per channel minimum into 8 Ohms from 20 to 20,000 Hz with less than 0.05% THD
- 2 large power meter indicators
- EIA panel with handle device
- XLR socket for speaker terminal
- Output relay to eliminate turn-on and off transients
- Dimensions: (W x H x D) 482 x 92 x 295mm
- Weight: 10.5kgs.
- Ideally suited to A 2210 stereo tuner

A 2040 **\$625.00**



## AM/FM PLL Tuner



This fantastic tuner is the ideal add-on to any sound system. Can be used for background music in restaurants, shops etc. or for any P.A. application. Also a great upgrade for the home Hi-Fi.

- Digital LED frequency readout display
- FET FM front end for high image rejection
- Phase-linear ceramic filters are incorporated in both AM and FM IF section
- Phase-lock loop (PLL) IC for FM multiplex stage
- Dimensions: (W X H X D) 435 x 60 x 232mm
- Weight: 3kgs

A 2210 **\$229.00**

## Compact Disc Stereo Music Compressor for Commercial Sound Systems



Compress your wide dynamic range CD Music to a format suitable for public address and commercial sound systems with this fine audio compressor/expander.

### Compression and Expansion

Multi disc CD's are becoming increasingly used for commercial situations such as boutiques, trendy bars, restaurants and the like. The obvious benefit is the ability to play popular high quality discs of a type suited to the application.

A big problem arises, however, especially when operated in the "RANDOM" select mode. One track will be particularly loud with the following track quiet. The result is, the operator, is frustrated by the music level variations and is forever turning the volume up or down.

The Redford Compauder fixes all that. Loud music passages are compressed and quiet passages are expanded (or lifted) in volume. The resultant dynamic range is thus processed to a format suitable for both background or foreground music. Most FM radio stations employ this technique.

"Compression" is especially helpful in noisy situations such as supermarkets, crowded bars etc.

### Features:

- A low impedance balanced microphone input is provided to enable paging in conjunction with this unit. PCB switches for:
  - Mic Bass Cut — for greater intelligibility in difficult acoustic situations
  - Vox Muting — When selected active: microphone use will mute the two music channels
- Mic Compression selected on or off as desired
- Loudness Equaliser boosts the bass frequencies by around 10dB at 100Hz and high frequencies 3dB at 10KHz
- Input connections: 3 pin female XLR socket for mic and 2 x RCA connectors for stereo aux input
- Stereo output connections: 2 x RCA sockets
- 240V AC Power source
- Dimensions: 482mm x 44mm x 255mm

A 2060 **\$399.00**

## Redford 8 Channel PA Mixer

**PROUDLY MADE IN AUSTRALIA**

Housed in Stylish 1 u 19" rack mount chassis. Fitted with 3 pin Canon type mic sockets.



### Specifications:

- **Inputs:** ..... 6 Microphone - balanced 200-600 Ohm  
2 Auxilliary unbalanced 100K Ohm
  - **Output:** ..... 600 Ohm balanced 0dBm
  - **Sensitivity:** ..... Mic 1.25mV, Aux 100mV
  - **Frequency Response:** ..Mic 30 Hz-15kHz, Aux (Flat) 18Hz - 23 KHz
  - **Tone Controls:**..... Bass 100Hz +/-10 dB  
Treble 10kHz +/- 10dB
  - **Single to Noise Ratio:** .... All controls CCW - 98dB
  - **Distortion:** ..... At 1kHz, less than .3%
- All measurements measured in respect to 1kHz reference.

A 2051 **\$399.00**

## 4 Channel Economy Mixer



**NEW FOR '92**

This compact mixer has inputs for microphone, phono (with magnetic or ceramic cartridge), camera audio and an auxillary (CD, tape, tuner etc). Ideal for amateur cinematographers who would like to add their own background music and/or voice overs etc. Features headphone output and master volume control.

### SPECIFICATIONS:

- Input Sensitivity:**
- Mic ..... 1mV/600 Ohms
  - Phono (magnetic) ..... 3mV/50k Ohms
  - Phono (ceramic)..... 150mV/50k Ohms
  - Tape/CD/Tuner ..... 150mV/50k Ohms
- Output:**..... 500mV/1kHz
- Signal to Noise Ratio:**.....60dB

A 2520 **\$99.95**

## Stereo Disco and Sound Effect Mixer



**NEW IN '92**

**Features:** • 5 channels with 8 inputs (first 3 channels are switchable between 2 inputs) • Input facilities include: DJ mic, mic, phono 1, phono 2, line 1, line 2, line 3, line 4 • All inputs other than microphones are stereo • Treble, bass and master volume controls allows you to fine tune the output • Fader control between phono 1 and 2 • Cue monitor select and level • Twin LED master VU displays • Special effects circuit simulates, bombing, laser, ambulance, shooting, siren, machine gun, telephone and storm. Ideal for DJ's, bands etc.

### SPECIFICATIONS:

- Output:**..... 0.775V=0dB (at 1kHz)
- Input Sensitivity:**
- Microphone ..... 1mV
  - Phono ..... 3mV
  - Line ..... 150mV
- Frequency Response:**
- Microphone ..... 20Hz-20kHz
  - Phono ..... 20Hz-20kHz
  - Line ..... 20Hz-25kHz
- Signal to Noise Ratio:**..... better than -60dB
- Total Harmonic Distortion:**..... less than 0.1%
- Headphone Output:**.....200mW into 8 Ohms
- Channel Balance:**..... +/- 2dB
- Power:**..... 220/240V AC
- Dimensions:**..... 382x200x75mm (LxWxH)
- Weight:**.....3Kg

A 2530 **\$209.95**

## Deluxe 6 Channel Mixer with Echo and Sound Effects



**NEW FOR '92**

What more could you possibly need? 6 channels with 10 inputs. Inputs include: mic 1, mic 2, phono 1, phono 2, phono 3, line 1, line 2, line 3, line 4 and line 5. Two seven band graphic equalizer and master controls allows precise sound refinement. Features sound effect generator (simulates storm, telephone, machine gun, siren, shooting, ambulance, laser and bombing) and echo control. Twin LED VU displays for master output. A must for the serious DJ, sound technician or hi-fi buff.

### SPECIFICATIONS:

- Output:**..... 0.775V=0dB (at 1kHz)
- Input Sensitivity:**
- DJ Microphone ..... 0.5mV
  - Microphone 2 ..... 2mV
  - Phono ..... 3mV
  - Line/CD ..... 150mV
- Frequency Response:**
- Microphone ..... 20Hz-20kHz
  - Phono ..... 20Hz-20kHz
  - Line ..... 20Hz-25kHz
- Signal to Noise Ratio:**..... better than -55dB
- Total Harmonic Distortion:**..... less than 0.1%
- Headphone Output:**..... 100mV 32 Ohms
- Power:**..... 220/240V AC
- Dimensions:**..... 482x240x120mm (LxWxH)
- Weight:**.....4.5Kg

A 2540 **\$599.00**

**Economy Pocket Tester**

200 Ohms/Volt sensitivity. Overload protected. Mirror back scale helps prevent parallax error. Complete with test leads and instructions. Uses 1 x AA Battery (supplied)



**SPECIFICATIONS:**

**DC Voltage**  
Ranges: 10V, 50V, 250V, 1000V

**AC Voltage**  
Ranges: 10V, 50V, 250V, 500V  
Decibels: 10 to +22dB

**DC Current**  
Ranges: 0.5mA, 50mA, 250mA

**Resistance**  
Ranges: Rx1, Rx10, Rx1k

Q 1013 **\$19.50**  
Q 1014 Carry Case To Suit **\$4.50**

**Portable Economy Multimeter**

20,000 Ohms/Volt DC, 8000 Ohms/Volt AC, Mirror backed scale Overload protected, 10 amp DC Current range. Unique carry handle doubles as a bench stand.



**SPECIFICATIONS:**

**DC Voltage**  
Ranges: 2.5V, 10V, 50V, 250V, 1000V

**AC Voltage**  
Ranges: 10V, 50V, 250V, 1000V  
Decibels: -8dB to -62dB

**DC Current**  
Ranges: 5mA, 50mA, 500mA, 10 Amps

**Resistance**  
Ranges: Rx1, Rx10, Rx1k

Q 1018 **\$39.95**  
Q 1019 Carry Case to Suit **\$4.95**

**Electronic FET Multimeter**

**Centre Zero Pointer Setting Allows + and - Readings**

This meter has the advantage of digital multimeters, ie. insignificant circuit loading, high accuracy etc without the misleading and erroneous readings that DVM's are famous for.

- 10 Meg Ohm input
- 12 amp DC & AC Current Ranges
- Centre Zero Pointer Adjust for + and - Readings
- Single Range & Polarity Reversing Switch
- Power On LED Indicator
- P-P Calibrated Scale

**SPECIFICATIONS:**

**DC Volta**  
Ranges: 0.3V, 1.2V, 12V, 30V, 120V, 300V, 1200V

Input Impedance: 10M Ohm, 3M Ohm on 300mV range

Q 1050 **\$99.50**  
Q 1052 Carry Case To Suit **\$12.50**

**AC Volts**

Ranges: 3V, 12V, 30V, 120V, 300V, 1200V  
Input Impedance: 1M ohm, 2.5M ohm on 3V Range

**DC Current**

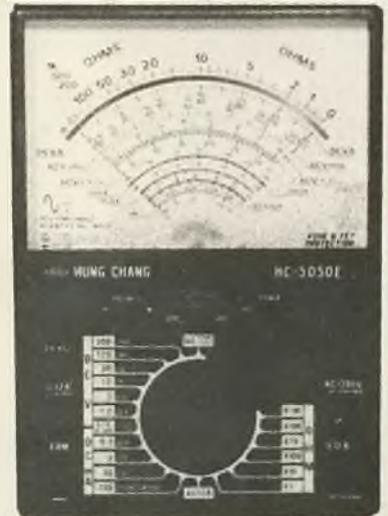
Ranges: 0.1uA, 0.3mA, 3mA, 30mA, 300mA, 12A  
Potential Drop: 300mV

**AC Current**

Ranges: 12A

**DC Resistance**

Ranges: Rx1, Rx10, Rx100, Rx10K, Rx1M.



**Panel Mount Instrument Meters**

**MU 45**

**Quality Class 2.5**

Overall dimensions 58W x 52H. Bolt mounting centres 38mm x 38mm. 44mm hole required. Nuts and washers provided.

All **\$16.95**

Cat. No.	FSD	RES
Q 0500	1mA	200
Q 0505	50uA	3500
Q 0506	100uA	3750
Q 0508	1A	3
Q 0510	5A	.02
Q 0515	10A	3
Q 0525	30V	3000
Q 0528	VU	

**MU 52E**

**Quality Class 2.5**

Overall dimensions 80W x 66H. Bolt mounting centres 64W x 48H. 50mm hole required. Nuts and washers provided.

All **\$21.95**

Cat. No.	FSD	RES
Q 0530	1mA	200
Q 0533	5A	.02

**MU 65**

**Quality Class 2.5**

Overall dimensions 100W x 82H. Bolt mounting centres 80W x 64H. 63mm hole required. Nuts and washers provided.

All **\$24.50**

Cat. No.	FSD	RES
Q 0540	1mA	200
Q 0550	100uA	3500



## 17 Range Economy Digital Multimeter

Our most popular multimeter. With quality and features you would expect only on expensive meters the Q 1056 represents excellent value for money.

Q 1056 **\$49.95**  
Q 1057 Carry Case to Suit **\$12.50**

### SPECIFICATIONS:

- DC Voltage**  
Ranges: 2V, 20V, 200V, 2000V
- AC Voltage**  
Ranges: 200V, 500V
- DC Current**  
Ranges: 200mA, 20mA, 2mA, 10A
- Resistance**  
Ranges: 200 Ohm, 2k Ohm, 20k Ohm, 200k Ohm, 2M Ohm
- Diode Test**  
Test Current: 1.0mA  
Test Voltage: 3.2V Max
- Battery Test**  
Ranges: 1.5V, 9V  
Loaded Current: 1.5V 100mA, 9V 6mA



## Auto-Ranging Multimeter

### Features:

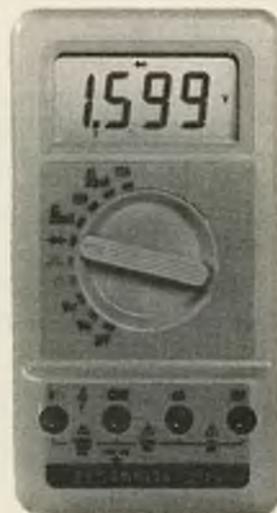
- Extra Large LCD Display
- Auto-Ranging
- Continuity Check
- Diode Test
- Overload Beeper Indication
- Range Annunciation
- High Impact Case
- One Easy to Use Control
- Low Battery Indication

### SPECIFICATIONS:

- DC Voltage**  
Ranges: 200mV, 2V, 20V, 200V, 1000V  
Input Impedance: 100M ohm on 200mV Range, 10M ohm on other ranges.
- AC Voltage**  
Ranges: 4 (2V, 20V, 200V, 750V)  
Input Impedance: 10M ohm

- DC Current**  
Ranges: 20mA, 10A  
10A Range Unfused  
Other Inputs Fused
- AC Current**  
Ranges: 20mA, 10A  
10A Range Unfused  
Other Inputs Fused
- Resistance**  
Ranges: 200 ohm, 2K ohm, 20K ohm, 200K ohm, 2M ohm, 20M ohm  
Buzzer sounds at less than 700 ohms
- General**  
Display: 3 1/2 digit LCD display  
Power supply: Two 'AA' batteries 1.5V  
Sampling Rate: Twice per second  
Overload indication: LCD will show a '1' flashing in the highest position accompanied with a continuous buzz

Q 1072 **\$89.00**  
Q 1065 Carry Case to Suit **\$12.50**



## Auto-Ranging Multimeter with Transistor Test & Bar Graph

This popular 3.5 digit Multimeter is simplicity itself. Full auto ranging on voltage and resistance measurements. Measurements are easily read via the large LCD display and bar graph.

### Features:

- 42 Segment Bar Graph Display
- Auto-ranging on Voltage and Resistance
- Memory Mode
- Low OHM Range
- Hold Facility
- Automatically indicates negative inputs
- Low Battery Indicator
- Continuity check with Buzzer

Q 1075 **\$119.00**  
Q 1077 Hard Holster to Suit **\$12.50**  
Q 1076 Carry Case to Suit **\$12.50**

### SPECIFICATIONS:

- DC Voltage**  
Ranges: 5 (200mV, 2V, 20V, 200V, 1000V)  
Input Impedance: 100M ohm, 200mV Range 10M ohm, the other Ranges
- AC Voltage**  
Range: 4 (2V, 20V, 200V, 750V)  
Input Impedance: 10M ohm
- DC Current**  
Ranges: 200mA, 10A
- AC Current**  
Range: 200mA, 10A
- Resistance**  
Ranges: 200 ohm, 2K ohm, 20K ohm, 200K-ohm, 2M ohm, 20M ohm
- General**  
Display: 3 1/2 digit LCD



## Digital Multimeter & LCR Meter

This digital meter tests in addition to standard multimeter ranges, capacitance and inductance, enabling you to test a wide variety of components. Indispensable for the design engineer, technician and enthusiast alike.

Why pay hundreds of \$\$\$ on an expensive multimeter when this will do the job for a fraction of the price. Ideal for the workbench, van or tool box.



### SPECIFICATIONS:

#### DC Voltage

Ranges: 200mV, 2V, 20V, 200V, 1000V  
Input Impedance: 10M Ohm on all ranges

#### AC Voltage

Ranges: 200mV, 2V, 20V, 200V, 750V  
Input Impedance: 10M Ohm

#### DC Current

Ranges: 200uA, 2mA, 20mA, 200mA, 2A, 20A

#### AC Current

Ranges: 200uA, 2mA, 20mA, 200mA, 2A, 20A

#### Resistance

Ranges: 200Ohm, 2kOhm, 20kOhm, 200kOhm, 2MOhm, 20MOhm, 200MOhm  
20A range unfused  
All other ranges fused

#### Capacitance

Ranges: 2nF, 20nF, 200nF, 2uF, 20uF  
Test Signal: 1kHz, 1.5Vp-p  
Max Input: 5V DC/Peak AC on all ranges

#### Inductance

Ranges: 2mH, 20mH, 200mH, 2H, 20H  
Test Signal: 1 kHz 1.5Vp-p  
Max Input: 5V DC/Peak AC on all ranges

#### hFE Transistor Test

Range: 0-1000 hFE

Q 1062 **\$149.00**

Q 1068 Carry Case To Suit \$12.50

## Engineering Multimeter

- 38 Ranges
- Temperature
- Capacitance
- Transistor Tester
- Frequency Counter
- Diode Tester
- High Impact Case
- Large LCD
- Designed to meet IEC 348 Class II and UL 1244 standards

Q 1064 **\$149.50**

Q 1065 Carry Case to Suit \$12.50

Q 1067 Temperature Probe to Suit \$29.95

Why pay hundreds of \$\$\$ on an expensive multimeter when this will do the job for a fraction of the price. Ideal for the workbench, van or tool box.



### SPECIFICATIONS:

#### DC Voltage

Ranges: 200mV, 2V, 20V, 200V, 1000V  
Input Impedance: 10M ohm

#### AC Voltage

Range: 200mV, 2V, 20V, 200V, 750V  
Input Impedance: 10M Ohm

#### DC Current

Range: 200uA, 2mA, 20mA, 200mA, 10A  
10A input unfused,  
Other ranges fused

#### AC Current

Range: 200uA, 2mA, 20mA, 200mA, 10A  
10A input unfused  
Other ranges fused

#### Resistance

Ranges: 200 Ohm, 2k Ohm, 20k Ohm, 200k Ohm, 2M Ohm, 20M Ohm  
Continuity Beeper sounds  
under 100 ohm

#### Frequency

Ranges: 2kHz, 20kHz, 200kHz  
Input Sensitivity: 35mV RMS

#### Capacitance

Ranges: 2000pF, 20nF, 200nF, 2uF, 20uF  
Test Frequency: 400Hz

#### Temperature

Ranges: -20°C to 750°C, 0°F to 1400°F  
Resolution: 1°C, 1°F

#### Diode Test

Test Current: 1.0 +/-0.6mA  
Test Voltage: 3.2V Max

#### Transistor hFE Test

Base DC Current: 10uA  
Vce: 2.8 +/-0.4V

#### General

Display: 3 1/2 digit LCD  
Overrange Indication: Highest digit of (1) (or (-1) is displayed)  
Includes low battery indicator  
Measurement Rate: 3 per second  
Requires 9-volt battery

### New 1GHz Frequency Counter

New Model is a 10Hz to 1GHz multiple-function counter. It features an eight digit, high brightness, seven segment, LED display, low power consumption circuit design, small size, light weight, high stabilized crystal oscillator for accurate measurement and full input signal conditioning.

**NEW FOR '92**

**Specifications:**  
**Measuring Mode**

Frequency measurements

**CHANNEL A**

Range: 10Hz to 10MHz direct counter  
10MHz to 100MHz prescaled by 10  
Resolution: Direct counter: 1, 10, 100Hz switch selectable  
Prescaled: 10, 100, 1000Hz switch selectable  
Gate time: 0.01S, 0.1S, 1S Switch selectable  
Accuracy: +/- count +/- time base error x frequency

**CHANNEL B**

Range: 100MHz to 1GHz  
100MHz to 1GHz  
Resolution: 100Hz, 1KHz, 10KHz switch selectable  
Gate time: 0.027S, 0.27S, 2.7S Switch selectable  
Accuracy: +/- count +/- time base error x frequency

**Period measurements (Channel A)**

Range: 10Hz to 2.5MHz  
Resolution: 0.1uS, 10ns, 1nS switch selectable  
Accuracy: +/- count +/- time base error x period

**Totalize measurements (Channel A)**

Range: 10Hz to 10MHz  
Resolution: +/- 1 count of input

**NEW  
IMPROVED  
CIRCUIT**



**Input Characteristics**

**CHANNEL A**

Input sensitivity: 10MHz Range: 10Hz - 8MHz 25m Vrms  
8MHz - 10MHz 50m Vrms  
100MHz Range: 10MHz - 80MHz 25m Vrms  
80MHz - 100MHz 50m Vrms  
Attenuation: x 1, x 20 fixed  
Filter (CHA ONLY): Low pass - 100KHz, -3dB  
- 150KHz, 3-dB at 20dB ATT  
Impedance: approx 1 M ohm less then 35pF  
Maximum voltage without damage: 250V (DC + AC rms)

**CHANNEL B**

Input sensitivity: 20mVrms  
Impedance: approx 50 ohm  
Maximum voltage without damage: 3V

**General**

Display: 8 digits, 7mm red LED display with decimal point, gate, overflow, KHz, MHz and uS indication.  
Check: Counts internal 10MHz time base oscillator.  
Power requirement: 220V AC 50Hz

### Laboratory Series Audio Oscillator

**Specifications**

**Frequency Range:**

200Hz range: 20Hz—200Hz,  
2kHz range: 200Hz—2kHz,  
20kHz range: 2kHz—20kHz,  
200kHz range: 20kHz— 200kHz

**Sine Wave characteristics:**

**Output voltage:** 5V RMS or more at no load.

**Distortion factor (at max output):**

200Hz range: 0.5% or less  
2kHz range: 0.15% or less  
20kHz range: 0.15% or less  
200kHz range: 0.5% or less  
Output impedance: 600 Ohms +/-10%

**Output attenuator:** 0 to greater than 50dB continuously variable, 10dB, 20dB and 40dB steps within +/-3% for each step.

**External Synchronisation Characteristics**

**Input Impedance:** Approx 10kOhms. Max allowable input voltage: 10V RMS 0.01%, +/-1 count

**Reading Accuracy**

0.01%, +/-1 count

**Frequency Counter Characteristics**

**Display:** 4 digits, 7mm red LED display  
**Frequency range:** 10Hz—1MHz (square wave)  
**Sensitivity:** 25mV RMS  
**Max Input:** 150V p-p



**Q 1547 \$480.00**

**Input Impedance:** 1M Ohm

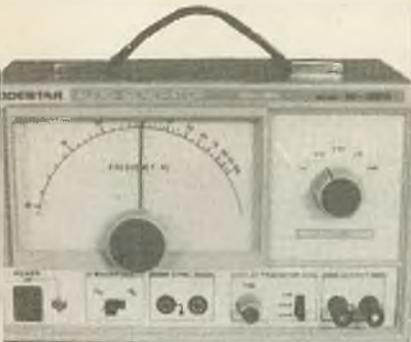
**Square Wave Characteristics (TTL Out)**

**Overshoot:** 2% or less (at 1kHz)  
**Duty ratio:** 50% +/-5% (at 1kHz) level; fixed amplitude, logic 0 less than 0.4V; logic 1 more than 2.4V, Rise/fall time: 200n sec or less

**General**

**Power requirements:** 240V AC  
**Dimensions:** 205W x 26H x 267D mm  
**Weight:** 2270g

**Audio Frequency Generator**



**Specifications:**  
**Frequency Range:** 10Hz - 1MHz  
**Accuracy:** +/- 3% + 2Hz  
**Output Waveforms:** Sine/Square  
**Output Level:** Sine: 8V rms  
 Square: 10V P-P  
**Output Attenuator:** -20dB, -40dB and line adjust.

Q 1540 **\$325.00**

**RF Signal Generator**

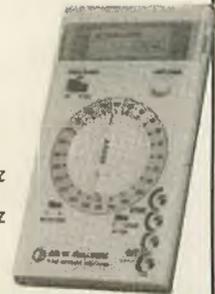


With provision for both internal and external modulation.  
**Specifications:**  
**Frequency Range:** 100kHz - 150MHz in 6 ranges  
**RF Output Level:** 100mV rms  
**Accuracy:** +/- 3%  
**Modulation:**  
 • Internal (30% depth): 1kHz  
 • External: 50Hz-20kHz  
 • Crystal Locked Oscillator

Q 1550 **\$299.00**

**Pocket Sized Audio Signal Generator**

This pocket sized oscillator has all the features of a large bench oscillator. 46 preset switched frequencies ranged from 20Hz to 150kHz eg 1kHz, 1.2kHz, 1.5kHz, 1.8kHz, 2kHz etc. Smaller than most multimeters.  
**SPECIFICATIONS:**  
**Frequency Range:**  
 X 1 Range: 20Hz to 1.5kHz  
 X 100 Range: 2kHz to 150kHz  
**Output Control:** 0dB, -20dB plus fine adjuster  
**Output Impedance:** 600Ohm +/- 10%  
**Waveform:** sine wave or square wave  
**Sine Wave:** 1.2V rms maximum  
**Square Wave:** 8V P-P maximum  
**Rise & Fall Time:** Less than 5 uS  
 Requires 9V battery (not supplied).



Q 1542 **\$99.00**  
 Q 1544 Carry Case To Suit **\$12.50**

**20MHz Logic Probe with Audio Indicator**

Q 1272 **\$37.50**



Logic Probe

**Q 1272**  
**20MHz**  
 Maximum input signal frequency  
 Input impedance ..... 1MOhm  
 Operating supply range ..... 4V DC minimum  
 TTL: Logic "1" (HI LED) ..... 2.3+/-0.2V DC  
 Logic "0" (LO LED) ..... 0.8+/-0.2V DC  
 CMOS: Logic "1" (HI LED) ..... 70% Vcc +/-10%  
 Logic "0" (LO LED) ..... 30% Vcc +/-10%  
 Minimum detectable pulse width .30 Nanoseconds  
 Maximum signal input protection +/-220V AC/DC (for 15 seconds)  
 Lower supply protection ..... +/-20V DC  
 Pulse indicator flash time ..... 500ms

**50MHz Logic Probe with Logic Pulsar**

Q 1280 **\$54.95**



Logic Pulsar (Model Q 1280)

Synch input impedance ..... 1M Ohm  
 Pulse rate ..... 0.5/400Hz  
 Pulse width ..... 10uS  
 Output current ..... 100mA sink/source  
 Square wave output current .5mA sink/source  
 Power supply range ..... 5-15V DC  
 Power supply protection ..... 20V DC (30 seconds max)  
 Synch input protection ..... 120V DC (30 seconds max)  
 Test point protection ..... 35V DC (30 seconds max)

**Attention Universities, TAFE Colleges, Technical Schools, Schools, Government Departments etc. If you buy any electronic components or equipment either phone or fax us with your list of requirements today. We currently supply such establishments all over Australia. We are able to supply goods ordered on an official order form on a 30 day account to any Government Department. Priority is given and all such orders are usually despatched the same day. In some instances, we can even deliver the very next day, right to your door. So, next time you require any electronic components or equipment, why don't you give us a try.**

## Sensational Labtech Full 12 Months Warranty

Australia's Best Value In High Reliability, Top Performance Cathode Ray Oscilloscopes.

### 20MHz Dual Trace Oscilloscope

*This is the 1992 model of our famous Labtech 20meg dual trace scope. There are now over 3000 in service throughout Australia including many 100's in Universities, Research Establishments and Industry*

This model is a dual trace 20MHz Oscilloscope using a high brightness CRT. The vertical amplifiers have high sensitivity of 5mV/div and a frequency characteristic response with smooth roll off exceeding 20MHz.

The TV sync. signal separator circuit is provided to ensure stable observation of video signals. Triggering is obtained by sampling the AC Power waveform, external waveform or internally generated trigger.



Q 0156 **Fantastic Value at Only \$699.00**

**Now Covered by 12 Month Warranty**

Highly recommended for Service Workbench, Design Laboratory, Manufacturers, Universities and the dedicated Enthusiast.

#### Features:

Wide bandwidth and high sensitivity. Very low power consumption. High sensitivity X-Y mode. Z axis (intensity modulation). Front panel electrical trace rotator. Regulated power supply circuit for accuracy. TV video sync. filter. High frequency rejection filter in the triggering circuit.

#### 1. CRT Display

150mm rectangular, domed mesh and post accelerator type with an illuminated, parallax-free, inner-face graticule. 8 x 10 division (1 division equals 10mm)

#### 2. Vertical Deflection

Deflection Factor: 5mV to 20V/Div on 12 ranges in 1-2-5 step with fine control.  
Bandwidth DC: DC to 20MHz (-3dB). AC: 10Hz to 20MHz (-3dB).

Rise Time: Less than 17.5nSec.

Overshoot: Less than 8%.

Input Impedance: 1M Ohm shunted by 20pF & +/-3pF (Max input: 600Vp-p or 300V DC & AC Peak).

Operating Modes: CH-A, CH-B, DUAL and ADD.

Chop Frequency: 200kHz approx.

Channel Separation: Better than 60dB at 1KHz

CH-B Polarity: CH-B can be inverted.

#### 3. Time Base

Type: Automatic and triggered. In automatic mode, sweep is obtained without input signal.

Sweep Time: 0.2uSec to 0.5Sec/Div on 20 ranges in 1-2-5 step with fine control and X-Y.

Magnifier: X5 at all ranges

Linearity: Less than 3%

#### 4. Triggering

Sensitivity: Int 2 div or more. Ext: 1Vp-p or more

Source: INT, CH-B, LINE or EXT

Triggering Level: Positive and Negative, continuously variable level control. Pull for Auto.

Range: 20Hz to 20MHz or more

Sync: AC, HF, Rej, TV (each & or-) at TV Sync. TV-H

(Line) and TV-V (Frame) sync are switched automatically by SWEEP TIME/Div switch. TV-V: 0.5 sec/div to 0.1m

sec/div. TV-H: 50 usec/div to 0.2 usec/div

#### 5. Horizontal Deflection

Deflection Factor: 5mV to 20V/div on 12 ranges in 1-2-5 step with fine control.

Frequency Response: DC to 1MHz (-3dB)

Input Impedance: 1M Ohm shunted by 20pF & 3pF

Max Input Voltage: 300V DC & AC peak or 600Vp-p

X-Y Operation: X-Y mode is selected by SWEEP TIME/Div

switch. CH-A: Y axis. CH-B: X axis.

Intensity Modulation Z Axis: TTL Level (3Vp-p-50V) & bright, -dark.

#### 6. Other specifications

CRT HV: 2kV

Calibration Voltage: 0.5Vp-p & +/- 5%, 1kHz square wave

Power Requirements AC: 240V, 50Hz, 19W

Weight: 7kg approx

Dimensions: 162(H) x 294(W) x 352(D) mm

### CRO Probe

#### Specifications:

Position: x 10

Bandwidth: DC to 80MHz

Max Input Voltage: 600 Volts DC

Position: x 1

Bandwidth: DC to 3MHz

Max Input Voltage: 600 Volts DC

Probe Length: Approximately 1.5 meters



Q 0175 **\$49.95 ea**

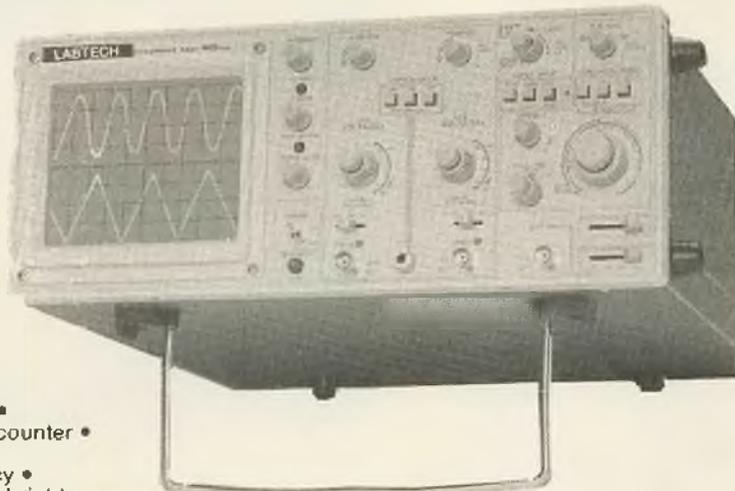
**ALTRONIC**  
COMPONENTS

PHONEORDER TOLL FREE 008 999 007

## 40MHz Dual Trace Oscilloscope

A superb oscilloscope for technicians and engineers working on projects where other instruments would be stretched beyond their capabilities.

Where precise measurements of computers, CD's, digital videos, RF applications, high speed digital, and other high speed equipment is a must.

**With Features Like:**

• Delayed sweep for partial waveform expansion. • Channel 1 signal output for use with a frequency counter • CH2 polarity inversion switch • Vertical deflection magnification, X5 • Switchable chopping frequency • Scale illuminating system • B Intensity control for bright, magnified waveforms • Variable hold-off for observation of waveforms with complex periods • Single sweep mode for one time or other suddenly occurring events • Sweep magnification, X10 • Signal delay line for accurate view of high frequency pulse leading edge • Trigger preset function.

**CRT Display**

150mm rectangular, domed mesh and 12kV post accelerator type with an illuminated, parallax-free, inner-face graticule. 8 x 10 division (1 division equals 10mm)

**2. Vertical Amplifier (CH1 and CH2 Identical)**

Operational Modes: CH1, CH2, ADD, DUAL, ALT, CHOP  
Sensitivity: 5mV - 5V/Div 3% in 1-2-5 steps. 1mV - 1V/Div  
5% X5 Mag

Bandwidth: DC to 40MHz (-3dB) AC: 5Hz to 40MHz (-3dB)

Rise Time: Less than 8.7nS

Polarity Inversion: CH2 only

Chop Frequency: Approx 250KHz

Maximum Input Voltage: 400V (DC & AC peak)

Input Coupling: AC, GND, DC

**3. Horizontal Amplifier**

Operating Modes: X-Y operation CH1-X axis, CH-2 Y axis

Sensitivity: 5mV - 5V/Div &/-3% in 1-2-5 steps

Input Impedance: 1M $\Omega$  &/-2%, 25pF &/-3%

Bandwidth DC: DC to 1MHz (-3dB). AC: 5Hz to 1MHz (-3dB)

X-Y Phase Shift: 3° or less (at 100KHz)

Maximum Input Voltage: 400V (DC & AC peak)

**4. Time Base**

Sweep Method: AUTO, NORM, SINGLE

Sweep Time (A): 0.2 $\mu$ S - 0.5S/Div &/- 3% in 1-2-5 steps (X1 only)

Sweep Time(B): 0.2 $\mu$ S - 0.5mS/Div &/-3% in 1-2-5 steps (X1 only)

Magnified Sweep: 10 times &/-5%, Max 20nS

Linearity: &/-3% or better

Delay Method: Continuous delay and adjustment

Delay Time: 2nS - 5S

Hold Off: Continuously adjustable of A sweep

**5. Synchronization**

Horizontal Mode: A, B, B Triggered

Internal: CH1, CH2, LINE

External: EXT

Trigger Coupling: AC, DC, HF, Rej, TV-H (Line), TV-V (Frame)

Triggering Sensitivity: INT DC - 20MHz 1.0 Div. 20MHz - 40MHz 2.0 Div. EXT DC - 20MHz 150m Vp-p. 20MHz - 40MHz 300mVp-p

Trigger Level Present Function

**6. Vertical Amplifier Signal Output**

Output Voltage: Approx 50mV/Div

Output Impedance: 50 Ohm

Bandwidth: 100Hz - 40MHz (-3dB)

**7. Intensity Modulation Z Axis**

Bandwidth: DC - 1MHz

Maximum Input Voltage: 50V (DC & AC peak), Max AC 1KHz

Sensitivity: 3Vp-p

**8. Probe Calibrator Output Voltage**

Squarewave approx 1KHz, 1V

**9. Power Requirements**

Voltage: AC 100V/117V/230V/240V &/- 10%, 50, 60Hz, 42W

**10. Dimensions, Net Weight**

340W x 138H x 373Dmm, 9kg

**11. Accessories**

Operations manual, power cord, fuse.

Q 0160 \$1445.00

## Micron T2440 Mk II

### Electronic Temperature Controlled, Temperature Selectable, Soldering Station

The MICRON T 2440 soldering station offers the ultimate in controlled temperature hand soldering. 320°C, 350°C, 380°C, 410°C, 440°C (608°F, 662°F, 716°F, 770°F and 824°F) temperature range is switch selected. There is no need to change soldering iron tip.

#### Specifications

**Voltage Input:** 240V AC

**Heater Voltage:** 24V AC

**Heater Power Consumption:** 48 Watts

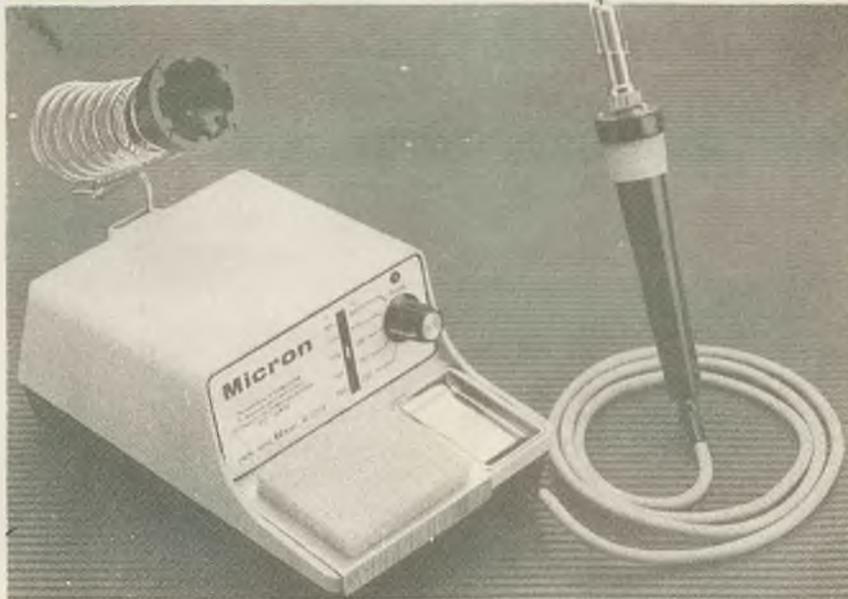
**Standard Tip:** T 2428

**Temperature Readout:** via LED bargraph instantly visible.

**Temperature Control:** A unique electronic control circuit maintains tip temperature to within +/- 1 deg C of idling. This is accomplished by embedding the thermocouple sensing unit in the heating element barrel. This method allows the closest possible monitoring of tip working surface temperature. This means the tip is not overheated, and so tip and heater life is greatly enhanced. It also means excellent heat recovery during heavy soldering.

**Zero Voltage Switching.** The revolutionary electronic "Zero Voltage" switching, protects voltage and current sensitive devices such as CMOS against transient voltage spikes.

**Low Voltage Element.** 24V element for added safety especially with CMOS and microprocessor soldering situations. Silicon rubber iron lead used providing a comfortable, flexible connection to station and durability against accidental burn damage.



**Grounded Tip.** The soldering tip is grounded through the power unit to ensure the tip leakage is less than 0.4mV to 0.03 microampere.

**Chrome Plated Iron Clad Tip.** Regardless of the excellence of the station and iron element, it is absolutely imperative the iron tips be of a high standard, easily cleaned and long life. The Micron tips are "State of the Art" chrome plated, iron clad ultra long life, very resistive to over heating, clean easily and what's more are very reasonably priced! Developed to meet the present and future needs of the electronic production industry, service technician and hobbyist.

T 2440 **\$159.95**

When ordering replacement tips for soldering stations purchased prior to 1990, please order as follows: All \$7.95 each.

<b>MICRO CHISEL</b>	<b>MINI CHISEL</b>	<b>STD CHISEL</b>
T 2423 1mm	T 2424 1.5mm	T 2425 3mm

**MK II Replacement tips \$7.95 ea**

<b>MICRO CHISEL</b>	<b>MINI CHISEL</b>	<b>STD CHISEL</b>
T 2427 0.8mm	T 2428 1.6mm	T 2429 3.2mm

**Full 2 Year Warranty**

## Temperature Adjustable 250°C to 450°C



Screwdriver temperature adjustable between 250°C and 450°C enabling very delicate soldering on low settings with surprising heat energy reserve on maximum setting. Relative temperature is indicated by LED lamp brightness. **Now uses state of the art ceramic heating element**  
See replacement guide for tips to suit

T 2446 **\$49.95**

## Micron 25 Watt Soldering Iron



Light-weight • efficient thermal transfer from element to tip • tip temperature maintains within the limits suitable for electronic work and also small household jobs. **SEC APPROVED**

T 2415 Iron **\$17.95**

## Fixed Temperature Soldering Iron

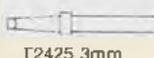
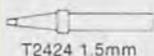
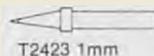


• 370 deg. Fixed temperature • High efficiency patented heating element • Iron clad, chrome plated, long life interchangeable tips. Tip life expectancy is many times that of conventional plated tips. Supplied with T 2424 Tip.

T 2420 **\$27.50**

## Replacement Tip Guide

Tip Cat No.	To Sult Model	Tip size	Ea
T 2418	T 2415	3mm	\$2.50
T 2423	T 2420	1mm	\$7.95
T 2424	T 2420	1.5mm	\$7.95
T 2425	T 2420	3mm	\$7.95
T 2430	T 2446	1mm	\$9.45
T 2431	T 2446	1.5mm	\$9.45
T 2432	T 2446	3mm	\$9.45



## Gas Powered Irons & De-Soldering Tool

# TOOLS

### IRODA Gas Soldering Iron

Winner of the Good Product Design Award

**Features:**

- See through gas chamber
- Built in ignition cap
- Uses standard butane gas
- Comes with safety bench stand
- Supplied with bonus blow torch tip



T 2450 **\$39.50**

**EXCLUSIVE TO ALTRONICS**

2mm Replacement Tip

T 2452 **\$4.95**

Replacement Exhaust Port

T 2455 **\$4.95 ea**

The advanced IRODA Soldering Iron possess a convenience and a range of functions that redefine the limits of soldering. With a sleek, pen like design and self-contained butane power it is easily carried and used anywhere. One single refill of the iron's gas reservoir from a standard butane can allows up to 60 minutes of continuous use with temperatures ranging from 400°C to 1300°C. Flexible and portable, its small size, powerful action and interchangeable tips make it the perfect tool for engineers, electricians, repair men, hobbyists and do-it-yourselfers. Applications vary from auto and plumbing work to finer more delicate uses in the fields of jewellery, optics and electronics. The Soldering Iron has an adjustable tip temperature up to 400°C equivalent to a 60 Watt electric iron, making it the ideal static and cord free tool for all indoor and outdoor soldering jobs. The Blow Torch operates at temperatures in excess of 1300°C which makes it the perfect heat tool for heavy soldering jobs, brazing or silver soldering.

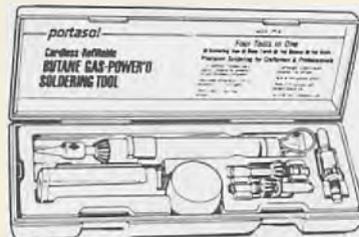
Butane Gas Refill 200gm T 2448 **\$5.95**

### Fully Portable Multi-Purpose Gas Soldering Kit

Great when you're working on the boat, car, farm, TV antenna or anywhere in the field.

**Features:**

- Kit includes hot blower head, hot knife head, polyfoam cutter tip, burner tip
- No cords, batteries or gas bottles
- Heavy duty tip temperature up to 400°C
- Powered by standard butane gas lighter fuel
- Up to 60 minutes continuous use. Refills in seconds
- Adjustable temperature equivalent to 10-60 Watts
- No leakage currents to sensitive circuits



**Spare Tips**

T 2471 1.0mm

T 2472 2.4mm

T 2473 3.2mm

T 2474 4.8mm

T 2476 Blow torch

T 2477 Hot air blower

T 2478 Hot Knife

All **\$13.95**

T 2470 **\$79.95**

### Micron Sure Shot Desoldering Tool

**Exclusive to Altronics in Australia**

This Japanese designed tool offers the maximum performance available for this type of desoldering tool.

**Features:**

- Totally self contained
- Light and compact
- Anti static tip
- Easy to use
- Simple to clean and maintain
- Variable tip temperature

**NEW  
IN  
'92**



**Completely portable**

The **Sure Shot** desoldering tool is totally self contained and plugs directly into a standard 240V AC outlet.

**Easy to use**

The **Sure Shot** generates a high speed vacuum everytime the trigger is squeezed. This vacuum causes the molten solder to flow into the collection reservoir contained within the unit. Here the molten solder solidifies into small particles.

**Suitable for all type of P.C.B.'s**

With its inbuilt variable temperature control the **Sure Shot** is ideal for single sided, double sided and through hole plated P.C.B.'s. With just a couple of squeezes of the trigger all holes are left solder free for easy removable of the component.

T 1270 **\$349.00**

T 1272 Replacement Tip To Suit **\$9.95**

**EXCLUSIVE TO ALTRONICS**

**PHONEORDER TOLL FREE 008 999 007. ALTRONIC COMPONENTS**

## Multiple De-Soldering Tool

This lightweight de-soldering iron allows components to be quickly and cleanly removed with one hand. SEC approved and comes with a cleaning wand.  
 • 240V AC ± 30W • SEC approval W/2228 • Easy single handed action • Earthed • Simple cleaning action.



T 1250 **\$45.00**

T 1252 1.2mm Replacement Tip to Suit **\$4.95**  
 T 1255 1.5mm Replacement Tip to Suit **\$4.95**

## Solder Sucker

Self cleaning plunger. Long life Teflon Tip. Double diaphragm. **Dual O-Ring seal.**  
 225mm x 20mm (D) 50mm

T 1240 **\$11.95**



T 1241 Replacement Tip to Suit **\$2.35**

## PCB Stands

Screw one of these handy jigs to your workbench and instantly you have a third hand. Great for servicing, assembling PCB's, inspecting components soldered joints etc.



With magnifier

T 1460 **\$14.95**



T 1450 **\$9.50**

## Solder

Suitable for most circuits. 200g reel Resin cored. 1mm gauge.



T 1200 **\$7.00**

## De-soldering Braid

Famous Chemwich brand. Ideal for removing most components.



T 1232 4mm  
 T 1234 3mm  
 T 1236 2mm All **\$3.50**

## Soldering Iron Stand

Heavy duty cast iron base with sturdy spring stand. Suits most popular soldering irons.



T 1310 **\$12.95**  
 Spare sponge to suit.

T 1320 **\$1.95**

## Hand Tools

All stainless steel construction with insulated handles.

### Diagonal Cutter



Sharp bevelled edge. Suitable for general PCB components.

T 2750 **\$12.95**

### Long Nose Pliers



General electronic use. Length: 140mm. Weight: 60g.

T 2760 **\$12.95**

### Fiat Long Nose Pliers



For bending component legs, IC pins etc and general use. Length: 140mm Weight: 60g.

T 2770 **\$12.95**

### Curved Long Nose Pliers



Offset jaws for working in confined and awkward spaces. Length: 135mm Weight: 60g.

T 2780 **\$12.95**

## Economy Minature Hand Tools

Made from special heat treated steel for long life.

### Mini Diagonal Cutters



Suitable for all PCB components work. Flush cutting jaws. Spring loaded insulated handles.

T 2790 **\$8.95**

### Mini Long Nose Pliers



Strong serrated jaws. Ideal for holding and bending components. Spring loaded insulated handles.

T 2795 **\$8.95**

### Mini Ball Nose Pliers



Strong serrated jaws. Suitable for holding and gripping. Also features flush cutters for cutting larger components. Spring loaded insulated handles.

T 2797 **\$8.95**

## Cut & Clinch Tool

- Cuts, clinches and burnishes component leads in one stroke
- Burnish improves solder wetting
- Lightweight and comfortable
- Rugged aluminium body
- Durable steel mechanism
- For production or prototype

T 2800 **\$35.00**



Ideally suited to either mass production or one off PCB's.

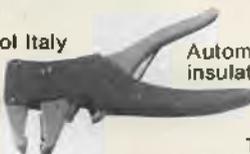
## Automatic Wire Strippers Professional Type

Designed by Elcontrol Italy

T 1522 **\$16.95**

Spare Blades to Suit

T 1525 **\$1.95**



## Automatic Wire Strippers Economy Type

Automatically adjusts to insulation/wire diameter.

T 1520 **\$10.95**

## Wire Stripper

With hardened jaws.

T 1510 **\$5.95**



**GENERAL WORKSHOP TOOLS**

**Low Cost IC Inserters & Extractor**

- Inserters**  
 T 2520 14-16 Pin **\$10.95**  
 T 2524 18-20 Pin **\$10.95**  
 T 2528 24-28 Pin **\$12.50**  
 T 2536 36-40 Pin **\$12.50**



- Extractor**  
 T 2550 8-40 Pin **\$2.50**

**Pearl Catch**

Super natty tool for picking up small screws, nuts, washers, pins and holding in place for fixing etc.

- T 2380 **\$3.95**



**Tweezers**

- T 2375 Needle Nose **\$2.95**  
 T 2377 Duck Bill **\$2.50**  
 T 2379 Duck Bill (self-closing) **\$5.95**



**Crimping Tool**

Suitable for all general type crimp connectors. Suits red, blue and yellow size connectors.  
 T 1550 **\$4.95**



**Modular Connector Crimping Tool**

This deluxe type is able to crimp all size modular plugs from 4 to 8 way. Also has inbuilt cutters and wire stripper that strips to accurate length for plugs. This all in one tool is a must for the tool box.

- T 1560 **\$39.95**



**Screwdriver Sets**

**Flat Blade Type**  
 Contains:  
 1 x 6mm x 90mm  
 1 x 6mm x 215mm  
 1 x 5mm x 185mm  
 1 x 3mm x 135mm

- T 2190 **\$9.80**

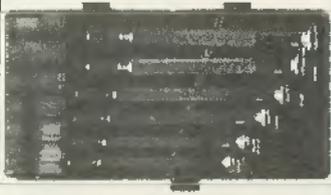
**Phillips Blade Type**  
 Contains:  
 1 x size 00 shaft 75mm  
 1 x size 0 shaft 78mm  
 1 x size 2 shaft 102mm  
 1 x size 2 shaft 35mm

- T 2192 **\$9.80**



**Jewellers Screwdriver Set**

- 6 Piece  
 T 2200 **\$4.50**



**Mini Drill**

Ideal for drilling PCB's. Powerful 5000 RPM motor. Operates off 12V DC. Comes with 0.8mm and 1mm chucks.

- T 2302 **\$21.50**



**Allen Keys**

Set of 7 Handy Keys  
 Sizes: 1.4, 1.5, 2, 2.4, 2.5, 3, 4mm

- T 1410 **\$1.95**



**Neon Test Screwdriver**

A 3mm blade screwdriver with a built-in neon. For use with power points, extension leads, fuses etc. 100-500V. Made in W. Germany.

- T 2222 **\$3.85**



**Alignment Screw Drivers**

- With metal tip 2mm blade.  
 T 1401 100mm Shaft **\$2.95**  
 T 1402 200mm Shaft **\$3.95**



**PCB Drill Bits**

- T 2320 0.8mm **\$5.95**

- T 2325 1.0mm **\$4.95**

**Steel Rule**

With centimetres and inches. 300mm long.

- T 2382 **\$5.95**



**Alignment Tool Set**

Set of 4 tools.

- T 1400 **\$4.20**



**Nibbling Tool**

For steel, plastic and aluminium. Very easy to use. Capacity: Steel 1mm Aluminium 1.6mm.

- T 2355 **\$19.95**



**Hole Punch Set**

Cuts holes in metal up to 1.6mm (16 gauge). Set of 5 punches and tapered reamer. Punch Sizes: 16mm, 18mm, 20mm, 25mm, 30mm.

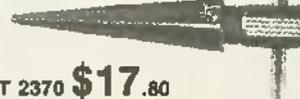
- T 2360 **\$79.95**



**Tapered Reamer**

For Chassis work. Enlarges from 5-20mm.

- T 2370 **\$17.80**



**Needle File Set**

Set of 5 files, round, square, half round, triangular and flat.

- T 2350 **\$24.30**



**Mini Bench Vice**

Quality die cast alloy.

- T 2365 **\$10.50**



**PCB AND GENERAL PURPOSE SERVICE AIDS**

**Silastic Compound**



Ideal for 'water proofing' enclosures or shock mounting components.

150g pack Adhesive/Sealant provides tough non-brittle seal or joint. Corning 762RTV

T 3015 **\$8.00**

**Five Minute Epoxy**



Two part mix suitable for bonding most types of materials.

Similar to 'Araldite' this multi purpose super strong epoxy in handy dual syringe.

T 3005 **\$8.50**

**Instant Super Type Glue**



Super quick bonding action. Bonds most materials in seconds.

T 3010 **\$2.95**

**PVC Tape**



Quality Tape. Heat resistant 20m x 19mm

T 3001 **\$1.45**

*Environmentally friendly, these aerosol spray packs have been designed to perform a specific task without the use of damaging CFC's or fluoro-carbons! TWO other great advantages — most are non flammable and all are Australian made*

**Electronic Cleaning Solvent**

A fast-drying solvent of very high purity. Ideal for cleaning delicate electronic/electrical assemblies, video and tape heads etc. Will not effect paints, plastics, or component markings. 250ml, 175gm.



T 3066 **\$7.50**

**Butane Gas Refill 200gm**

Weller brand, ideal for Iroda, Portasol Weller portable gas powered soldering irons.



T 2448 **\$5.95**

**Contact Cleaner/Lube**

Ideal for cleaning and lubricating all non-arcing contacts and edge connectors, mechanisms and switches. Safe on most plastics. 250gm, 250ml.



T 3061 **\$7.95**

**Electro Mechanical Lubricant**

Supplied in a self sealing nylon pen, with retractable snorkel tube, for pin point application.



T 3063 **\$11.50**

**Freezer**

A premium non-flammable non-corrosive freezing spray for rapidly cooling components and boards to detect thermal faults including intermittent component failure and dry joints. 250ml, 250gm.



T 3083 **\$9.95**

**Air Duster**

Pure, high pressure, non flammable gas for removing dust and airborne contaminants from delicate equipment. 250ml, 250gm.



T 3096 **\$9.95**

**Protex Moisture Repel/Lube**

A high quality general purpose maintenance fluid which will displace moisture, penetrate and lubricate, all mechanical and electrical equipment. It is also ideal temporary protection against high humidity. Conforms to MIL-C-161730 Grade 3 and ASTM-D-1748 humidity cabinet (26 days) specifications. 250ml, 250gm.



T 3041 **\$7.25**

**Circuit Board Cleaner**

A quality blend of solvents for general purpose cleaning of circuit boards. Will remove oils, greases and dirt etc. It will remove most resin based fluxes. 250ml, 250gm.



T 3069 **\$7.95**

**Compuclene Cleaner**

Anti-Static case and keyboard cleaner. Simply spray on and buff off. 250ml.



T 3056 **\$6.95**

**Circuit Board Lacquer**

A premium flexible coating for protecting circuit boards from humidity and other environmental attack. It has excellent insulating properties and is very suitable for Australian conditions. It contains a solder flux medium to allow solder through component replacement without damaging components or board tracks. Can be removed with RF Circuit Board Cleaner. 250ml, 175gm.



T 3086 **\$7.95**

**RP50 Positive Photoresist Aerosol**

The RP50 aerosol is a fast drying positive photoresist for one to one reproduction of circuits. Used in conjunction with Photo resist developer. 200ml.



T 3111 **\$36.95**

**Photoresist Developer**

Safe Aqueous Alkali Developer for use with RP50 Photoresist. Takes 30-60 seconds at 20°C.



T 3115 **\$14.95**

**Screen Care**

Anti-Static screen cleaner. Ideal for computers etc. Simply spray on and buff off. 250ml.



T 3088 **\$9.95**

**Ferric Chloride**

Ideal for making prototype PCB's. Special one off boards etc. Makes 1 litre.



H 0800 **\$4.95**

# Toroidal & PCB Mount Transformers

# TRANSFORMERS

## TRANSFORMERS

Every Altronic's mains transformer is made to the very latest Australian Standard, AS3108. Due to the very stringent requirements needed to meet this specification you can use any one of these models knowing it will perform to specification in any application with peace of mind.

All types approved including TORIODES, PCB Mount models and General EI Cores.

### Toriod Power Transformers

- Smaller size and weight to meet modern "Slimline" requirements.
- Lower electrically induced noise demanded by compact equipment.
- High efficiency enabling conservative rating whilst maintaining size advantages.
- Simple, quick single bolt mounting. The toroidal transformer is now accepted as the standard in industry, replacing the laminated type. Industry has been quick to recognise the advantages toroidals offer in size, weight, and lower radiated field.

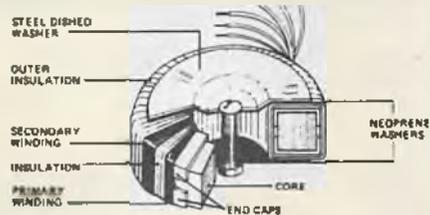
#### DIMENSIONS AND WEIGHT

80VA Models	90mm Diam	35mm H	0.9Kgs
160VA Models	100mm Diam	40mm H	1.5Kgs
300VA Models	110mm Diam	55mm H	2.4Kgs
500VA Models	135mm Diam	60mm H	3.9Kgs

#### NOTE:

SEC Current A — current available where secondaries are connected in parallel.

SEC Current B — current available where secondaries are connected in series.



### 300VA Rating

All \$89.95

Cat. No.	Sec. V	SEC Current A	SEC Current B
M 3085	12+12	25.0	12.5
M 3086	18+18	16.67	8.33
M 3088	25+25	12.0	6.0
M 3090	30+30	10.0	5.0
M 3092	35+35	8.57	4.29
M 3100	40+40	7.5	3.75
M 3105	45+45	6.67	3.33

### 400VA Rating

All \$125.95

Cat. No.	Sec. V	SEC Current A	SEC Current B
M 3135	55+55	14.54	7.27

### 500VA Rating

All \$129.00

Cat. No.	Sec. V	SEC Current A	SEC Current B
M 3120	30+30	16.6	8.3
M 3125	35+35	14.2	7.1
M 3130	40+40	12.5	6.2
M 3135	45+45	11.1	5.5
M 3140	50+50	10.0	5.0
M 3145	55+55	9.0	4.5
M 3150	60+60	8.3	4.10
M 3155	65+65	7.6	3.8

### Special Function

M 3071	35+35+15+15	160VA	\$79.95
M 3200	inverter	300VA	\$125.95
M 3205	inverter	600VA	\$180.00
M 3210	inverter	1200VA	\$355.00



Approved to Australian Standard AS 3108



### 80VA Rating

All \$49.95

Cat. No.	Sec. V	SEC Current A	SEC Current B
M 3020	12+12	6.6	3.3
M 3025	18+18	4.4	2.2
M 3030	25+25	3.2	1.6
M 3035	30+30	2.6	1.3
M 3040	35+35	2.2	1.1

### 160VA Rating

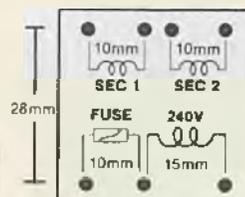
All \$65.00

Cat. No.	Sec. V	SEC Current A	SEC Current B
M 3050	12+12	13.3	6.7
M 3055	18+18	8.9	4.45
M 3060	25+25	6.4	3.2
M 3065	30+30	5.3	2.7
M 3070	35+35	4.6	2.3
M 3075	40+40	4.0	2.0
M 3080	45+45	3.56	1.78

### 7VA PCB Mount Mains Transformers

Made to the latest Australian Standard AS3108 these PCB mount transformers are rated at a modest 7VA. They are slightly larger than other so called 7VA transformers on the market, however the Altronic version runs much cooler due to the larger core size. This also increases the overall efficiency of the transformer. The transformer is wound on flame retardant nylon 66 bobbin. The primary winding is fitted with an inbuilt thermal fuse to protect the appliance in case of a short circuit developing on the secondary winding.

This is a requirement of the Australian Standard AS3108, as the transformer even when shorted, will not draw enough current to blow a standard glass fuse. Therefore as the transformer heats up in a shorted condition the thermal fuse will open and hence, protect the equipment.



#### Power Rating:

7VA Load Full voltage +3%-0%

Model	SEC.
M 7112	6+6
M 7115	7.5+7.5
M 7118	9+9
M 7124	12+12
M 7130	15+15

Fuse Type: Thermal 115°C  
Height: 37mm Length 48mm Width 40mm  
PINOUT VIEWED FROM UNDERNEATH

All \$12.95

Approved to  
Australian Standard  
AS 3108



PHONEORDER TOLL FREE 008 999 007. ALTRONIC COMPONENTS

# TRANSFORMERS

## General Purpose & Audio Transformers

### General Purpose Mains Transformers

Wound on split nylon 66 flame retardant bobbins, all of these mains transformers are made to the latest Australian Standard AS3108. Models M 2851, M 2852, M 2853, M 2854 and M 2855 are all fitted with primary thermal fuses. All models work well within their specifications even under full load conditions.

All Mains Transformers Primaries 240V — Specifications listed refer to secondary windings

M 2851	12.6V CT	150mA	\$7.30
M 2852	12.6V CT	300mA	\$7.65
M 2853	12.6V CT	500mA	\$8.20
M 2854	24V CT	150mA	\$7.65
M 2855	30V CT	150mA	\$7.65
M 2154	12V, 15V, 18V	1 Amp	\$11.00
M 2155	6V3, 7V5, 8V5, 9V5, 12V6, 15V	1 Amp	\$10.95
M 2156	6, 9, 12, 15V	2 Amps	\$17.95
M 6672	15, 17V5, 20, 24, 25V5, 30V	1 Amp	\$16.50

#### Multipurpose 60VA Transformer

9, 12, 15, 18, 21, 24, Volts at 60VA output.

M 2165 \$26.50

#### Multipurpose 100 VA Transformer

12, 15, 24, 27, 30, Volts at 100VA output.

M 2170 \$29.95

#### Multipurpose 120VA Transformer

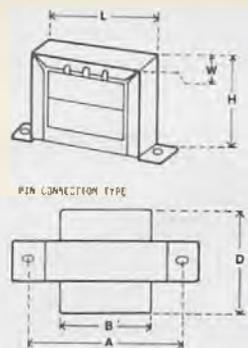
12, 15, 24, 27, 30, Volts at 120VA output.

M 2175 \$39.95



Approved to Australian Standard AS 3108

### Dimension Guide



	A	B	D	L	W	H
M 1109	56	28	38	43	17	35
M 1115	63	32	45	50	27	42
M 1120	69	38	47	59	23	50
M 1125	82	44	48	70	22	59
M 1130	70	38	52	59	29	50
M 1135	80	44	62	78	40	59
M 2851	51	29	37	44	19	37
M 2853	65	29	44	50	28	42
M 2855	51	29	42	43	23	36
M 2154	72	38	50	60	32	51
M 2155	70	37	49	59	28	48
M 2156	80	43	64	69	40	57
M 2165	80	43	88	69	55	57
M 2170	97	48	80	79	43	64
M 2175	115	62	83	99	43	84
M 6672	80	43	62	69	39	59

### General Purpose Audio Transformers

#### Low Cost Miniature Transformers

Ideal for Hobbyist Projects. Intercoms, Transistor replacements - 450mV rated.



#### Coupling Type

M 0212 10K/2K CT  
M 0216 1K CT/8 Ohm  
Both \$2.95

#### Output Type

M 0222 3K CT/3K  
M 0226 500R CT/8 Ohm  
Both \$2.95

#### Telecom Type Line Isolating Transformer

Impedance: 600 Ohm line/600 Ohm equipment.  
Turns Ratio: 1:1  
Max Level: 0 dbm @ 300 Hz  
Max Unbalanced DC: 60mA (200 mA without damage).  
Proof Test: 3.5 KV RMS between windings and windings to core.

M 1000 \$13.95



Telecom Certified

#### Line Input

Max. Input Level: +12dbm  
Wide Freq. Res: 30Hz-30kHz  
Nominal Imp. Ratio: 10K:10K (1:1) Ideal for coupling from 600 Ohm lines to amplifier input stages etc.

M 0710 \$7.50

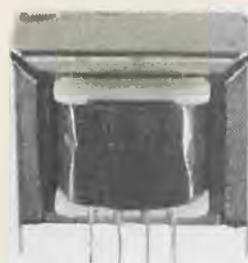


#### 40 Watt Attenuator

Used with 100v or 70V line PA systems. This enables the user to tap from the line the required level. Taps are spaced in 4.5db steps. Power rating 40 watts RMS.

Primary Taps: 0V, 4.2V, 9.7V, 16.2V, 32.5V, 51.2V, 100V.  
Frequency Res: 70-18kHz

M 0440 \$18.00



#### MU Metal Shielded Audio

##### MICROPHONE TYPE

Primary: 200 Ohm  
Secondary: 50K Ohm  
M 0701 \$34.95



##### BRIDGING ISOLATING TYPE

Used for coupling audio modules. Prevents earth loops hum etc. Essential coupling device where DC isolating is required.  
Nominal impedance ratio: 10K 10K (1:1)  
M 0702 \$34.95

#### Trigger Transformer

Suitable for high voltage xenon tube S 4040 as used in strobe lamps.

M 0104 \$1.95



ALTRONIC COMPONENTS . PHONEORDER TOLL FREE 008 999 007

## General Purpose Audio Transformers

### Speaker Transformers

#### 5 Watt 100V Line Speaker Transformer with 4 Tapped Primaries for 8 Ohm speaker

Wound on professional grade grain orientated steel core for extended frequency response.  
**Freq. Res:** 30Hz-20kHz  
**Mounting Hole Centres:** 51mm.  
 Designed for use with high grade constant voltage 100V and 70V PA Systems. (Note power out is halved on 70V line).

#### Primary Power Tap

2K	5W
5K	2W
10K	1W
20K	.5W

M 1109 \$8.50



### High Power Speaker Transformers

Wound on high grade grain oriented steel for extended frequency response. Used in PA applications where it is necessary for high powered 100V or 70V line systems.

#### 20 Watt

#### Primary Power Tap

500	20W
666	15W
1K	10W
2K	5W
4K	2.5W
8K	1.25W

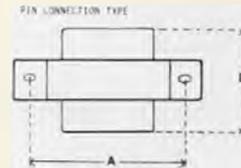
(Half Power out for 70V line)  
**Secondary Taps:** 4, 8 & 16 Ohm

M 1120 \$19.50



### Dimension Guide

	A	D	L	H
M 1109	56	38	43	35
M 1115	63	45	50	42
M 1120	69	47	59	50
M 1125	82	48	70	59
M 1130	70	52	59	50
M 1135	80	62	78	59



#### 30 Watt

#### Primary Power Tap

320	30W
500	20W
1K	10W

(Half power out for 70V line)  
**Secondary Taps:** 4 & 8 Ohm

M 1125 \$24.50

#### 40 Watt

#### Primary Power Tap

250	40W
500	20W
1K	10W
2K	5W

(Half power out for 70V line)  
**Secondary Taps:** 4 & 8 Ohm

M 1130 \$27.50

#### 60 Watt

#### Primary Power Tap

160	60W
320	30W
500	20W

(Half power out for 70V line)  
**Secondary Taps:** 4 & 8 Ohm

M 1135 \$39.50

#### 5 Watt 100V Line Speaker Transformer with 5 Tapped Primaries for 8 Ohm speaker

Wound on professional grade grain orientated steel core for extended frequency response.  
**Freq. Res.:** 30Hz-20kHz  
**Mounting Hole Centres:** 63mm.  
 Designed for use with high grade instant voltage 100V and 70V line PA systems (note power out halved on 70V line).

#### Primary Power Tap

666R	15W
1K	10W
2K	5W
4K	2.5W
8K	1.25W

M 1115 \$11.00



### High Power Audio 150 Watt

Dimensions: 125 Diam. 45mm H, 2.5Kg's Leads 200mm



#### Fantastic For

(A) High Power Speaker Systems, sound columns.  
 (B) Amplifier output line transformer.

**Superb Quality Transformer wound on low loss Toroid Core.**

**Max Power:** 150 Watt  
**Frequency Response:** 20Hz to 20KHz

Input Windings  
 Output Windings

**Connected In Series**  
 100V  
 16 Ohm

**Connected In Parallel**  
 50V  
 4 Ohm

M 1124 \$110.00

#### Notes:

(1) The Role of Input and Output windings can be reversed.  
 (2) Input and Output windings can be configured differently i.e. Input windings series connected for 100V and Output windings paralleled for 4 Ohm.

*Redford Audio Controllers. For details on ready to install and use 100V line Attenuators or Audio Level Controllers refer to the Audio section of this catalogue.*

*For a full range of Audio Products including Amplifiers and Speakers for use with these Audio Transformers refer to the Audio section of this catalogue.*

# TRANSFORMERS

## Plug Pack Adaptors, Battery Charger & Inverter

### Plug Packs

Our range of adaptors are each fitted with a 1.8M lead, in line socket and M 9014 2.5mm DC connector. Should you require a different connector you may select from the adaptor plugs below. The adaptor plug is normally set for -ve ground. This may be changed to +ve ground by simply reversing the plug adaptor to the line socket. All have 240V AC inputs and are **SEC APPROVED**.



Cal. No.	Output Volts		Max. Current	Price
M 9000	3, 4, 5, 6, 7.5, 9, 12	DC	300mA	\$19.95
M 9002	12	DC	300mA	\$15.95
M 9004	9	DC	300mA	\$15.95
M 9005	6, 9, 12	DC	500mA	\$22.50
M 9020	12V	AC	500mA	\$16.95
M 9022	12V	DC	300mA	\$22.50
M 9025	16V	AC	1 Amp	\$19.95
M 9027	16V	AC	1.5 Amp	\$29.95

### Adaptor Plugs Available To Suit

M 9013	2.1mm DC Plug	\$1.95
M 9014	2.5mm DC Plug	\$1.95
M 9015	3.5mm DC Plug	\$1.95

**DIRECT  
IMPORT  
PRICE**

### 500mA Regulated Power Supply

Voltage selector switch is located behind the unit to avoid accidental adjustment. **SEC Approved.**

**Input Voltage:** 240V AC  
**Output Voltages:** 3, 4.5, 6, 7.5, 9, 12V DC  
**Output Current:** 500mA



M 9040 \$32.50

### 1 Amp Power Supply

**SEC Approved**  
**Input Voltage:** 240V AC  
**Output Voltages:** 6, 7.5, 9, 12V, DC  
**Output Current:** 1 Amp  
M 9030 \$44.00



### 2 Amp Regulated Power Supply

**SEC Approved.**  
**Input Voltage:** 240V AC  
**Output Voltage:** 12V DC  
**Output Current:** 1 Amp  
M 9050 \$69.95



### 13.8V 1A UPS

**NEW FOR '92**

Designed for critical applications where it is important that products remain operational during mains failure, this UPS (Uninterruptable Power Supply) will supply 12V at 1.2 Amps via its internal inbuilt sealed lead acid battery even when the mains has failed. Ideal for use with alarm system power supplies monitoring systems, warning systems etc.



M 9090 \$69.95

### 300 Watt Inverter 12V DC to 240V AC

Fantastic pre-built new model will power lights, TV, camping fridge, electric shaver and a whole host of other appliances.

Great for camping, out in the bush and any place where 240V is not available.

**Features:** • Binding post terminals for easy 12V connection to your car or truck battery • 300W output will power a multitude of appliances • Appliance is simply 'plugged in' via built in 240V power point • Complete with over current circuit breaker • Fused 240V output • Built in panel meter to monitor output voltage • Strong steel case and chassis.



M 8120 \$249.00

### Gell Cell Charger

Supplied with colour coded cable (i.e.: red and black) complete with universal 6.3mm spade lugs to suit many common sealed lead acid batteries.

Ideal for most gell cells. Charging current 300mA at 12V  
M 8020 \$12.50



### Low Cost Nicad Battery Charger

This charger is supplied with 4 and 8 way AA battery holders and a 9V battery snap to allow charging of these 3 different configurations. A 3 way selector switch is provided on the charger pack to allow selection as desired i.e. 6V at 45mA, 12V at 45mA and 9V at 10mA.

M 8005 \$19.95



### Solar Charger

Charges up to 4 AA Nicads by simply placing in sun light. Will charge from dead flat to fully charged in 8-10 hours average sunlight.

A 0230 \$14.95



### Car Adaptor DC-DC

Designed to plug directly into your cars cigarette lighter socket, this handy multi voltage switch selectable adaptor enables you to run a fantastic array of DC operated devices.

Comes complete with 2m lead with universal star adaptor to suit most appliances. Voltage range 3, 4.5, 6, 7.5, 9, 12V at 800mA



**NEW FOR '92**

M 8150 \$16.95

**ALTRONIC  
COMPONENTS**

**PHONEORDER TOLL FREE 008 999 007**

## Motorola MECL Data

Emitter Collector Logic (ECL) is today's fastest form of digital logic providing the most direct way of improving system performance. Provides data on the 10KH, 10K and 111 families. MECL memory and PLL chips.

B 1100 \$13.50

## Motorola Power Data

Book includes a 9 page selection guide, application notes and data sheets for over 700 devices, 989 pages.

B 1101 \$31.90

## TMOS Data

This manual is intended to give the users of Power Mosfets basic information on the products, application ideas and data sheets of the broadest line of Mosfets. With over 225 device types in 11 package configurations currently available from Motorola.

B 1102 \$13.95

## Motorola CMOS Data

A comprehensive reference covering 40XX, 45XX CMOS families along with speciality devices such as LCD drivers, telephone and general communications functions and industrial control. 862 pages essential in all spheres of electronics.

B 1105 \$17.95

## Motorola CMOS Special Functions Data

This book presents technical data for the CMOS and NMOS Special Function integrated circuits. Complete specifications are provided in the form of data sheets. In addition, a Function Selector Guide and a Handling Precautions chapter have been included to familiarize the user with these circuits.

B 1106 \$19.95

## Schottky TTL Data

Essential reference for the enthusiast and engineer alike. Designing, building and servicing digital circuitry is an absorbing pastime. Data for the LS, ALS and FAST families along with design considerations and circuit characteristics are logically presented in this manual, making it quick and easy to use.

B 1109 \$17.60

## Motorola Memory

An absolute must for the microprocessor buff. This is the latest reprint of Motorola's famous memory data manual and includes the latest specifications and design application data on TTL RAM, TTL PROM, MECL MEMORY, MECL RAM, MECL PROM, MOS DYNAMIC RAM, MOS STATIC RAM, MOS EPROM, MOS EE PROM AND MOS ROM. Worth many dollars more.

B 1113 \$19.95

## Linear and Interface Data

Includes Data design procedures and equivalent listings for 1000's of devices under headings OP AMPS, VOLTAGE REGULATORS, CONSUMER CIRCUITS (e.g. TV automotive power), HIGH FREQUENCY CIRCUITS AND SPECIAL PURPOSE CIRCUITS.

B 1114 \$45.50

## Motorola Telecom Devices Data

This data book pulls together Motorola's products dedicated to telecommunications. An essential reference for the designer of telecommunications equipment.

B 1115 \$31.10

## Motorola RF Data and Applications

The Third Edition of the RF Data Manual has been updated to incorporate the latest changes since the last printing. There are over 500 devices, 19 application notes, and 22 engineering bulletins which cover RF Power and Small Amplifiers and Tuning Diodes.

B 1117 \$48.60

## Motorola OPTO Electronic Data

Motorola has concentrated on infra-red GaAs and GaAlAs emitters, silicon detectors high-technology optocouple isolators and an innovative approach to Fibre Optic components. This Opto-electronic Data Book contains up to date specifications on the complete product line. The catalogue is divided into chapters covering general information, selector guide/cross-reference, reliability and applications for each product segment.

B 1119 \$15.50

## Motorola 74HC Data Book

This book presents technical data for the broad line of High Speed Logic integrated circuits. Complete specifications are provided in the form of data sheets. In addition, a comprehensive Function Selector Guide and a Design Consideration chapter have been included to familiarize the user with these new logic circuits. Includes 74HC Series IC's.

B 1121 \$19.50

## Motorola 8 Bit Microprocessors and Peripherals

This manual covers all aspects of Motorola's microprocessor, microcomputer and peripheral components. A clearly written manual providing all the data necessary to design and build a working computer system from scratch. 100's of circuit examples, flow charts, truth tables and programme routines.

B 1125 \$28.00

## T.I. Power Data

The Power Products Data Book from Texas Instruments contains technical information on discrete power semiconductors. The product line includes a wide selection of standard transistors, Triacs, SCR's, Darlingtons, and Advanced Planar transistors — 'Workhorse' components that have proved their value in hundreds of applications around the world.

B 1202 \$22.95

## T.I. Instruments Linear Applications

This series of volumes covers linear and interface circuits applications:

**Volume 1:** Covers Amplifiers, comparators, timers, and voltage regulators.

B 1206 \$29.25

**Volume 2:** Looks at Line Circuits and Display Drivers.

B 1208 \$29.25

**Volume 3:** The 3rd Volume in the series covers Peripheral Drivers, Data Acquisition systems, Hall effect Devices

B 1210 \$29.25

## Texas Instruments Linear Circuit Data

The rapid advance in high-tech digital processing creates new demands for microprocessor compatible circuits that can sense, amplify, and convert analog signals or provide regulated power to a system. In this volume, Texas Instruments presents specifications and technical information on our broad line of integrated circuits designed for applications that involve analog signal conditioning. That product line includes:

- Operational amplifiers •
- Voltage comparators •
- Regulators •
- Power supply monitors •
- Switching-mode power supply circuits •
- Hall-effect circuits •
- Current mirrors •
- Floppy disk circuits for control, reading or writing •
- Timers •
- A/D converters •
- Video Amplifiers •
- Analog switches

B 1214 3 Volumes \$55.95

## T.I. Mos Memory Data Book

Commercial and Military Specifications. This Data Book contains data on DRAM, EPROM, PROM, EEPROMS, VLSI MEMORY management products. Includes SMJ, SN, TACT, THCT and TM SERIES.

B 1216 \$37.50

## IC OP-AMP Cookbook

(3rd Edition) Walter Jung  
Hobbyists and design engineers will be especially pleased at this new edition of the industry reference standard on the practical use of IC OP AMPs. The third edition has been updated to include the latest IC devices, such as chopper stabilized, drift trimmed BIFETS. The section on instrumentation amps reflects the most recent advances in the field. Jung is recognised as an expert in the fields of IC and audio OP AMPs. 60 pages.

B 2015 \$49.95



## Computers and Music

• Explains the basics of computing • No previous computer knowledge needed • Covers types of music software available • Explains how to set up your own computer music studio • Glossary of terms. If you're more used to the black and white keys of a keyboard than the QWERTY keyboard of a computer, you may be understandably confused by the jargon and terminology bandied about by computer buffs. But fear not, setting up and using a computer based music making system is not as difficult as you might think. 176 pages.

B 2210 \$17.95



## IC Timer Cookbook

(2nd Edition)  
You can learn lots of ways to use the IC timer in this easy-to-use second edition which includes many new IC devices. Ready to use applications are presented in practical working circuits. All circuits and components relationships are clearly defined and documented. 394 pages.

B 2025 \$51.95



## Practical Midi Handbook

• For musicians, electronics enthusiasts, students, technicians • Full explanation of Midi modes and channels • Real time and step time sequencing • Tables of Midi codes and reference data • Glossary of terms. The majority of the book is devoted to an explanation of what Midi can do and how to exploit it to the full with practical advice on connecting up a Midi system and getting it to work, as well as deciphering the technical information in those equipment manuals. "Can be recommended." Home and Studio Recording. "Excellent background reading." Yamaha XPress. "Provides a good basic knowledge of Midi." - ETI. "A useful informative book." - Practical Electronics. 160 pages.

B 2220 \$17.50



## CMOS Cookbook

Don Lancaster  
Handy but comprehensive reference for CMOS, the most popular and widely used digital logic family, not to mention the author's engaging writing style. Don't miss out on one of the most widely used electronics books published in the last ten years. 400 pages.

B 2010 \$49.95



## Electronics for Model Railways Book 2 (Talking Electronics)

This simple easy to read and understand book presents various project for uses in model railways including level crossing lights, station signals, relay module, walk around throttle etc. A total of 16 projects.

B 1526 \$3.80



## Everyday Electronics Data Book

An invaluable source of information of everyday relevance in electronics. Deals with the essential theory of electronic circuits and a wide range of practical electronic applications, from power supplies to micro-computer systems. Ideal for the hobbyist, student, technician and engineer. 200 pages.

B 2300 \$19.95



## Learning Electronics Book 1 Talking Electronics

A very simple introduction to the exciting world of electronics. Written in an easy to understand manner, this book would suit any beginner into electronics. Included are 20 projects to implement as you learn.

B 1510 \$3.50



## Talking Electronics 14

Build a continuity tester, crystal oscillator, guitar practice amp. Transistor theory.

B 1536 \$2.20



## Security Devices

Projects include a spy bug, field strength meter, FM radio, 10 minute timer, light alarm, phone alert, motor speed controller, pen bug.

B 1539 \$3.40



## Constructional Project Books

- |        |                              |        |
|--------|------------------------------|--------|
| B 1600 | Radio Experimenters Handbook | \$4.95 |
| B 1601 | Op-Amps Explained            | \$4.95 |
| B 1602 | Project Electronics Vol 1    | \$4.95 |
| B 1603 | Project Electronics Vol 2    | \$4.95 |
| B 1604 | Project Electronics Vol 3    | \$4.95 |
| B 1605 | Popular Audio Projects       | \$4.95 |
| B 1606 | Top Projects Vol 1           | \$4.95 |
| B 1607 | Test Gear Vol 4              | \$4.95 |

### Electronic Power Supply Handbook

• Covers many types of supplies - batteries, simple AC supplies, switchmode supplies and inverters • Includes stabilisation and regulators • Explains operating principles and gives typical circuits • For technicians, students and enthusiasts. This book covers the often neglected topic of electronic power supplies. All types of supplies that are used for electronic purposes are covered in detail, starting with cells and batteries and extending by way of rectified supplies and linear stabilisers to modern switch-mode systems, IC switch-mode regulators, DC-DC converters and inverters. The devices, their operating principals and typical circuits are all dealt with in detail. The action of rectifiers and the reservoir capacitor is emphasised, and the subject of stabilisation is covered.

B 2282 \$17.95



### Introducing Digital Audio: CD, DAT and Sampling

• For enthusiasts, technicians and students • Covers CD and DAT • Digital techniques explained non-mathematically. Digital audio involves methods and circuits that are totally alien to the technician or keen amateur who has previously worked with audio circuits. This book is intended to bridge the gap of understanding for the technician and enthusiast. The principles and methods will be explained, but the mathematical background and theory will be avoided other than to state the end product. 112 pages.

B 2270 \$13.95



### Digital Logic Gates and Flip-Flops

What they do and how to use them. For electronics technicians, students and enthusiasts • Thorough treatment of gates and flip-flops • An aid to the design and troubleshooting of digital circuits • Only a basic knowledge of electronics required. This book seeks to establish a firm foundation in digital electronics by treating the topics of gates and flip-flops thoroughly and from the beginning. It is for the user who wants to design and troubleshoot digital circuitry with considerably more understanding of principles than the constructor, and who wants to know more than a few rules of thumb about digital circuits. Topics such as Boolean Algebra and Karnaugh mapping are explained, demonstrated and used extensively. The book concludes with an explanation of microprocessor techniques as applied to digital logic. 104 pages.

B 2250 \$19.95



### Short Wave Frequency List

• For the shortwave listening enthusiast. • Handy pocket size reference book • Lists the world's short wave stations. Listening to the world is an absorbing and fascinating hobby enjoyed by many thousands of radio enthusiasts all over the world. This book will enable radio enthusiasts to locate and identify radio stations broadcasting from all corners of the globe. It lists the world's short wave stations transmitting on frequencies from 2260kHz to 21810kHz. Stations operating at 1KW or more are included in the list which gives the station output power, frequency and location. 96 pages.

B 2275 \$12.50



### Electronics — Build and Learn

Second Edition • Practical basic introduction for beginner and student combines theory with practice • Practical tests and experiments throughout • New chapter on logic circuits. The first chapter gives full constructional details of a circuit demonstrator unit that is used in subsequent chapters to introduce common electronic components - resistors, capacitors, transformers, diodes, transistors, thyristors, fets and op amps.

B 2265 \$13.95



### Practical Digital Electronics Handbook

For enthusiasts, technicians and students • Nine digital test gear projects • CMOS and TTL pinouts • Tables of reference data. The book introduces digital circuits, logic gates, bistables and timers, as well as microprocessors, memory and input/output devices, before looking at the RS-232C interface and the IEEE-488 and IEEE-1000 microprocessor buses. Nine constructional projects form a major feature of the book, and the practical emphasis is continued with appendices on test equipment and useful reference data. "A very useful book" — Elektor. "A useful low cost guide" — Radio and Electronics World. 208 pages.

B 2260 \$17.50



### Electronic Test Equipment Handbook

• For students, enthusiasts, technicians and engineers • Principles of operation described • Practical applications covered in most applications of electronics, test instruments are essential for checking the performance of a system or for diagnosing faults in operation, and so it is important for engineers and technicians to understand how the basic test instruments work and how they can be used. The book covers analogue and digital meters, bridges, oscilloscopes, signal generators, counters, timers and frequency measurement. 203 pages.

B 2281 \$19.95



# SWITCHES

# General Purpose Switches

## Sub Miniature Slide

DPDT. With plastic handle.  
 S 2010 .45¢ ea, 10up .40¢ ea  
**Mounting Screws To Suit**  
 S 2015 Pk 100 \$1.95



## Sub Miniature Slide

DPDT. With Aluminium handle.  
 S 2020 .60¢ ea, 10up .55¢ ea



## Miniature DP3T Slide

With Aluminium handle.  
 S 2030 .90¢ ea, 10up .80¢ ea



## Miniature DPDT Slide

With plastic handle.  
 S 2035 .80¢ ea, 10up .75¢ ea



## Miniature DP4T Slide

With plastic handle.  
 S 2040 \$1.10 ea, 10up \$1.00 ea



## PCB DPDT Slide

Pitch between pins 4.25mm.  
 Pitch between pin rows 3mm.  
 S 2060 .45¢ ea, 10up .40¢ ea



## Ultra Miniature DPDT PCB Slide

Pitch between pins 3mm. Pitch between pin rows 5mm.  
 S 2063 \$1.10 ea, 10up .95¢ ea



## Keyboard Type Switches

DPDT. PCB mount  
 S 1115 With LED \$3.45 ea, 10 up \$3.50 ea  
 S 1110 Without LED \$2.95 ea, 10 up \$2.50



## Micro Switch

3A at 250V AC contact rating. SPDT.  
 S 3250 \$2.55 ea, 10up \$2.15 ea



## Micro Switch

SPDT. With push button actuator.  
 S 3255 \$5.50 ea, 10up \$5.00 ea



## McMurdo Rocker Switch

DPDT. Illuminated red. 250V Neon lamp in-built. Contact rating 15A at 250V AC. Panel cutout 27 x 22mm. "Snap in" mounting.  
 S 3240 \$5.50 ea, 10up \$4.95 ea



## Miniature Rocker Switch

With indicator dot. 6A at 250V AC contact rating. Panel cutout required 19 x 13mm. Two types available.  
 S 3210 SPST \$1.00 ea, 10up .90¢ ea  
 S 3215 SPDT \$2.20 ea, 10up \$1.95 ea



## Miniature SPST Rocker with LED Indicator

Black finish. Red LED. 19 x 13mm panel cutout. Snap in mounting. Contact rating 2A at 250V AC.  
 S 3220 \$2.40 ea, 10up \$2.25 ea



## Illuminated Rocker Switch

Red 250V AC Neon. DPST. 6A at 250V AC contact rating. Panel Cutout 19 x 13mm.  
 S 3217 \$2.40 ea, 10up \$2.15 ea



## Heavy Duty Illuminated DPDT Rocker

Illuminated red 250V AC Neon lamp. Snap in fit. Panel cutout 30 x 22mm. Contact rating 15A at 250V AC.  
 S 3242 \$3.00 ea, 10 up \$2.70 ea



## Heavy Duty DPDT Rocker

Similar to S 3242 but not illuminated. Black finish. Snap in fit. Panel cutout 30 x 22mm. Contact rating 15A at 250V AC.  
 S 3245 \$2.80 ea, 10up \$2.50 ea



## Square Push Button

3A at 250V AC. SPST. 12.5mm mounting hole.  
 S 1080 Red Momentary \$1.95 ea, 10 up \$1.75 ea  
 S 1081 Black Momentary \$1.95 ea, 10 up \$1.75 ea  
 S 1090 Black Alternate Action \$1.80 ea, 10 up \$1.60



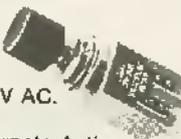
## Miniature Push Button

3A at 125V AC rating. Momentary. SPST. 6mm Mounting Hole.  
 S 1060 N.O. .85¢ ea, 10 up .75¢ ea  
 S 1070 N.C. \$1.00 ea, 10 up .95¢ ea



## DPDT Push Button

1.5A at 250V AC. DPDT.  
 S 1091 Alternate Action \$4.95 ea, 10 up \$4.50 ea  
 S 1092 Momentary \$5.95 ea, 10 up \$5.45 ea



## Lamp Switches

2.5 Amps at 250V AC contact ratings.  
 S 1075 SPST \$1.20 ea, 10up \$1.10 ea  
 S 1076 DPDT \$1.75 ea, 10up \$1.60 ea



## Snap Action Switches

Ultra Long Life Design. SPST.  
 S 1094 Grey  
 S 1095 Red  
 S 1096 Black  
 S 1097 Yellow  
 S 1098 Green  
 S 1099 White  
 All .85¢ ea, 10 up .80¢ ea



## Membrane Switches

PCB Mount. SPST.  
 S 1120 6mm .55¢ ea, 10 up 50¢ ea  
 S 1125 12mm .75¢ ea, 10 up 70¢ ea



## PCB Mount Push Buttons

DPDT. Alternate action.  
 S 1410 Single .75¢ ea, 10 up .70¢ ea  
 S 1430 Bank of 6 \$6.95 ea, 10 up \$6.45 ea



**KNOB TO SUIT**  
 H 6610 White  
 H 6620 Grey  
 H 6630 Black  
 H 6640 Red  
 .35¢ ea, 10 up .30¢ ea



# General Purpose Switches

# SWITCHES

## Economy Mini Toggle

3A at 250V AC.  
Solder tag connections.

- S 1010 SPDT \$1.90 ea, 10 up \$1.70 ea
- S 1020 DPDT \$2.50 ea, 10 up \$2.25 ea



## 15 Amp Toggle Switch

- 15A at 250V AC.
- S 1057 SPST \$2.70 ea, 10 up \$2.50 ea
- S 1058 DPDT \$7.50 ea, 10 up \$6.75 ea



## Standard Toggle

3A at 125V AC.  
With On-Off plate.

- S 1040 SPST \$1.75 ea, 10 up \$1.50 ea
- S 1050 DPDT \$2.30 ea, 10 up \$2.10 ea



## Heavy Duty Toggle DPDT Centre Off

5A at 250V AC.  
With On-Off-On plate. Locks on in both directions.

- S 1055 \$3.55 ea, 10 up \$2.95



### NEW FOR '92

## HIGH GRADE TOGGLE SWITCHES

### Standard Solder Tail Type



- |                                    | ea     | 10up   |
|------------------------------------|--------|--------|
| S 1310 SPDT                        | \$1.80 | \$1.65 |
| S 1330 SPDT Centre off             | \$2.00 | \$1.80 |
| S 1340 SPDT Centre Off. Mom + Lock | \$2.30 | \$2.10 |
| S 1345 DPDT                        | \$2.40 | \$2.15 |
| S 1365 DPDT Centre Off             | \$2.80 | \$2.50 |
| S 1375 DPDT Centre Off, Mom + Lock | \$2.95 | \$2.70 |
| S 1385 4PDT                        | \$6.80 | \$6.20 |
| S 1390 4PDT Centre Off             | \$7.45 | \$6.70 |
| S 1391 SPDT Mom. Push Button       | \$4.30 | \$3.90 |
| S 1392 DPDT Mom. Push Button       | \$5.75 | \$5.15 |

### Straight Terminal PCB Mount Type



- |                                    | ea     | 10up   |
|------------------------------------|--------|--------|
| S 1315 SPDT                        | \$1.80 | \$1.65 |
| S 1342 SPDT Centre Off, Mom + Lock | \$2.95 | \$2.70 |
| S 1350 DPDT                        | \$2.40 | \$2.15 |
| S 1380 DPDT Centre Off, Mom + Lock | \$3.85 | \$3.45 |
| S 1393 SPDT Mom. Push Button       | \$4.30 | \$3.90 |
| S 1394 DPDT Mom. Push Button       | \$5.75 | \$5.15 |

### 90° Terminal PCB Mount Type



- |                              | ea     | 10up   |
|------------------------------|--------|--------|
| S 1320 SPDT                  | \$2.70 | \$2.45 |
| S 1335 SPDT Centre Off       | \$2.90 | \$2.60 |
| S 1355 DPDT                  | \$3.25 | \$2.95 |
| S 1370 DPDT Centre Off       | \$3.55 | \$3.20 |
| S 1395 SPDT Mom. Push Button | \$5.00 | \$4.55 |
| S 1396 DPDT Mom. Push Button | \$7.20 | \$6.45 |

### Horizontal Lever Action Type



- |             | ea     | 10up   |
|-------------|--------|--------|
| S 1325 SPDT | \$2.50 | \$2.25 |
| S 1360 DPDT | \$3.10 | \$2.75 |

## Pin Switches

Similar to car courtesy light switches. Suits car alarms etc. Two sizes available.

- S 5145 52mm .95¢ ea, 10up .90¢ ea
- S 5147 65mm \$1.10 ea, 10up .95¢ ea

## Mercury Switch



- S 3070 \$1.95 ea, 10up \$1.80 ea

## Pressure Mat

Ultra thin switch mat for under carpet or mat etc.

- S 5184 \$29.95

## Tamper Switch

SPST. As used in alarm panels, siren covers etc. Contacts closed when plunger is pressed in. Requires 19mm mounting hole. Press in fit.

- S 5160 \$1.85 ea, 10up \$1.65 ea

## SPDT Standard Type Reed Switch



Surface mount. SPDT for N.O. and N.C. applications. Includes matching magnet.

- S 5153 \$7.95 ea, 10up \$7.50 ea

## Cancelled Reed Switch



Contacts close with magnet. Includes matching magnet.

- S 5152 \$6.95 ea, 10up \$6.45 ea

## Mini Reed Switch

Contacts close with magnet. Fits inside S 5151 coil.

- S 5150 \$1.30 ea, 10up \$1.20 ea

## Reed Coil

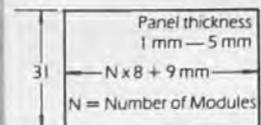
Suits S 5150 reed switch.

- S 5151 \$1.15 ea, 10up \$1.05 ea

## BCD 0-9 Thumbwheel Switch

Panel Mount BCD coded units that simply slot together to produce switches of your required size. Each unit is engraved 0-9 (white on black). Output is coded in BCD with 8-4-2-1 weighting. Body and wheel made of Duracon resin. PCB's are gold plated copper on epoxy fibreglass. Continuous load 1A max. Panel cutout for one unit 16mm x 30mm. Allow further 8mm per extra unit.

- S 3300 \$6.95 ea, 10 up \$6.50 ea
- S 3305 End Caps To Suit \$1.75 pair, 10 up \$1.60 pair



## Telephone Type Keyboard

3 x 4 way matrix. As used with DTMF telephones and some security applications. **Specifications:** Contact Conductive rubber. Rating DC 24V 5mA Contact Resistance 200 Ohms Max. Withstand Voltage 250V AC Bounce 5m sec max

- S 5380 \$7.45 ea, 10 up \$7.15 ea



PHONEORDER TOLL FREE 008 999 007. ALTRONIC COMPONENTS

# SWITCHES

## General Purpose Switches

### Sealed PCB Mount Rotary Switches

Silver plated contacts and terminals. Features an ability to set the number of stops to suit your own requirements.

\$3.45 ea, 10 up \$2.95 ea



- S 3021 Configure from 1 pole 2 position, to 1 pole 12 position
- S 3022 Configure from 2 pole 2 position, to 2 pole 6 position.
- S 3024 Configure from 4 pole 2 position, to 4 pole 3 position.
- S 3025 Configure from 3 pole 2 position, to 3 pole 4 position.

### Rotary Wafer Switches



6.3mm (1/4") by 32mm plain shafts.

	Pos	Pole
S 3002	2	6
S 3003	3	4
S 3004	4	3
S 3005	5	2
S 3006	6	2
S 3012	12	1

All \$2.65 ea, 10 up \$2.40 ea

### DIP Switches

Gold Plated Self Wiping Contacts

- S 3045 2 Way \$1.95 ea, 10 up \$1.75 ea
- S 3050 4 Way \$2.15 ea, 10 up \$2.00 ea
- S 3055 6 Way \$2.25 ea, 10 up \$2.05 ea



- S 3060 8 Way \$2.50 ea, 10 up \$2.25 ea
- S 3065 10 Way \$3.25 ea, 10 up \$2.95 ea

### Key Operated Switches

All switches contain silver plated contacts and terminals, and are rated at 3 Amps at 250V AC unless otherwise noted. Each is supplied with two keys. See security section for dimensions.

#### Two Position

Key removable in both positions.

- S 2500 SPST \$6.95 ea, 10up \$8.40 ea
- S 2501 SPDT \$9.95 ea, 10up \$9.25 ea
- S 2512 Blank Key to Suit \$1.20

#### 4PDT Two Position with Weather Guard

300V at 5 Amp contacts. Key removable in both positions.

- S 2510 \$12.95 ea, 10up \$12.15 ea
- S 2512 Blank Key to Suit \$1.20

#### SPST Tubular Style Two Position

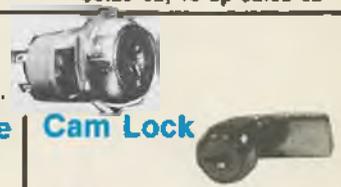
Key removable in both positions.

- S 2515 \$9.95 ea, 10up \$9.10 ea
- S 2518 Blank Key to Suit \$2.95

#### Cam Lock

Key removable in either position.

- S 2550 \$4.95 ea, 10up \$4.75 ea
- S 2552 Blank Key to Suit \$1.20



#### DPDT Two Position

Key Removable in Position One Only.

- S 2502 \$10.95 ea, 10up \$9.95 ea
- S 2513 Blank Key to Suit \$1.20

#### DPDT Two Position

Key Removable in Either Position.

- S 2504 \$9.95 ea, 10up \$9.45 ea
- S 2513 Blank Key To Suit \$1.20



2 Pos Type	Pole 1 Makes to:	Pole 2 Makes to:
Pos. 1	8, 1	4, 5
Pos. 2	1, 3	5, 7

#### Two Pole Three Position

Key removable in centre position only.

- S 2506 \$10.95 ea, 10up \$9.95 ea
- S 2513 Blank Key To Suit \$1.20

#### Two Pole Three Position

Key removable in all positions.

- S 2508 \$10.95 ea, 10up \$9.95 ea
- S 2513 Blank Key To Suit \$1.20

3 Pos Type	Pole 1 Makes to:	Pole 2 Makes to:
Pos. 1	3, 4	7, 8
Pos. 2	4, 5	8, 1
Pos. 3	5, 6	1, 2



### Professional Switches for Industry. All Listed by Underwriters Laboratory USA

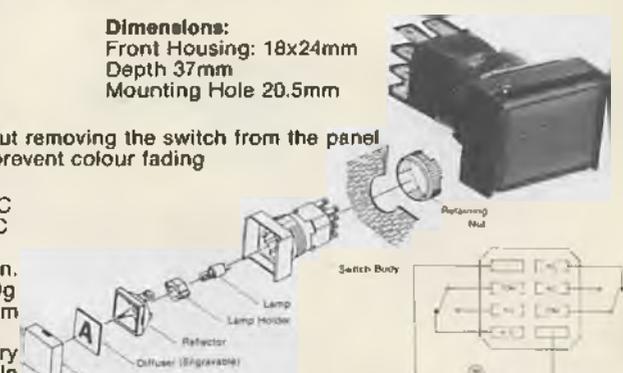
These professional quality illuminated Switches are available in a wide range of combinations. You simply select the body style, lamp voltage and lens colour of your choice.

- Snap action ensures soft touch switching
- Available in momentary, alternate action and display only types
- Switch terminals can be soldered or crimp-connector terminated
- No tools required for maintenance. Lamps can be changed without removing the switch from the panel
- The lenses are moulded from UL 94V-0 Anti-ultra violet resin to prevent colour fading

#### Specifications:

- Rated Current/Voltage:..... 3A/250V AC
- Insulation Resistance:..... 100M Ohm/500V DC
- Dielectric Strength:..... Between Switch Terminal AC 1000V 1 Min.
- Between Switch Terminal and Lamp Terminal AC 1500V 1 Min.
- Operating Force:..... 300-350g
- Stroke:..... 3mm
- Service Life:..... Electrical 3A/250V AC 50,000 operations Min
- 1A/250V AC 100,000 operations Min. Mechanical Momentary 1,000,000 operations Min. Alternate 100,000 operations Min

Dimensions:  
Front Housing: 18x24mm  
Depth 37mm  
Mounting Hole 20.5mm



#### Momentary Switches:

- S 1510 Red All \$16.00 ea,
- S 1512 Green 10up \$15.00 ea
- S 1514 Yellow
- S 1516 White

#### Alternate On/Off Switches:

- S 1530 Red All \$16.00 ea,
- S 1532 Green 10up \$15.00 ea
- S 1534 Yellow
- S 1536 White

#### Illuminated Display Only:

- S 1550 Red All \$7.95 ea,
- S 1552 Green 10up \$7.25 ea
- S 1554 Yellow
- S 1556 White

#### Replacement Lamps:

- S 1580 12V
- S 1585 24V \$2.55 ea, 10up \$2.30 ea



#### Safety Cover to Suit:

- S 1595 \$3.95 ea, 10up \$3.50 ea



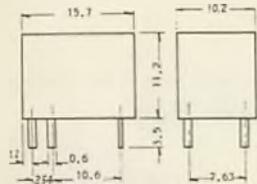
**ALTRONIC COMPONENTS** • PHONEORDER TOLL FREE 008 999 007

## Micro PCB Relay

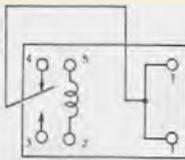
11.2mm(H) x 15.7mm(W) x 10.2mm(D). SPDT. 12V DC coil. 1A contact rating  
**\$ 4140 \$2.50 ea, 10 up \$2.25 ea**



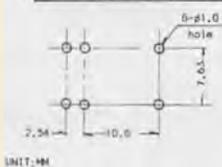
OUTLINE DIMENSION



WIRING DIAGRAMS  
(Bottom View)



P. C. BOARD DIAGRAM



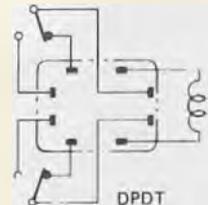
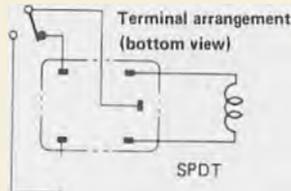
## Economy PCB Relays

14mm(H) x 20mm(W) x 12mm(D). 12V DC coil. 3 Amp Contact rating.

**\$ 4155 SPDT \$2.50 ea, 10 up \$2.25 ea**

**\$ 4165 DPDT \$3.95 ea, 10 up \$3.70 ea**

**\$ 4160 SPDT 5 Amp Contacts \$2.70 ea, 10 up \$3.15 ea**

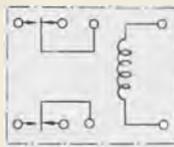


## Micro PCB Relay

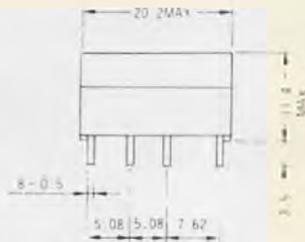
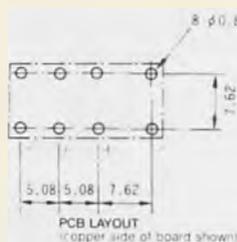
Pinout compatible with Siemens, NEC, Fujitsu. High grade sealed construction. 11mm(H) x 20.3mm(W) x 10mm(D). DPDT. 1A contact rating

**\$ 4150 12V DC Coil \$4.95 ea, 10 up \$4.65 ea**

**\$ 4152 24V DC Coil \$4.95 ea, 10 up \$4.65 ea**



WIRING DIAGRAM



## Miniature Power Relays

High quality. Strong sealed construction. 10A contact rating at 120V AC. SPDT.

**\$ 4202 12V DC Coil**

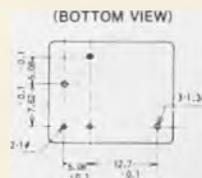
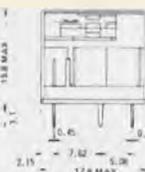
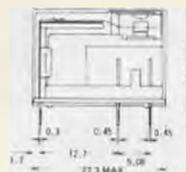
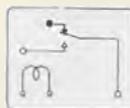
**\$ 4204 24V DC Coil**

**\$ 4206 48V DC Coil**

**All \$4.95 ea, 10 up \$4.65 ea**



(BOTTOM VIEW)



## PCB Relays

PCB mount. All low profile 25mm(H). 5A contact rating at 240V AC.

### SPDT

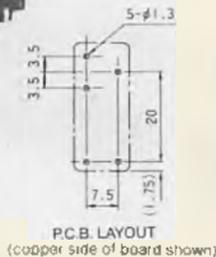
**\$ 4170 12V DC Coil \$5.00 ea, 10 up \$4.50 ea**

**\$ 4180 12V DC Coil 10A Contacts \$5.50 ea, 10 up \$5.10 ea**

**\$ 4175 24V DC Coil \$5.00 ea, 10 up \$4.50 ea**



WIRING DIAGRAM



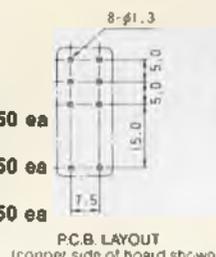
**\$ 4170, \$ 4175, \$ 4180**

### DPDT

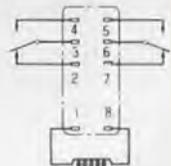
**\$ 4185 6V DC Coil \$5.95 ea, 10 up \$5.50 ea**

**\$ 4190 12V DC Coil \$5.95 ea, 10 up \$5.50 ea**

**\$ 4195 24V DC Coil \$5.95 ea, 10 up \$5.50 ea**



P.C.B. LAYOUT  
(copper side of board shown)



WIRING DIAGRAM

**\$ 4185, \$ 4190, \$ 4195**

## Cradle Relays

Pinout compatible with ITT and Siemens high sensitivity, high reliability, gold flashed contacts. Operate time 15 ms (max) release time 10 ms (max). Insulation resistance 100M. Ohm at 500V DC. Dielectric Strength 1000V AC (1 min).

	Coil Voltage	Coil Resistance	Contact Set	Contact Current Max.	Contact Power Max.	ea	10 up
S 4220	12	325	DPDT	2A	120VA	\$9.60	\$8.80
S 4225	24	1600	DPDT	2A	120VA	\$9.60	\$8.80
S 4230	12	170	4PDT	1A	60VA	\$12.50	\$11.00
S 4235	24	700	4PDT	1A	60VA	\$12.50	\$11.00

### Sockets To Suit

Includes Retaining Clip

S 4240 To Suit S 4220 & S 4225 \$2.40 ea, 10 up \$2.20  
S 4242 To Suit S 4230 & S 4235 \$2.40 ea, 10 up \$2.20 ea



### Australian Telephone Wall Socket (610W)

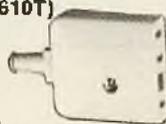
Telecom approved



P 0988 \$5.50 ea, 10up \$4.95 ea

### Australian Telephone Line Socket (610T)

Telecom approved



P 0987 \$4.35 ea, 10up \$3.95 ea

### Australian Telephone Plug (605A)

Telecom approved



P 0985 \$3.75 ea, 10up \$3.35 ea

### Mains Plug



P 8210 \$2.70 ea, 10up \$2.50

### Modular Telephone Plugs and Sockets

PCB Mount Sockets

	ea	10up
P 1402 4 Way/4 Wire	\$1.95	\$1.85
P 1405 6 Way/6 Wire	\$2.75	\$2.65
P 1408 8 Way/8 Wire	\$3.85	\$3.75



### Extension Lead Socket

P 8230 \$5.95 ea, 10up \$5.70



### Mains Plug Clear

NEW FOR '92

P 8215 \$2.70 ea, 10up \$2.50



### Crimp Type Plugs

	ea	10up
P 1412 4 Way/4 Wire	.55	.50
P 1414 6 Way/4 Wire	.55	.50
P 1415 6 Way/6 Wire	.65	.60
P 1418 8 Way/8 Wire	\$1.50	\$1.35



See Wire & Cables Section for Cable to Suit. Also Tools Section for Crimping Tool.

### IEC Chassis Mount Socket With Fuse Holder

Holds M205 type fuse, and a spare.  
P 8324 \$4.50 ea, 10up \$4.10 ea



### IEC Line Socket

P 8310 \$1.95 ea, 10up \$1.75 ea



### Car Cigarette Lighter Plugs and Socket

P 0155 Line Socket \$1.95 ea, 10up \$1.75 ea  
P 0158 Line Plug with Fuse 1.95 ea, 10up 1.75 ea  
P 0160 Line Plug .95 ea, 10up .85 ea



### IEC Chassis Mount Socket

P 8320 \$2.95 ea, 10up \$2.65 ea



### IEC Line Plug

P 8328 \$9.95 ea, 10up \$9.50 ea



### DC Jacks

	ea	10up
P 0223 Socket 2.1mm Pin Chassis Mount	.75	.70
P 0224 Socket 2.5mm Pin Chassis Mount	.75	.70
P 0134 Plug 2.1mm Pin Line	.75	.70
P 0135 Plug 2.5mm Pin Line	.75	.70
P 0217 PCB Socket 2.1mm	.60	.55
P 0218 Socket 2.1mm Pin Chassis Mount	\$2.25	\$2.00
P 0219 Socket 2.5mm Pin Chassis Mount	\$2.25	\$2.00



NEW IN '92



### IDC DIL Plug Headers

	ea	10up
P 4200 14 Pin	\$2.45	\$1.95
P 4210 16 Pin	\$2.65	\$2.30
P 4220 24 Pin	\$3.95	\$3.70
P 4225 28 Pin	\$4.50	\$4.10
P 4230 40 Pin	\$6.50	\$5.95

## D SERIES COMPUTER CONNECTORS

All Connectors Gold Plated

### Standard Straight Pins

	ea	10up
P 3000 9 Pin Male	\$2.95	\$2.70
P 3010 9 Pin Female	\$3.25	\$2.95
P 3100 15 Pin Male	\$3.25	\$2.75
P 3110 15 Pin Female	\$3.25	\$2.75
P 3200 25 Pin Male	\$4.95	\$4.40
P 3210 25 Pin Female	\$5.50	\$4.95



### Back Shell Covers to Suit

	ea	10up
P 3090 9 Pin	\$1.95	\$1.80
P 3190 15 Pin	\$2.20	\$1.90
P 3290 25 Pin	\$2.50	\$2.20



### Right Angle PCB Mount

	ea	10up
P 3020 9 Pin Male	\$3.75	\$3.50
P 3030 9 Pin Female	\$2.50	\$2.25
P 3120 15 Pin Male	\$4.35	\$4.10
P 3130 15 Pin Female	\$5.50	\$4.60
P 3220 25 Pin Male	\$4.95	\$4.50
P 3230 25 Pin Female	\$6.90	\$6.50



### Straight Pins PCB Mount

	ea	10up
P 3040 9 Pin Male	\$2.95	\$2.75
P 3050 9 Pin Female	\$3.95	\$3.60
P 3140 15 Pin Male	\$5.50	\$4.60
P 3150 15 Pin Female	\$2.95	\$2.90
P 3240 25 Pin Male	\$4.95	\$4.50
P 3250 25 Pin Female	\$6.25	\$5.70



### Spacer Screw Packs

	ea
P 3310 Pack 10	\$4.95
P 3312 Pack 100	\$39.95

## Din 41612 2 PART 'C BODY' EDGE CONNECTORS

Moulded glass-filled polyester connectors to Din 41612 with gold-finished contacts for making up to 32, 64, or 96 individual connections to PCB's. The plug moulding houses single piece 90° angled pins on a 0.1 in pitch between rows, allowing horizontal mounting on Eurocards whilst the mating sockets have flow solder (4mm) spills. 64-way AC plugs and sockets are 96-way shells without the centre row of contacts. Individual polarisation between plug and socket pairs is obtained by moulded polarising tabs.

### Technical Specifications

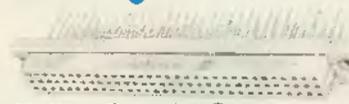
Base of foot to row B. Centre line typical 3.5mm  
**Proof Voltage:** 1000V DC min  
**Max. Current Per Contact:** 1.5A  
**Contact Resistance:** 15m Ohm max  
**Insulation Resistance:** 10<sup>12</sup> Ohm min  
**Temperature Range:** 55°C to 125°C  
**Insertion Force per way:** 95g  
**Extraction Force per way:** 95g

### Right Angle PCB Mount



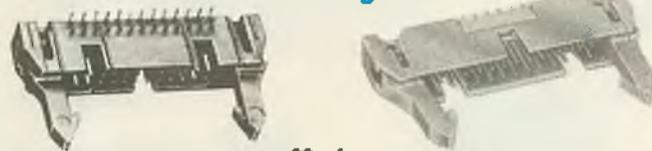
	ea	10up
P 4832 32 Way - Rows A + C	\$2.40	\$2.20
P 4864 64 Way - Rows A + C	\$2.40	\$2.20
P 4896 96 Way - Rows A, B + C	\$3.25	\$2.95

### Sockets Straight Pins 4mm



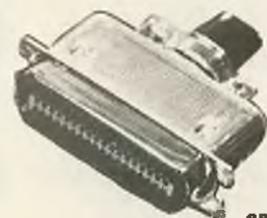
	ea	10up
P 4932 32 Way - Rows A + C	\$3.15	\$2.85
P 4964 64 Way - Rows A + C	\$3.15	\$2.85
P 4996 96 Way - Rows A, B + C	\$4.35	\$3.95

### PCB Mounting Headers



90 Degree Type		Straight Type	
	ea	ea	10up
P 5210 10 Pin	.90	P 5110 10 Pin	.70 .60
P 5216 16 Pin	\$1.10	P 5116 16 Pin	\$1.05 .95
P 5220 20 Pin	\$1.25	P 5120 20 Pin	\$1.20 \$1.05
P 5226 26 Pin	\$1.70	P 5126 26 Pin	\$1.45 \$1.30
P 5234 34 Pin	\$2.10	P 5134 34 Pin	\$1.75 \$1.60
P 5250 50 Pin	\$2.90	P 5150 50 Pin	\$2.50 \$2.30

### 36 Way Centronics Plug



	ea	10up
P 0770 Solder type	\$9.95	\$8.95
P 0772 IDC Cable Type Male	\$9.95	\$8.95
P 0774 IDC Cable Type Female	\$10.95	\$9.95

### Cable Mounting Socket

With Strain Relief



	ea	10up
P 5310 10 Pin	\$1.95	\$1.75
P 5316 16 Pin	\$2.25	\$2.00
P 5320 20 Pin	\$2.50	\$2.25
P 5326 26 Pin	\$3.95	\$3.75
P 5334 34 Pin	\$4.50	\$4.20
P 5350 50 Pin	\$4.95	\$4.50

### PCB Mounting Headers



	ea	10up
P 5010 10 Pin	.50	.45
P 5016 16 Pin	.85	.80
P 5020 20 Pin	.85	.80
P 5026 26 Pin	\$1.10	\$1.00
P 5034 34 Pin	\$1.25	\$1.15
P 5050 50 Pin	\$1.65	\$1.50
P 5051 50 Pin 90°	\$1.95	\$1.75

### IDC "D" Range Connectors



	ea	10up
P 4140 25 Pin Male	\$3.50	\$3.15
P 4150 25 Pin Female	\$3.50	\$3.15

# CONNECTORS

# RF & Audio Connectors

## PL259 Connectors

P 0508 Fem/Fem Coupler  
\$2.50 ea, 10up \$2.10 ea



P 0509 Socket Square.  
Chassis mount.  
\$1.75 ea, 10up \$1.55 ea



P 0510 Socket Round.  
Chassis mount  
\$2.40 ea, 10up \$2.20 ea



P 0502 Plug. Suits  
RG58 Coax.  
\$2.15 ea, 10up \$2.95 ea



P 0503 Plug. Suits  
RG8 Coax  
\$1.95 ea, 10up \$1.75 ea



P 0504 Reducer (For P 0503  
when using RG58)  
.65 ea, 10up .60 ea



## BNC Plugs & Sockets

P 0514 Plug (Solder type)  
\$2.50 ea, 10up \$2.30



P 0520 Plug (Crimp type)  
\$2.15 ea, 10up \$1.95 ea



P 0515 Socket Square  
Chassis Mount  
\$2.60 ea, 10up \$2.40 ea



P 0516 Socket Round  
Chassis Mount  
\$2.70 ea, 10up \$2.50 ea



P 0518 Socket Round  
Chassis Mount  
(Insulated)  
\$3.95 ea, 10up \$3.45 ea



P 0519 Socket  
PCB Mount  
\$5.95 ea, 10up \$5.70 ea



## Scart Plug

P 0522 21 Pin  
\$3.95 ea, 10up \$3.60 ea



## 75 Ohm Pal Connectors

P 0227 Metal Plug  
\$1.80 ea, 10up \$1.60

P 0228 Plastic Plug  
.95 ea, 10up .85

P 0230 Line Socket  
\$1.65 ea, 10up \$1.45



P 0229 Chassis Mount  
Socket  
.95 ea, 10up .85 ea



## BNC-PL259-RCA Adaptors

P 0378 Male BNC To  
Female PL259  
\$3.95 ea, 10up \$3.60 ea



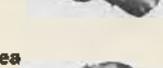
P 0380 Male PL259 To  
Female BNC  
\$4.50 ea, 10up \$4.10 ea



P 0385 Male BNC To  
Female RCA  
\$1.75 ea, 10up \$1.60 ea



P 0390 Male BNC To  
Female RCA  
\$5.25 ea, 10up \$4.75 ea



P 0392 3 Way 'T'  
All BNC Females  
\$4.50 ea, 10up \$4.25 ea



P 0394 3 Way 'T'  
One Male BNC To  
Two Female BNC  
\$6.95 ea, 10up \$6.50 ea



## Spring Lever Speaker Terminals

P 2010 2 Way  
Rectangular \$1.65 ea,  
10up \$1.55 ea



P 2012 4 Way  
Rectangular \$2.45 ea,  
10up \$2.15 ea



P 2011 2 Way  
Round 75mm Diam.  
\$2.95 ea,  
10up \$2.75 ea



## Panel Mount Screw Terminals

P 2020 2 way  
\$1.30 ea, 10up \$1.15

P 2022 4 way  
\$3.50 ea, 10up \$3.35 ea



## Car Antenna Plug & Socket

P 0185 Plug  
\$.80 ea, 10up \$.75

P 0236 Socket  
.85 ea, 10up .80



## RCA Connectors

P 0200 Plug Red  
P 0201 Plug Black  
.50¢ ea, 10up .45¢ ea



P 0215 Socket Red  
P 0216 Socket Black  
.50¢ ea, 10up .45¢ ea



P 0203 Socket  
Chassis Mount  
.85¢ ea, 10up .75¢



P 0208 Socket  
PCB Mount  
.95¢ ea, 10up .90¢ ea



## Panel Mount RCA Sockets

P 0205 2 Way  
\$.75 ea, 10up \$.70

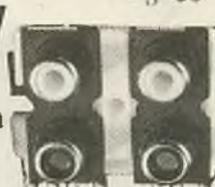
P 0206 4 Way  
\$1.30 ea, 10up \$1.20



**NEW IN '92**  
P 0210 1 x 2 Way  
PCB Mount  
\$1.20 ea, 10up \$1.10 ea



**NEW IN '92**  
P 0211 2 x 2 Way  
PCB Mount  
\$2.60 ea,  
10up \$2.45 ea



P 0213 3 x 2 Way  
PCB Mount  
\$3.50 ea,  
10up \$3.35 ea



## 2.5, 3.5 & 6.35mm Plugs & Sockets

		ea	10up
P 0020	2.5mm Plug Mono	.55	.50
P 0026	3.5mm Plug Red Mono	.60	.55
P 0028	3.5mm Plug Black Mono	.60	.55
P 0030	3.5mm Plug Black Stereo	.95	.90



		ea	10up
0040	6.35mm Plug Black Mono	.90	.95
0044	6.35mm Plug Black Stereo	\$1.20	\$1.10
0050	6.35mm Plug Metal Mono	\$1.40	\$1.30
0055	6.35mm Plug Metal Stereo	\$1.80	\$1.75



		ea	10up
P 0042	6.35mm Plug Right Angle Mono	\$1.60	\$1.40
P 0046	6.35mm Plug Right Angle Stereo	\$1.90	\$1.70



		ea	10up
0082	3.5mm Socket Line Mono	.90	.80
0084	3.5mm Socket Line Stereo	.95	.85
0078	6.35mm Socket Line Mono	\$1.15	\$1.00
0080	6.35mm Socket Line Stereo	\$1.35	\$1.25



		ea	10up
0088	2.5mm Socket Chassis Mount Mono SPST Switched	.55	.50
0090	3.5mm Socket Chassis Mount Mono SPST Switched	.55	.50
0092	3.5mm Socket Chassis Mount Stereo DPDT Switched	.85	.75



		ea	10up
0065	6.35mm Socket Chassis Mount Mono SPST Switched	\$1.90	\$1.70
0068	6.35mm Socket Chassis Mount Stereo	\$1.90	\$1.70
0072	6.35mm Socket Chassis Mount Stereo DPDT Switched	\$1.95	\$1.75



		ea	10up
0074	6.35mm Socket Chassis Mount Stereo DPDT Switched Insulated from chassis	\$2.50	\$2.25
0075	6.35mm Socket Chassis Mount Stereo 3PST Switched Insulated from chassis	\$1.95	\$1.75



		ea	10up
0076	6.35mm Socket Chassis Mount Stereo PCB Mount DPDT Switched Insulated from chassis	\$2.30	\$2.10



## Plug Adaptors

	Plug	Socket	ea	10up
P 0300	6.35mm Stereo	3.5mm Stereo	\$1.50	\$1.25
P 0310	6.35mm Stereo	3.5mm Mono	\$1.50	\$1.25
P 0320	3.5mm Stereo	6.35mm Stereo	\$1.50	\$1.25
P 0330	6.35mm Mono	3.5mm Mono	\$1.50	\$1.25
P 0340	3.5mm Stereo	3.5mm Mono	\$1.50	\$1.25
P 0350	3.5mm Mono	3.5mm Stereo	\$1.50	\$1.25
P 0360	3.5mm Mono	6.35mm Mono	\$1.50	\$1.25
P 0370	3.5mm Mono	6.35mm Mono	\$1.50	\$1.25
P 0372	1 x 3.5 Stereo	2 x RCA	\$2.45	\$2.20
P 0373	1 x RCA	2 x RCA	\$1.95	\$1.80
P 0374	1 x 6.3 Stereo	2 x RCA	\$2.75	\$2.50
P 0375	1 x 3.5 Stereo	2 x 3.5 Mono	\$3.50	\$3.15



## XLR Type

		ea	10up
P 0960	3 Pin Line Male	\$5.50	\$4.95
P 0964	3 Pin Line Female	\$6.95	\$6.45
P 0962	3 Pin Chassis Mount Male	\$4.95	\$4.45
P 0966	3 Pin Chassis Mount Female	\$6.50	\$5.90



## Din Line Plugs

		ea	10up
P 1120	2 Pin	.60	.55
P 1145	3 Pin 180°	.75	.70
P 1148	4 Pin 220°	.85	.80
P 1150	5 Pin 180°	.85	.80
P 1151	5 Pin 180° Metal	\$2.95	\$2.65
P 1152	5 Pin 240°	.85	.80
P 1156	6 Pin 240°	\$1.10	\$1.00
P 1159	7 Pin 270°	\$1.10	\$1.00
P 1162	8 Pin 270°	\$1.40	\$1.20
P 1154	5 Pin 180° Right Angle	\$3.45	\$2.95



## Din Line Sockets

		ea	10up
P 0222	2 Pin	.60	.55
P 0220	5 Pin 180°	\$1.20	\$1.10
P 0225	6 Pin 240°	\$1.10	\$1.00
P 0226	7 Pin 270°	\$1.10	\$1.00



## Din Chassis Mount Sockets

		ea	10up
P 0221	2 Pin	.60	.55
P 1170	3 Pin 180°	\$1.20	\$1.10
P 1175	4 Pin 220°	\$1.95	\$1.75
P 1178	5 Pin 180°	\$1.20	\$1.10
P 1180	6 Pin 240°	\$1.40	\$1.25
P 1182	7 Pin 270°	\$1.60	\$1.45
P 1184	8 Pin 270°	\$2.50	\$2.30



## PCB Mount Socket

		ea	10up
P 1188	5 Pin 180°	\$1.50	\$1.35



## Universal 5 Pin

		ea	10up
P 0186	Plug 240°	\$1.00	.90
P 0190	Socket 240°	\$1.00	.90



## Machined and Gold Plated IC Sockets



	ea	10up
P 0530 8 Pin	\$1.10	\$1.00
P 0532 14 Pin	\$1.45	\$1.35
P 0534 16 Pin	\$1.25	\$1.10
P 0536 18 Pin	\$1.80	\$1.70
P 0538 20 Pin	\$1.95	\$1.85
P 0540 24 Pin	\$2.45	\$2.30
P 0542 28 Pin	\$2.80	\$2.65
P 0544 40 Pin	\$3.25	\$3.00

## Tinned IC Sockets



	ea	10up
P 0550 8 Pin	.30	.25
P 0560 14 Pin	.40	.35
P 0565 16 Pin	.45	.40
P 0567 18 Pin	.45	.40
P 0568 20 Pin	.50	.45
P 0570 24 Pin	.65	.60
P 0572 28 Pin	.75	.50
P 0575 40 Pin	.95	.80

## PLCC Sockets (Plastic Leaded Chip Carrier)



NEW IN '92

	ea	10up
P 5528 28 Pin	\$1.75	\$1.55
P 5532 32 Pin	\$1.75	\$1.55
P 5544 44 Pin	\$1.90	\$1.70
P 5552 52 Pin	\$1.95	\$1.75
P 5568 68 Pin	\$2.35	\$2.15
P 5584 84 Pin	\$2.55	\$2.30

## Pin Headers



	ea	10up
P 5410 Straight 40 Pin Dual	.45	.40
P 5420 90° 40 Pin Dual	.85	.80
P 5430 Straight 40 Pin Single	.45	.40
P 5440 90° 40 Pin Single	.85	.80
P 5450 Pk 10 Open Cover Jumpers	\$1.60	\$1.40

## Thru Panel Barrier



	ea	10up
P 2074 4 way	\$2.45	\$2.20
P 2076 6 way	\$2.95	\$2.70
P 2078 8 way	\$4.25	\$3.75

## PCB Terminal Blocks 5mm Pin Pitch



	ea	10up
P 2032 2 way	.85	.75
P 2033 3 way	\$1.15	\$1.10
P 2042 45° 2 way	\$1.25	\$1.15
P 2043 45° 3 way	\$1.30	\$1.20
P 2062 90° 2 way	\$1.10	\$1.00
P 2063 90° 3 way	\$1.50	\$1.35

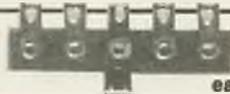
## 12 Way Terminal Blocks



240V Rated

	ea	10up
P 2100	\$2.45	\$2.00
P 2110 Wire Protect Type	\$4.05	\$3.65

## Tag Strips



	ea	10up
P 2203 3 way	.35	.30
P 2205 5 way	.40	.35
P 2209 9 way	.80	.75

## PCB Mount Screw Terminals



	ea	10up
P 2090 4 way	\$2.25	\$1.95
P 2092 6 way	\$2.95	\$2.45
P 2094 8 way	\$3.50	\$3.20
P 2098 10 way	\$4.20	\$3.80
P 2098 12 way	\$4.95	\$4.50

## Banana Type Cross Hole

With screw connection for wire termination.



	ea	10up
P 0274 Red	\$1.40	\$1.30
P 0276 Black	\$1.40	\$1.30

## Banana Type Stackable

With screw termination for wire connection.



	ea	10up
P 0282 Red	\$1.60	\$1.50
P 0284 Black	\$1.60	\$1.50

## Fork Type Cross Hole

With screw connection for wire termination. Accepts banana type plug.



	ea	10up
P 0287 Red	\$1.40	\$1.30
P 0289 Black	\$1.40	\$1.30

## Binding Posts

With 4mm Banana Socket.



	ea	10up
P 0238 Red	.80	.75
P 0240 Black	.90	.75

## Captive Head Binding Posts

With 4mm with Crosshole



	ea	10up
P 0250 Green	\$1.25	\$1.15
P 0252 Red	\$1.25	\$1.15
P 0254 Black	\$1.25	\$1.15
P 0256 White	\$1.25	\$1.15

## Banana Sockets



	ea	10up
P 0258 Red	.65	.60
P 0260 Black	.65	.60

## Insulated From Chassis Type



	ea	10up
P 0262 Red	\$1.35	.95
P 0264 Black	\$1.35	.95

## Multimeter Plug & Test Probes



	ea	10up
P 0165 Plug Red	.70	.65
P 0166 Plug Black	.70	.65
P 0167 Probe Red	.95	.85
P 0168 Probe Black	.95	.85
P 0268 Banana Plug Red	.95	.85
P 0270 Banana Plug Black	.95	.85

## Crocodile Clips



	ea	10up
<b>SMALL</b>		
P 0100 Red	.50	.45
P 0101 Black	.50	.45

	ea	10up
<b>MEDIUM</b>		
P 0110 Red	.55	.50
P 0111 Black	.55	.50



	ea	10up
<b>LARGE</b>		
P 0012 Red	\$1.65	\$1.40
P 0013 Black	\$1.65	\$1.40

## IC Test Clips

57mm overall length. With screw connection for wire termination.



	ea	10up
P 0180 Red	\$1.10	\$1.00
P 0181 Black	\$1.10	\$1.00

Probe type IC Test clips which slip on to the end of meter leads. (Not suitable for banana type plugs).

P 0182 Red	\$1.20	\$1.00
P 0183 Black	\$1.20	\$1.00

# Hookup, RF, Audio & Telephone Cable

# CABLE

## Light Duty Hookup

Single conductor. 7/.16mm.

- W 0250 Red    W 0254 Yellow
- W 0251 Black    W 0255 Green
- W 0252 Brown    W 0256 Blue
- W 0253 Orange    W 0257 White

All .18¢ per metre  
\$10.00 per 100m roll

## Medium Duty Hookup

Single Conductor. 14/.20mm.

- W 0260 Red    W 0263 Green
- W 0261 Black    W 0265 Blue
- W 0262 Brown    W 0268 White

All .25¢ per metre  
\$18.00 per 100m roll

## Heavy Duty Hookup

Single conductor. 24/.20mm.

- W 0270 Red    W 0273 Brown
- W 0271 White    W 0274 Green
- W 0272 Black    W 0275 Blue

All .29¢ per metre  
\$22.00 per 100m roll

## Extra Heavy Duty Hookup

- W 0280 Brown    W 0283 Red
- W 0281 White    W 0284 Black
- W 0282 Blue    W 0285 Green

All .38¢ per metre  
\$25.00 per 100m roll

## Figure '8' Cable

Cat. No.	Conductor	Colour	Trace Colour	Reel Length	Per Metre	Per Roll
W 0100	2x14/.14	Grey	Black	100m	.35	\$25.00
W 0105	2x14/.19	Grey	Black	100m	.45	\$30.00
W 0110	2x19/.19	White	Red	200m	.50	\$64.00
W 0112	2x19/.19	White	Black	200m	.50	\$64.00
W 0114	2x19/.19	White	Green	200m	.50	\$64.00
W 0116	2x19/.19	White	Blue	200m	.50	\$64.00
W 0122	2x24/.20	Red	Black	200m	.63	\$88.00
W 0124	2x24/.20	White	Red	500m	.63	\$220.00
W 0125	2x24/.20	White	Black	500m	.63	\$220.00
W 0126	2x24/.20	White	Green	500m	.63	\$220.00
W 0127	2x24/.20	White	Blue	500m	.63	\$220.00

## Oxygen-Free Copper Speaker Wire

	Per Metre	Per 16M Roll
W 0136 204 x 16AWG	\$3.95	\$29.60
W 0138 504 x 12AWG	\$4.95	\$55.20

## Whopper Speaker Cable

Low loss. 2 x 90/0.18  
W 0130 \$2.95 per metre,  
50m roll \$125.00

## 4 Core Security



Quality 14/.20 for professional security/alarm system. Inner conductor colours yellow, green, red, blue. Three outer sheath colours available.

- W 0354 Grey
- W 0355 Black
- W 0356 White

.80¢ per metre,  
\$138.00 Per 200M Roll

## Double Insulated Twin



2 x .75mm  
W 0190 \$1.20 per metre,  
100m roll \$99.00

## Mains Cable



3 Core, 7.5 Amp 250V.  
W 0570 \$2.10 per metre,  
100m roll \$190.00

## Feeder and Coax Cables



		Per Metre	Per Roll	Reel Length
W 0220	300 Ohm Clear Ribbon	.30	\$23.00	100
W 0221	300 Ohm Black Ribbon	.35	\$29.00	100
W 0222	75 Ohm Coax (Standard)	.80	\$69.00	100
W 0224	75 Ohm Coax Low Loss	\$1.05	\$93.00	100
W 0226	RG 58AU 52 Ohm Coax	.85	\$70.00	100
W 0230	RG62 92 Ohm Coax	\$1.50	\$240.00	200

## Special Audio/Data Cable



2 x 2 pairs. Individually shielded and drain wire.  
W 1032 \$1.95 per metre,  
\$150.00 per 100m roll

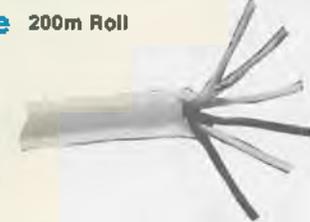
## Extra Heavy Twin Mic Cable



20 x .12mm by 2. Suit entertainment work  
W 1030 \$2.20 per metre,  
\$150.00 per 100m roll

## Telephone Type Cable 200m Roll

	Per Metre	Per 200M Roll
W 0302 2 pair	.60	\$90.00
W 0303 3 pair	.90	\$130.00
W 0306 6 pair	\$1.50	\$240.00
W 0310 10 pair	\$2.40	\$330.00



## 100% Screened Computer Cable

7/.2mm Tinned Alum. Mylar Shield



	Per Metre	Per 100M Roll
W 0705 4 Wire	\$1.40	\$115.00
W 0710 6 Wire	\$1.80	\$150.00
W 0715 9 Wire	\$2.30	\$199.00

## Shielded Audio



Supplied on 100m reels. Eminently suitable for microphone cable, chassis wiring, building wiring.

	Per Metre	Per 100M Roll
W 1010 1 Core	.50	\$32.00
W 1020 2 Core	.70	\$55.00
W 1022 2 Core fig 8	.75	\$57.00
W 1040 4 Core	\$1.25	\$90.00

## Flat Modular Telephone Cable

200m Roll  
As used on most modern phones. Suits our range of crimp style modular plugs (See Telephone Accessories section).

Metre Roll	Per	Per 100M
W 0312 4 Core	.60	\$55.00
W 0313 6 Core	.80	\$75.00
W 0314 8 Core	.95	\$90.00



PHONEORDER TOLL FREE 008 999 007. ALTRONIC COMPONENTS

# CABLE

# IDC, Rainbow, Wire Wrap Wire, Heatshrink & Test Leads

## IDC Cable



	Per Metre	Per 30M Roll
W 0610 10 Way	\$1.50	\$39.00
W 0616 16 Way	\$1.75	\$48.00
W 0626 26 Way	\$2.95	\$73.50
W 0634 34 Way	\$3.25	\$87.00
W 0650 50 Way	\$4.95	\$135.00

## Rainbow Cable



1.27mm Pitch

	Per Metre	Per 100m Roll
W 0510 10 Core	\$2.25	\$2.05
W 0516 16 Core	\$3.95	\$3.50
W 0524 24 Core	\$5.50	\$5.05

## Instrumentation Cable



Overall diameter 3mm. 510 strand. Super flexible and durable. As used in multimeter test leads etc.

W 0540 Red	\$2.95 per metre,
W 0542 Black	\$50.00 per 20m Roll

## Enamelled Winding Wire

	Metric	B+S	Pack	Approx. Length	Per Roll	10up
W 0402	.2mm	32	25g	170m	\$5.95	\$5.45
W 0403	.25mm	30	25g	50m	\$5.95	\$5.45
W 0404	.4mm	26	25g	20m	\$5.95	\$5.45
W 0405	.5mm	24	100g	36m	\$8.65	\$8.15
W 0406	.63mm	22	100g	24m	\$8.65	\$8.15
W 0407	.8mm	18	100g	18m	\$8.65	\$8.15
W 0408	1mm	20	100g	12m	\$8.65	\$8.15
W 0409	1.25mm	16	100g	8m	\$8.65	\$8.15

## Heatshrink Tubing

High quality. Available in 1 metre lengths or bulk packs of 20 x 1 metre lengths. Black only.

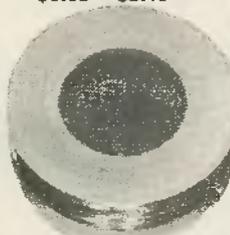


	Per Metre	20m Pack
W 0550 1.58mm Diam. (1/16")	\$2.95	\$54.00
W 0552 3.17mm Diam. (1/8")	\$3.45	\$63.00
W 0554 6.35mm Diam. (1/4")	\$5.10	\$91.00
W 0556 9.52mm Diam. (3/8")	\$5.75	\$103.00
W 0558 12.7mm Diam. (1/2")	\$6.45	\$116.00
W 0560 19.05mm Diam. (3/4")	\$8.85	\$159.00

## Tinned Copper Wire

	Metric	B+S	Pack	Approx. Length
W 0420	.71mm	22	100g	20m

\$9.95 \$9.50



## Hobby Pack

Contains one 250mm length of 1.58mm, 3.17mm, 6.35mm and one 140mm length of 9.52, 12.7, 19.05mm heatshrink. Exceptional value.

W 0567 \$4.95 per pack

## Din and RCA Audio Leads

P 0420 5 Pin Din to 5 Pin Din 1.2m (Reversed Connections for Video)	\$3.25
P 0421 5 Pin Din to 5 Pin Din 1.2m	\$4.65
P 0423 5 Pin Din to 4 RCA 1.2m	\$7.95
P 0427 4 RCA to 4 RCA (male) 1.2m	\$6.95
P 0430 5 Pin Din to 2 RCA (male) 1.5m	\$4.50
P 0435 2 RCA to 2 RCA (male) 1.2m	\$3.45

## Bench Test Leads

Croc clip to croc clip. Heavy duty. Pack of 10 leads.

	ea	10up
P 0415	\$8.35	\$7.50



## Video and Test Leads

All 1.8m Long.



P 0740 PL259 male to PL259 male	\$5.50
P 0746 BNC male to BNC male	\$7.95
P 0748 BNC male to RCA male	\$6.45
P 0750 RCA male to RCA male	\$5.95
P 0752 BNC male to Croc Clips	\$9.50

## Multimeter Testleads

P 0402 Pin Plugs to Pin Probes	\$3.70 pair
P 0403 Pin Probes to Banana Plugs	\$3.90 pair
P 0405 Croc Clips to Banana Plugs	\$2.95 pair



## Wire Wrap

30 AWG Size

15 Metre Reels

W 2010 Black	All \$6.50 reel
W 2012 Red	
W 2014 Blue	
W 2016 Green	
W 2018 White	

Packs of 100 x 5.5" Lengths

W 2060 Black	All \$6.95 pack
W 2062 Red	
W 2064 Blue	
W 2066 Green	
W 2068 White	

Packs of 100 x 3.5" Lengths

W 2040 Black	All \$5.95 pack
W 2042 Red	
W 2044 Blue	
W 2046 Green	
W 2048 White	

Wire Wrap Kit

Assorted Sizes of 200 x 2.5", 250 x 3", 100 x 3.5", 100 x 4", 100 x 4.5", 100 x 5.5"

W 2080 \$49.00

## TV Antenna Fly Leads

All 1.8m Long.



P 0755 Male/Male	\$3.70
P 0757 Male/Female	\$3.70

## High Quality Oxygen Free Copper Audio Leads

All Plugs and Connectors Gold Plated



	Length	
P 0438 1 RCA to 1 RCA	1.8m	\$9.50
P 0440 2 RCA to 2 RCA	.45m	\$11.00
P 0442 2 RCA to 2 RCA	.9m	\$12.00
P 0444 2 RCA to 2 RCA	1.8m	\$13.50
P 0446 2 RCA & Earth Lug each end	.9m	\$16.00
P 0448 2 RCA & Earth Lug each end	1.8m	\$19.50

**ALTRONIC** COMPONENTS • PHONEORDER TOLL FREE 008 999 007

## Transistors

CAT No.	Type	TRANSISTOR No.	CASING STYLE	Ic MAX	VcB MAX	VcE MAX	VeB MAX	HFE	HFE BIAS	FREQ MAX	DESCRIPTION	ea	ea 10µm
1020	N	BC107	T018	100MA	50V	45V	6V	110MN	2MA	150M		.95	.90
1021	N	BC108	T018	100MA	30V	20V	5V	120MN	2MA	150M		.95	.90
1023	N	BC109C	T018	100MA	30V	20V	5V	120MN	2MA	150M	LOW NOISE	.95	.90
1030	P	BC327	T092h	800MA	50V	45V	5V	100MN	100MA	60M	GENERAL PURPOSE	.35	.30
1031	P	BC328	T092h	800MA	30V	25V	5V	100MN	100MA	60M	GENERAL PURPOSE	.35	.30
1035	N	BC337	T092h	800MA	50V	45V	5V	100MN	100MA	60M	GENERAL PURPOSE	.35	.30
1037	N	BC338	T092h	800MA	30V	25V	5V	100MN	100MA	60M	GENERAL PURPOSE	.35	.30
1039	N	BC345	T092h	100MA	80V	80V	8V	110MN	2MA	200M	GENERAL PURPOSE	.35	.30
1040	N	BC347	T092h	100MA	50V	45V	6V	110MN	2MA	200M	GENERAL PURPOSE	.20	.17
1042	N	BC348	T092h	100MA	30V	30V	6V	110MN	2MA	200M	GENERAL PURPOSE	.20	.17
1044	N	BC349	T092h	100MA	30V	30V	6V	110MN	2MA	200M	GENERAL PURPOSE	.20	.17
1050	N	BC350	T092h	100MA	50V	45V	6V	240MN	2MA	200M	GENERAL PURPOSE	.35	.30
1052	P	BC356	T092h	100MA	80V	80V	5V	110MN	2MA	150M	GENERAL PURPOSE	.35	.30
1055	P	BC357	T092h	200MA	50V	45V	6V	110MN	2MA	75M	GENERAL PURPOSE	.20	.17
1057	P	BC358	T092h	100MA	30V	30V	5V	110MN	2MA	75M	GENERAL PURPOSE	.25	.20
1059	P	BC359	T092h	200MA	30V	30V	-	125MN	2MA	75M	GENERAL PURPOSE	.20	.17
1061	N	BC365	T092	1A	45V	45V	-	40MN	150MA	50M	GENERAL PURPOSE	.70	.65
1062	P	BC368	T092	1A	45V	45V	-	40MN	150MA	50M	GENERAL PURPOSE	.70	.65
1064	N	BC369	T092	1A	80V	80V	-	40MN	150MA	50M	HIGH VOLTAGE	.80	.55
1065	P	BC340	T092	1A	80V	80V	-	40MN	150MA	50M	HIGH VOLTAGE	.80	.55
1068	N	BD139	T0126	1A	80V	80V	5V	40/160	150MA	50M	HIGH VOLTAGE	1.25	1.15
1069	P	BD140	T0126	1A	80V	80V	5V	40/160	150MA	50M	HIGH VOLTAGE	1.25	1.15
1073	N	BD128	T0126	4A	45V	45V	5V	40MN	2A	3M		1.40	1.25
1074	P	BD438	T0126	4A	45V	45V	5V	4MN	2A	3M		1.40	1.25
1078	N	BD449	TOP3C	8A	100V	100V	5V	750MN	3A		DARLINGTON	2.65	2.40
1081	N	BD681	T0126	4A	100V	100V	5V	750MA	1500MA	1M	DARLINGTON	2.35	2.05
1082	P	BD682	T0126	4A	100V	100V	5V	750MA	1500MA	1M	DARLINGTON	2.35	2.05
1084	P	BDV84B	TOP3C	15A	100V	100V	5V	1KMN	5A		DARLINGTON	7.50	6.95
1086	N	BDV85B	TOP3C	15A	100V	100V	5V	1KMN	5A		DARLINGTON	7.50	6.95
1100		BFR91A	SOT37	35MA	15V	12V		25MN	30MA	5G	SHF	2.25	2.00
1105	N	BF115	T072F	30MA	60V	30V	5V	45/165	1MA	115M	FM/AM RADIO G. PURPOSE	1.10	1.00
1108	N	2N3583	T092B	30MA	15V	12V		25/250	30MA	5G	RF TRANSISTOR	.40	.35
1109		BF199F	T092	-	-	25V	-	37	7MA	550M	RF TRANSISTOR	.65	.50
1110	N	BF469	T0126	200MA	250V	250V	5V	50MN	25MA	60M	HIGH VOLTAGE RF	1.70	1.40
1112	P	BF470	T0126	200MA	250V	250V	5V	50MN	25MA	60M	HIGH VOLTAGE RF	1.70	1.40
1114	N	BU208A	T03	6A	1K5V	700V		2MN	3A	3M	HIGH VOLTAGE	7.70	7.35
1116	N	BUX80	T03	10A	800V	400V	10V	15MN	1A2	3M	RF, HIGH CURR. HIGH VOLT.	5.70	5.35
1117	N	BUJ28	T03	6A	800V	375V	7V	30MN	600MA	4M	RF, HIGH CURR. HIGH VOLT.	3.99	3.90
1118	P	MJ2955	T03	15A	100V	80V	7V	5MN	10A	4M	HIGH CURRENT	2.75	2.50
1120	P	MJ4032	T03	16A	100V	100V	5V	1KMN	10A		HIGH CURR. DARLINGTON	21.85	19.00
1121	N	MJ10012	T03	10A	550V	400V		300MN	3A		HIGH CURR. DARLINGTON	12.00	11.00
1122	N	MJ4035	T03	16A	100V	100V	5V	1KMN	10A		HIGH CURR. DARLINGTON	21.85	19.00
1124	N	MJ15003	T03	20A	140V	140V	5V	25MN	4A	2M	HIGH CURR. HIGH VOLT.	7.80	7.50
1125	P	MJ15004	T03	20A	140V	140V	5V	25MN	4A	2M	HIGH CURR. HIGH VOLT.	7.80	7.50
1126	N	MJE340	T0126	500MA	300V	300V	3V	30/240	50MA	10M	HIGH VOLTAGE	1.80	1.50
1127	P	MJE350	T0126	500MA	300V	300V	3V	30/240	50MA	10M	HIGH VOLTAGE	1.80	1.50
1128	P	MJE2955T	T0220	10A	60V	60V		20MN	4A	2M		1.95	1.90
1129	N	MJE3055T	T0220	10A	80V	60V		20MN	4A	2M		1.95	1.90
1130	N	TIP29C	T0220	1A	100V	100V	5V	40/200	200MA	3M	HIGH CURRENT, G. PURPOSE	1.70	1.60
1132	P	TIP30C	T0220	1A	100V	100V	5V	40/200	200MA	3M	HIGH CURRENT, G. PURPOSE	1.70	1.60
1134	N	TIP31C	T0220	3A	100V	100V	5V	20/100	1A	3M	HIGH CURRENT, G. PURPOSE	1.70	1.60
1135	P	TIP32C	T0220	3A	100V	100V	5V	20/100	1A	3M	HIGH CURRENT, G. PURPOSE	1.70	1.60
1138	N	TIP41C	T0220	6A	100V	100V	5V	15/75	3A	3M	HIGH CURRENT, G. PURPOSE	1.80	1.70
1140	P	TIP42C	T0220	6A	100V	100V	5V	15/75	3A	3M	HIGH CURRENT, G. PURPOSE	1.80	1.70
1142	N	TIP121	T0220	5A	80V	80V	5V	1000MN	3A		HIGH CURRENT, G. PURPOSE	1.95	1.80
1144	P	TIP126	T0220	5A	80V	80V	5V	1000MN	3A		HIGH CURRENT, G. PURPOSE	1.95	1.80
1146	P	TIP2955	T0P3	15A	100V	60V	7V	20MN	4A	3M	HIGH CURRENT, G. PURPOSE	2.50	2.30
1148	N	TIP3055	T0P3	15A	100V	60V	7V	20MN	4A	3M	HIGH CURRENT, G. PURPOSE	2.50	2.30
1150	N	TT800/2N3019	T05	1A	140V	80V	7V	100MN	150MA	100M		1.80	1.65
1152	P	TT801/2N4033	T05	1A	80V	80V	5V	100MN	150MA	100M		1.80	1.65
1157	P	MPS456	T092B	500MA	80V	80V	4V	50MN	10MA	50M		.80	.75
1160	N	2N2218A	T05	800MA	75V	40V	8V	40/120	150MA	250M	RF TRANSISTOR	1.20	1.10
1164	N	2N2219A	T05	800MA	75V	50V	8V	100MN	150MA	300M	RF TRANSISTOR	1.20	1.10
1166	N	2N222A	T092B	800MA	75V	40V	8V	100MN	150MA	300M	RF TRANSISTOR	.90	.85
1167	P	2N2905	T05	600MA	60V	40V	5V	100MN	150MA	200M		1.35	1.20
1168	N	2N3053	T05	700MA	60V	40V	5V	50MN	150MA	100M		1.35	1.20
1170	N	2N3054	T066	4A	80V	60V	7V	25/100	500MA	750K		4.30	4.10
1174	N	2N3055	T03	15A	100V	60V	7V	20/70	4A	200K		2.75	2.50
1177	N	2N3442	T03	10A	160V	140V	7V	20/70	3A	500K	HIGH VOLTAGE	4.80	4.30
1185	N	2N3643	T092B	500MA	80V	30V	5V	100MN	150MA	250M	RF TRANSISTOR	.50	.45
1186	P	2N3644	T092B	500MA	45V	45V	5V	115MA	50MA	200M		.50	.45
1187	P	2N3645	T092B	500MA	60V	60V	5V	115MA	50MA	200M		.50	.45
1190	N	2N3771	T03	30A	50V	40V	5V	15/60	10A	200K		6.30	5.85
1192	N	2N3773	T03	30A	160V	140V	7V	15/60	10A	200K		6.45	6.15
1195	P	2N3740	T066	10A	60V	60V	7V	30/100	250MA	4M	RF TRANSISTOR	6.95	6.35
1200	N	2N3904	T092B	200MA	60V	40V	6V	50/150	10MA	200M	LOW NOISE	.40	.35
1201	P	2N3905	T092B	200MA	40V	40V	5V	50/150	10MA	200M		.40	.35
1230	P	2N4250	T092B	100MA	40V	40V	5V	250MN	0.1MA	50M	LOW NOISE	.40	.35
1235	N	2N4292	T092	50MA	30V	15V	3V	20MN	3MA	600M	VHF TRANSISTOR	3.95	3.70
1242	P	2N5087	T092B	50MA	50V	50V	3V	250MN	1MA		LOW NOISE	.60	.55

## Diodes

		ea	10up
Z 0024	BAW62/BAW76 Diode	.20	.17
Z 0029	OA90 Ger. Diode	.35	.30
Z 0030	OA91 Ger. Diode	.35	.30
Z 0035	OA95 Ger. Diode	.35	.30
Z 0060	5082-2800 Schottky Diode	2.50	2.25
Z 0101	1N914/1N4148 Diode	.05	.04
Z 0105	1N4002 100V 1 Amp	.10	.08
Z 0109	1N4004 400V 1 Amp	.15	.10
Z 0112	1N4007 1000V 1 Amp	.20	.14
Z 0115	1N5404 400V 3 Amp	.30	.26
Z 0118	1N5408 1000V 3 Amp	.40	.35
Z 0120	R250H 400V 6 Amp	1.10	1.00
Z 0122	1N3493 Pressfit 30 Amp 200V	5.75	5.45
Z 0123	1N3493R Pressfit 30 Amp 200V	5.75	5.45

## Bridge Rectifiers

		ea	10up
Z 0132	WO4 400V 1.2 Amp	1.10	.95
Z 0134	PW04 400V 6 Amp	2.30	2.10
Z 0138	FB3504 400V 35 Amp	6.95	6.50

## Transorbs

		ea	10up
Z 0128	BZT03C13 13V Transient Diode	2.95	2.65
Z 0129	BZT03C62 62V Transient Diode	2.95	2.65

## LEDS

		ea	10up
Z 0140	Led 3mm Red	.20	.18
Z 0141	Led 3mm Green	.30	.25
Z 0143	Led 3mm Yellow	.30	.25
Z 0145	Led 3mm Orange	.30	.25
Z 0149	Led 5mm Red H/Int	.45	.38
Z 0150	Led 5mm Red	.20	.16
Z 0151	Led 5mm Green	.25	.22
Z 0152	Led 5mm Yellow	.25	.22
Z 0154	Led 5mm Orange	.35	.30
Z 0155	Led 10mm Red	.95	.90
Z 0157	Led 10mm Green	.95	.90
Z 0159	Led 10mm Yellow	.95	.90
Z 0160	Led Rectangular Red	.25	.22
Z 0162	Led Rectangular Green	.30	.26
Z 0164	Led Rectangular Yellow	.30	.26
Z 0172	Led Intra Red CQY89A	1.70	1.60
Z 0175	Led Tricolour 3 Leg	.70	.65
Z 0180	Bar Graph 10 Seg Red	4.30	3.95
Z 0181	Led 5mm Flashing Red	1.80	1.70
Z 0182	Led 5mm Flashing Green	2.20	2.10
Z 0200	Led & Bezel 3mm Red	.85	.60
Z 0202	Led & Bezel 3mm Green	.65	.60
Z 0204	Led & Bezel 3mm Yellow	.85	.60
Z 0210	Led & Bezel 5mm Red	.80	.70
Z 0212	Led & Bezel 5mm Green	.80	.70
Z 0214	Led & Bezel 5mm Yellow	.80	.70
Z 0220	Led & Chrome Bezel 5mm Red	1.35	1.30
Z 0222	Led & Chrome Bezel 5mm Green	1.35	1.30
Z 0224	Led & Chrome Bezel 5mm Yellow	1.35	1.30

## 0.4 Watt Zeners

All One Price...25¢ ea or 10 Up 20¢ ea

Z 0303	3V3	1N746
Z 0308	3V6	1N747
Z 0308	3V9	1N748
Z 0310	4V3	1N749
Z 0312	4V7	1N750
Z 0314	5V1	1N751
Z 0318	5V6	1N752
Z 0318	6V2	1N753
Z 0320	6V8	1N754
Z 0322	7V5	1N755
Z 0324	8V2	1N756
Z 0326	9V1	1N757
Z 0328	10V	1N758
Z 0330	11V	1N962
Z 0332	12V	1N963
Z 0334	13V	1N964
Z 0336	15V	1N965
Z 0338	18V	1N967
Z 0340	20V	1N968
Z 0342	22V	1N969
Z 0344	24V	1N970
Z 0346	27V	1N971
Z 0348	30V	1N972
Z 0350	33V	1N973
Z 0352	36V	1N974

## 1 Watt Zeners

All One Price...45¢ ea or 10 Up...40¢ ea

Z 0603	3V3	1N4728
Z 0608	3V6	1N4729
Z 0608	3V9	1N4730
Z 0610	4V3	1N4731
Z 0612	4V7	1N4732
Z 0614	5V1	1N4733
Z 0616	5V6	1N4734
Z 0618	6V2	1N4735
Z 0620	6V8	1N4736
Z 0622	7V5	1N4737
Z 0624	8V2	1N4738
Z 0626	9V1	1N4739
Z 0628	10V	1N4740
Z 0630	11V	1N4741
Z 0632	12V	1N4742
Z 0634	13V	1N4743
Z 0638	15V	1N4744
Z 0637	16V	1N4745
Z 0638	18V	1N4746
Z 0640	20V	1N4747
Z 0642	22V	1N4748
Z 0644	24V	1N4749
Z 0648	27V	1N4750
Z 0648	30V	1N4751
Z 0650	33V	1N4752
Z 0652	36V	1N4753
Z 0675	75V	1N4761

## 5 Watt Zeners

All One Price...\$1.15 ea or 10 Up...\$1.05 ea

Z 0403	3V3	1N5333
Z 0405	5V1	1N5338
Z 0409	9V1	1N5346
Z 0412	12V	1N5349
Z 0413	13V	1N5350
Z 0415	15V	1N5351
Z 0418	18V	1N5355
Z 0422	22V	1N5356
Z 0424	24V	1N5356

**Bulk Users Call Our Parent Company**  
**Akronic Distributors on**  
**(09) 328 2199 & See How You Can**  
**Qualify for Bulk Rates.**

## Variable Voltage Regulators

				ea	10up
Z 0545	LM317T	+2-30V	1 Amp Adj.	TO-220	2.95 2.85
Z 0550	LM317K	+2-30V	3 Amp Adj.	TO-3	6.95 6.50
Z 0560	LM337T	-2-30V	3 Amp Adj.	TO-3	12.50 11.95
Z 0562	LM337T	-2-30V	1 Amp Adj.	TO-220	3.45 3.25
Z 0565	LM338K	+1.2-32V	5 Amp Adj.	TO-3	13.50 12.20
Z 0570	LM350K	+1.2-32V	3 Amp Adj.	TO-3	15.95 13.90
Z 0580	LM396K	+1.2-15V	10 Amp Adj.	TO-3	24.95 21.50
Z 0585	LM723CN	+/-2-37V	150mA Adj. Reg.	DIL	1.45 1.40
Z 0590	UC3906	Gell Cell	Power Controller	DIL	14.95 13.50

## Fixed Voltage Regulators

				ea	10up
Z 0480	78L05	+5V	100mA Reg.	TO-92	.95 .85
Z 0482	78L12	+12V	100mA Reg.	TO-92	.95 .85
Z 0484	78L15	+15V	100mA Reg.	TO-92	.95 .85
Z 0486	78L05	-5V	100mA Reg.	TO-92	.95 .85
Z 0488	78L12	-12V	100mA Reg.	TO-92	.95 .85
Z 0470	78L15	-15V	100mA Reg.	TO-92	.95 .85
Z 0505	7805	+5V	1 Amp Reg.	TO-220	1.25 1.10
Z 0506	7806	+6V	1 Amp Reg.	TO-220	1.25 1.10
Z 0508	7808	+8V	1 Amp Reg.	TO-220	1.25 1.10
Z 0509	7809	+9V	1 Amp Reg.	TO-220	1.25 1.10
Z 0510	7812	+12V	1 Amp Reg.	TO-220	1.25 1.10
Z 0512	7815	+15V	1 Amp Reg.	TO-220	1.25 1.10
Z 0514	7824	+24V	1 Amp Reg.	TO-220	1.25 1.10
Z 0525	7905	-5V	1 Amp Reg.	TO-220	1.25 1.10
Z 0528	7906	-6V	1 Amp Reg.	TO-220	1.25 1.10
Z 0527	7908	-8V	1 Amp Reg.	TO-220	1.25 1.10
Z 0528	7912	-12V	1 Amp Reg.	TO-220	1.25 1.10
Z 0530	7915	-15V	1 Amp Reg.	TO-220	1.25 1.10
Z 0532	7924	-24V	1 Amp Reg.	TO-220	1.25 1.10
Z 0540	7805KC	+5V	1.5 Amp Reg.	TO-3	1.65 1.55
Z 0542	7812KC	+12V	1.5 Amp Reg.	TO-3	3.40 3.25
Z 0558	LM336V	+5V	10mA Reg.	DIL	2.95 2.65

## Displays

		ea	10up
Z 0184	HP7301 7 Seg LED Display C/Anode 0.3"	3.90	3.75
Z 0187	HP7303 7 Seg LED Display C/Cath 0.3"	3.90	3.75
Z 0190	FND500/HD1133R 7 Seg LED 0.5" Disp. C/Cath	3.00	2.80
Z 0191	FND507/HD1131R 7 Seg LED 0.5" Disp. C/Anode	3.00	2.80
Z 7297	SP521 3.5 Digit LCD Display with Low Batt.	10.95	9.95
Z 7298	SP505P 4 Digit LCD Display	10.95	9.95

## OPTO

		ea	10up
Z 1600	FPT100 Photo Transistor	1.60	1.5
Z 1610	MEL12 Darlington Photo Transistor	2.25	1.9
Z 1620	ORP 12 Light Dependant Resistor	6.95	6.3
Z 1635	BPW50 Infra Red Diode	3.45	3.2
Z 1642	MCO3021 Triac Coupler	2.95	2.7
Z 1644	MOC3041 TRIAC CPLR Zero Crossing	3.45	3.2
Z 1645	4N28 OPTO Coupler	1.50	1.4

## Triacs

		ea	10up
Z 1710	BT136/500 TRIAC 500V/4A	1.95	1.8
Z 1712	BT137/500 TRIAC 500V/8A	2.65	2.5
Z 1715	BT138/500 TRIAC 500V/12A	3.80	3.8
Z 1720	BT139/500 TRIAC 500V/16A	4.50	4.2
Z 1722	SC146D TRIAC 400V/10A	3.50	3.3
Z 1735	MAC320 TRIAC 600V/8A Inst. Tab	3.95	3.7

## Diacs

		ea	10up
Z 1745	ST2/BR100 Diac	.95	.9
Z 1750	ST4 Diac (Equiv HT32)	2.20	2.0

## SCR's

		ea	10up
Z 1765	C103B/MCR100 SCR 200V/8A	1.70	1.5
Z 1768	C108D SCR 400V/4A TO126	1.50	1.4
Z 1769	C106Y SCR 30V/4A Sensitive Gate	1.60	1.6
Z 1774	C122E/BT151 500V/8A	3.40	3.1

## Linear IC's

		ea	10up
2005	CA3130 FET Op.Amp 8 Pin Dll	3.95	3.50
2010	CA3140 FET Op.Amp 8 Pin Dll	1.85	1.35
2021	ICL7555/TLC555 CMOS Timer	1.80	1.85
2501	LM301 Op.Amp (Un-Comp)	1.20	1.10
2507	LM307 Op.Amp Comparator	1.70	1.60
2509	LM308 Super Beta Op.Amp	1.80	1.70
2512	LM310 Voltage Follower	5.70	5.35
2518	LM311/UA311 Comparator	1.25	1.15
2520	LM331N Prec. Volt. to Freq. Convtr.	17.95	16.95
2524	LM324 Low Power Quad Op.Amp	1.40	1.25
2528	LM334Z Constant Current Source	3.50	3.20
2530	LM335Z Volt.Mode Temp Sensor	3.95	3.75
2532	LM339 Quad Comparator	1.20	1.05
2536	LM348 Quad Op.Amp	1.85	1.75
2540	LM358 L/Pwr Dual Op.Amp	1.25	1.15
2541	LM359N Hi Speed Norton Op.Amp	4.00	3.75
2548	LM380 Power Amp 14 Pin Dll	2.10	2.00
2550	LM381 Low Noise Dual Pre Amp	5.25	4.95
2552	LM382 Low Noise Dual Pre Amp	4.50	4.25
2554	LM384 5 Watt Audio Pwr Amp	4.50	4.25
2558	LM386 Low Volt. Amp.(1 Amp)	2.40	2.20
2558	LM393 Dual Comparator Low Power	1.25	1.15
2560	LM394CH Matched Transistor Pair	8.85	8.15
2580	LM709/UA709 Op.Amp.	2.00	1.80
2590	LM741 Op.Amp. 8 Pin Dll	.95	.90
2595	LM747 Dual Op Amp	1.90	1.80
2598	LM833 Dual Low Noise Op.Amp.	2.25	2.10
2599	LM1875 20W Audio Amp	6.50	6.15
2620	LM1458/4558 Dual Op.Amp.	1.10	1.00
2640	LM2917 Freq. to Voltage Conv.	3.95	3.85
2645	LM/CA3080 Transcon Op.Amp.	1.85	1.75
2650	LM3086 Transistor Array	1.20	1.10
2655	LM3900 Quad Norton Op.Amp.	1.25	1.15
2660	LM3905 Precision Timer	3.60	3.40
0590	LM3908 Power Controller	14.95	14.65
2665	LM3909 Led Oscillator	3.10	3.00
2670	LM3914 Led Bar/Dot Driver (Linear)	6.50	5.95
2672	LM3915 Led Bar/Dot Driver (Log)	5.95	5.45
2674	LM3916 Led Bar/Dot Driver	5.95	5.45
2690	LM/RCA138 Quad Op.Amp.	2.70	2.55
2755	NE555 Timer IC	.65	.60
2758	NE556 Dual Timer IC	1.40	1.25
2760	NE570 Comander IC	7.50	6.95
2762	NE571 Comander IC	6.50	6.15
2790	NE5534N Op.Amp. Low Noise	2.70	2.50
2792	NE5534N Op.Amp. V/Low Noise	4.45	3.95
2881	TL081 Lo/Pwr JFET Op.Amp.	1.95	1.80
2882	TL082 Lo/Pwr 2XJFET Op.Amp.	2.60	2.40
2884	TL084 Lo/Pwr 4XJFET Op.Amp.	3.50	3.30
2871	TL071 Lo/Noise JFET Op.Amp.	1.20	1.10
2872	TL072 Lo/Noise 2XJFET Op.Amp.	1.95	1.75
2874	TL074 Lo/Noise 4XJFET Op.Amp.	3.50	3.30
2881	TL081 GP JFET Op.Amp.	1.45	1.20
2882	TL082 GP 2XJFET Op.Amp	1.55	1.45
2884	TL084 GP 4XJFET Op.Amp	3.50	3.30
2894	TL494 Pulsewidth Mod Cont CCT	4.50	4.35

## Special FET/Mosfet

		ea	10up
1123	MTP 3055A N Channel Mosfet	1.95	1.80
1240	2N4342 TO-226 P Channel JFET	1.50	1.30
1243	BF245C FET	1.70	1.60
1245	2N5458/MPP 104 TO-226 N Chan. JFET	1.20	1.10
1246	2N5459/MPP 105 TO-226 N Chan. JFET	1.10	1.00
1248	MFE131 TO-206 Dual Gate Mosfet	2.95	2.85
1250	2N5484 TO-92 N Channel JFET	1.20	1.10
1251	2N5485 TO-92 N Channel JFET	1.20	1.10
1252	2N5486 TO-92 N Channel JFET	1.20	1.10
1510	2SK134 N Channel Power Mosfet	15.40	14.95
1512	2SJ49 P Channel Power Mosfet	15.40	14.95
1520	2SJ56 P Channel Power Mosfet	15.95	15.00
1525	2SK176 N Channel Power Mosfet	14.95	14.00
1530	BU271 Fet	4.25	4.05
1540	VN88AF	9.95	9.45
1580	MTM55N10	31.50	29.95
1535	IRF540	6.95	6.50

## Computer Memory IC's

		ea	10up
Z 6108	4116 16 x 1K Dynamic RAM	3.95	3.80
Z 6258	41258 256K x 1 DRAM	4.95	4.75
Z 6664	4184/8864 64K DRAM	4.95	4.75
Z 8821	8821 Motorola PIA	6.50	5.95
Z 9001	Z80A 4MHZ CPU	5.95	5.65
Z 9005	Z80A 4MHZ P10	5.95	5.65
Z 9010	Z80A 4MHZ CTC	6.20	5.70
Z 9107	2732 32K EPROM	8.50	8.50
Z 9112	2764 64K EPROM	8.50	7.95
Z 9115	27C64 64K EPROM CMOS	8.50	7.95
Z 9120	27128 128K EPROM	9.95	9.10
Z 9122	27C128 128K EPROM CMOS	9.95	8.95
Z 9125	27C256 EPROM CMOS	9.95	9.60
Z 9160	8255 P.I.A.	8.50	8.20
Z 9170	AY-3-1015D 25K BAUD UART	19.95	18.95
Z 9112	2764 64K EPROM	8.50	7.95

## Misc. Semi Conductors

		ea	10up
Z 0590	UC3908 Gell Cell Power Controller	14.95	13.50
Z 2705	MC1488 Quad. RS-232C Trans	1.85	1.85
Z 2710	MC 1489 Quad. RS-232C RX	1.95	1.85
Z 2912	MC1374P TV Modit. Circuit	3.75	3.40
Z 2914	MC1377P RGB to PAL/NTSC Convtr.	6.95	6.50
Z 2930	MC14502B Trinary Encoder	3.10	2.95
Z 2932	MC14502B Trinary Decoder	3.95	3.60
Z 2935	DAC0800 Digital to Analog Converter	5.95	5.80
Z 2940	ADC0804 Analog to Digital Converter	9.95	9.75
Z 7200	NE568 Function Generator	3.15	2.75
Z 7202	NE567 PLL/Tone Decoder	2.25	2.10
Z 7205	XR2208 Function Generator	10.95	10.75
Z 7216	ICM7216A1J1 Intersil DFM IC	79.00	75.00
Z 7230	MM5389EYR/N 50HZ Timebase	6.50	6.15
Z 7231	MM5389EST/N 60HZ Timebase	6.50	6.15
Z 7245	LM34018 Hand Free Speaker Phone IC	9.95	9.50
Z 7292	74C925N 4 Dig. Dis. Driver	12.50	12.00
Z 7296	ICL7106 LCD 3-5 Digit Display Driver	10.50	9.95
Z 7297	3.5 Digit LCD Display with Low Bat	10.95	9.95
Z 7300	ZN414 AM Radio Receiver IC	1.70	1.50
Z 7330	TMS 3477 Digital Recorder IC	15.00	13.50
Z 7335	MC 334P Trans. Assisted Ignition IC	11.50	10.50
Z 7290	74C922 4x4 Keyboard Decoder	8.95	8.15
Z 7315	MC10116 Decade Dacoder	3.50	3.30
Z 7250	MC34063 DC to DC Controller	2.50	2.40
Z 7298	4 Digit LCD Display	10.95	9.95
Z 7310	MC13020 AM Stereo Decoder	2.95	2.80
Z 7320	TDA11705 TV Vert. Deflect	6.50	5.95

## Modem IC

		ea	10up
Z 9215	7910 World Modem Chip	29.00	26.00

## Unijunction

		ea	10up
Z 1410	2N6027 TO-92 PROGRAMABLE	1.20	1.10

## IC Sockets

Standard Tinned Type				Machined & Gold Plated			
	ea	10up		ea	10up		ea
P 0550	8 Pin	.30	.25	P 0530	8 Pin	1.10	1.00
P 0560	14 Pin	.40	.35	P 0532	14 Pin	1.45	1.35
P 0565	16 Pin	.45	.40	P 0534	16 Pin	1.25	1.10
P 0567	18 Pin	.45	.40	P 0536	18 Pin	1.80	1.70
P 0568	20 Pin	.50	.45	P 0538	20 Pin	1.95	1.85
P 0570	24 Pin	.65	.60	P 0540	24 Pin	2.45	2.30
P 0572	28 Pin	.75	.70	P 0542	28 Pin	2.80	2.65
P 0575	40 Pin	.95	.80	P 0544	40 Pin	3.25	3.00

## CMOS 4000 Series

		ea	10up			ea	10up
Z 4000	4000 D. 3 Input Nor Gate	.80	.75	Z 4053	4053 TPL 2 CH A/Log Multiplexer	1.70	1.60
Z 4001	4001 Quad 2 I/P Nor Gate	.80	.75	Z 4060	4060 14 Bit Counter	1.70	1.60
Z 4002	4002 Dual 4 I/P Nor Gate	.80	.75	Z 4066	4066 Quad A/Log Switch	1.15	1.05
Z 4006	4006 18 Stg. Stat Shift Register	1.50	1.40	Z 4068	4068 8 Input Nand Gate	.80	.75
Z 4007	4007 Dual Comp PR + Inv	.80	.75	Z 4069	4069 Hex Inverter	.80	.75
Z 4008	4008 4 Bit Full Adder	1.50	1.40	Z 4070	4070 Quad 2 Input Or Gate	.80	.75
Z 4009	4009 Hex Buffer Inverting	1.50	1.35	Z 4071	4071 Quad 2 Input Or Gate	.80	.75
Z 4010	4010 Hex Buffer N/Invert	1.25	1.15	Z 4073	4073 TPL 3 Input And Gate	.80	.75
Z 4011	4011 Quad 2 I/P Nand Gate	.80	.75	Z 4075	4075 TPL 3 Input And Gate	.80	.75
Z 4012	4012 Dual 4 I/P Nand Gate	.80	.75	Z 4078	4078 Quad D Flip Flop	1.40	1.25
Z 4013	4013 Dual D Flip Flop	1.00	.95	Z 4077	4077 Quad Excl Nor Gate	.85	.80
Z 4014	4014 8 STG STC Shift Reg	1.50	1.20	Z 4078	4078 8 Input Nor Gate	.80	.75
Z 4015	4015 Dual 4 Bit STAT Reg	1.20	1.10	Z 4081	4081 Quad 2 Input And Gate	.80	.75
Z 4016	4016 Quad Analog Switch	1.20	1.15	Z 4082	4082 Quad 4 Input And Gate	.80	.75
Z 4017	4017 Decade Counter Driver	1.40	1.30	Z 4083	4083 Quad 2 Input Nand Sch/Trig	1.30	1.20
Z 4018	4018 Reset Divide-BY-N	1.90	1.70	Z 4161	4161 Binary Counter A/S	1.85	1.70
Z 4019	4019 Quad And OR SLT Gate	2.20	2.10	Z 4501	4501 Triple Gate	.90	.85
Z 4020	4020 14 Stage Bin Counter driver	1.75	1.60	Z 4502	4502 Strobed Hex Inv	1.90	1.80
Z 4021	4021 8 STG STAT Shift Register	1.80	1.60	Z 4503	4503 Hex N/Inv Tri-St Buffer	1.30	1.20
Z 4022	4022 Divide by 8 Counter divider	1.80	1.60	Z 4508	4508 Dual 4 Bit Lach	3.60	3.40
Z 4023	4023 Triple 3 IPT Nand Gate	.95	.90	Z 4510	4510 BCD Up DN Counter	1.85	1.65
Z 4024	4024 7 Stage Binary Counter Divider	1.05	.95	Z 4511	4511 BCD to 7 SEG ODCDR/DR	2.30	2.20
Z 4025	4025 Triple 3 IPT Nor GT	.80	.75	Z 4512	4512 8 CHData Selector	1.70	1.60
Z 4026	4026 Decade CTR-7-Seg Output	1.95	1.75	Z 4514	4514 4-16 LN DCDR/4 BT LT	4.00	3.80
Z 4027	4027 Dual JK Flip Flop	1.10	1.05	Z 4516	4516 Binary Up DN Cntr	1.85	1.90
Z 4028	4028 BCD-TO-Decimal Decoder	1.45	1.30	Z 4518	4518 BCD Up Counter	1.95	1.90
Z 4029	4029 Presetable UP/DN Counter	1.80	1.80	Z 4520	4520 Dual Binary Up Cntr	1.85	1.90
Z 4030	4030 Quad 2 IPT Ex. Or Gate	1.10	1.05	Z 4521	4521 24 Stage Freq Divider	2.00	1.80
Z 4032	4032 Triple Serial Adder	2.95	2.75	Z 4526	4526 Prog 4 BT BI Counter	1.90	1.80
Z 4034	4034 8-ST/TRI-ST BI-DIR I/O Bus Reg	4.20	4.00	Z 4528	4528 Dual Mono Multi	1.75	1.60
Z 4035	4035 4 Bit Shift Reg	2.00	1.90	Z 4538	4538 Dual Mono/Freq Multiplexer	2.10	2.00
Z 4040	4040 12 STG Binary CTR	1.80	1.60	Z 4543	4543 BCD-7SEG LT/DC/DR/LCD	1.85	1.80
Z 4042	4042 Quad Clocked D Latch	1.20	1.10	Z 4553	4553 3 Digit BCD Counter	3.50	3.30
Z 4043	4043 Quad Nor RS Latch	1.40	1.30	Z 4557	4557 1-64 BIT V/LNG Sift Reg	6.65	6.40
Z 4046	4046 Micropower PLL	2.10	2.00	Z 4566	4566 Industrial Time Base Gen	3.15	2.95
Z 4047	4047 Low Pwr Mono/Asta M/VIB	2.20	2.00	Z 4568	4568 Phase Comp. Prog Counter	4.50	4.10
Z 4049	4049 Hex Inverting Buffer	1.00	.95	Z 4581	4581 4 Bit Arithmetic L.Unit	5.95	5.80
Z 4050	4050 Hex Buffer (Non/Inv)	1.00	.95	Z 4582	4582 Look Ahead Carry BLK	2.40	2.20
Z 4051	4051 8 CH A/Log Multiplx	1.75	1.60	Z 4583	4583 Dual Schmitt Trigger	1.85	1.80
Z 4052	4052 4 CH A/Log Multiplexer	1.70	1.60	Z 4584	4584 Hex Schmitt Trigger	1.15	1.05
				Z 6450	74C14/40106 Hex Schmitt Trig.	1.50	1.35

## 74/74LS/74HC SERIES

Please note we have listed the relevant last device digits only with this table e.g.: device '10' is available as 7410 (Z 7410) 74LS10 (Z 8010) and 74HC10 (Z 8510). We have adopted this approach to enable you to ascertain at a glance type availability in the different families.

	7400 Series	74LS Series	74HC Series
00	Quad. 2 I/P Nand Gate	Z 7400	Z 8000
01	Quad. 2 I/P Nand Gate	Z 7401	Z 8001
02	Quad. 2 I/P Nor Gate	Z 7402	Z 8002
03	Quad. 2 I/P Nand Gate(O/C)	Z 7403	Z 8003
04	Hex Inverter	Z 7404	Z 8004
05	Hex Inverter (O/C)	Z 7405	Z 8005
06	Hex Inverter Buffer Dvr (O/C)	Z 7406	
07	Hex/Buf Dvr (O/C)	Z 7407	
08	Quad. 2 I/P And Gate	Z 7408	Z 8008
09	Quad. 2 I/P And Gate	Z 7409	Z 8009
10	Triple I/P Nand Gate	Z 7410	Z 8010
11	Triple I/P Nand Gate	Z 7411	Z 8011
12	Triple I/P Nand Gate (O/C)	Z 7412	Z 8012
13	Dual Nand GateSchmitt Trigger	Z 7413	Z 8013
14	Hex Schmitt Trigger	Z 7414	Z 8014
17	Hex Buffer Dvr (O/C)	Z 7417	
20	Dual 4 I/P Nand Gate	Z 7420	Z 8020
21	Dual 4 I/P Nand Gate	Z 7421	Z 8021
23	Dual 4 I/P Nand Gate W/Strobe	Z 7423	
25	Dual 4 I/P Nand Gate W/Strobe	Z 7425	
27	Triple 3 I/P Nor Gate	Z 7427	Z 8027
30	8 I/P Nand Gate	Z 7430	Z 8030
32	Quad. 2 I/P Or Gate	Z 7432	Z 8032
33	Quad. 2 I/P Nor Gate (O/C)		Z 8033
37	Quad. 2 I/P Nand Buffer	Z 7437	Z 8037
40	Dual 4 I/P Nand Buffer	Z 7440	
42	BCD to Decimal Decoder (O/C)	Z 7442	Z 8042
47	BCD to 7 Seg Dec/Driver	Z 7447	Z 8047
48	BCD to 7 Seg Dec/Driver		Z 8048
49	BCD to 7 Seg Dec/Driver		Z 8049
50	DL 2W 2 I/P A/O Inv Gate	Z 7450	
51	And/Or Inv Gate	Z 7451	
53	Exp 4W A/O Inv Gate	Z 7453	
54	4W And/Or Inv Gate	Z 7454	Z 8054
60	Dual 4 I/P Expander	Z 7460	

## 74/74LS/74HC SERIES Cont'd

Please note we have listed the relevant last device digits only with this table e.g.: device '10' is available as 7410 (Z 7410) 74LS10 (Z 8010) and 74HC10 (Z 8510). We have adopted this approach to enable you to ascertain at a glance type availability in the different families.

	7400 Series	ea	10up	74LS Series	ea	10up	74HC Series	ea	10up
70	And Gated JK Flip Flop	Z 7470	1.40 1.35						
72	And Gated JK Flip Flop	Z 7472	1.50 1.35						
73	Dual JK FF W/-Clear	Z 7473	1.60 1.35	Z 8073	1.20 1.10		Z 8573	2.05 1.95	
74	Dual D Type F/F	Z 7474	1.30 1.25	Z 8074	1.10 1.00		Z 8574	1.10 1.05	
75	4 Bit Bistable Latch	Z 7475	1.30 1.20	Z 8075	1.20 1.10				
76	Dual JK Flip Flop	Z 7476	1.50 1.40	Z 8076	1.60 1.50		Z 8576	1.40 1.30	
78	Dual JK Flip Flop			Z 8078	1.20 1.10				
82	4 Bit Binary Full Adder	Z 7482	4.80 4.40						
83	4 Bit Full Adder	Z 7483	2.10 2.00	Z 8083	1.95 1.90				
85	4 Bit Magnitude Comp	Z 7485	2.00 1.95	Z 8085	1.25 1.15		Z 8585	2.15 2.00	
88	Quad Excl. Or Gate	Z 7486	1.55 1.45	Z 8086	.95 .90		Z 8586	1.10 1.05	
90	Decade Counter	Z 7490	1.85 1.70	Z 8090	1.10 1.00				
91	8 Bit Shift Reg	Z 7491	1.00 .95						
92	Divide By 12 Counter	Z 7492	1.95 1.75	Z 8092	1.35 1.20				
93	4 Bit Binary Counter	Z 7493	1.50 1.40	Z 8093	1.25 1.15				
94	4 Bit Shift Reg	Z 7494	4.50 4.10						
95	4 Bit Shift Reg	Z 7495	1.70 1.60	Z 8095	1.20 1.10				
100	8 Bit Bistable Latch	Z 7700	4.20 4.00						
107	Dual JK Flip Flop	Z 7707	1.40 1.30	Z 8107	.95 .90		Z 8607	1.10 1.05	
109	Dual JK Flip Flop	Z 7709	1.80 1.70	Z 8109	.95 .90				
112	Dual JK Flip Flop			Z 8112	.95 .90				
121	Monostable Multivibrator	Z 7721	1.00 .95						
122	Retriggerable Mono Multivibrator	Z 7722	1.00 .95	Z 8122	1.40 1.30				
123	Dual Retriggerable Mono Multivibrator	Z 7723	2.00 1.85	Z 8123	1.30 1.15				
125	Quad Tri State Buffer	Z 7725	1.70 1.55	Z 8125	1.25 1.15				
126	Quad Tri State Buffer			Z 8126	1.20 1.10				
132	Quad 2 I/P Nand Schmitt Trig.	Z 7732	1.80 1.70						
138	Decoder/Demultiplexer			Z 8138	1.20 1.10				
139	Decoder/Demultiplexer			Z 8139	1.45 1.35				
141	BCD to Dec Decoder/Drv	Z 7741	1.50 1.40						
143	Counter/Latch Decoder/Drv	Z 7743	8.75 8.10						
147	10 I/P Priority Encoder			Z 8147	2.95 2.70				
148	8 I/P Priority Encoder			Z 8148	2.95 2.70				
151	8 I/P Multiplexer			Z 8151	1.20 1.15		Z 8651	1.70 1.60	
153	Dual 4 I/P Multiplexer			Z 8153	1.20 1.10				
155	Dual Decoder/Demultiplexer			Z 8155	1.40 1.20				
156	Dual Decoder/Demultiplexer			Z 8156	1.40 1.30				
157	Quad 2 I/P Multiplexer			Z 8157	1.45 1.35		Z 8657	1.15 1.10	
158	Quad 2 I/P Multiplexer			Z 8158	1.40 1.30				
160	BCD Decade Counter	Z 7760	2.00 1.95	Z 8160	1.40 1.30		Z 8660	2.00 1.90	
161	4 Bit Binary Counter	Z 7761	2.00 1.95	Z 8161	1.50 1.40		Z 8661	2.00 1.90	
162	BCD Decade Counter	Z 7762	2.40 2.30	Z 8162	1.30 1.20				
163	4 Bit Binary Counter			Z 8163	1.60 1.50		Z 8663	2.00 1.90	
164	8 Bit Shift Register			Z 8164	1.40 1.30		Z 8664	2.00 1.90	
165	8 Bit Shift Register			Z 8165	1.95 1.85		Z 8665	2.00 1.90	
166	8 Bit Shift Register			Z 8166	1.70 1.60				
173	4 Bit D Type Register	Z 7773	1.60 1.50	Z 8163	1.70 1.60		Z 8673	2.00 1.90	
174	Hex D Type Flip Flop			Z 8174	.90 .80		Z 8674	1.40 1.30	
175	Quad D Type Flip Flop			Z 8175	1.50 1.40		Z 8675	1.50 1.40	
180	U/D Decade Counter	Z 7790	1.85 1.70	Z 8190	2.10 2.00				
191	U/D Binary Counter	Z 7791	2.10 1.95	Z 8191	1.85 1.75				
192	U/D Decade Counter	Z 7792	3.80 3.60	Z 8192	1.65 1.50				
193	U/D Binary Counter	Z 7793	2.20 2.10	Z 8193	1.70 1.60		Z 8693	1.80 1.70	
194	4 Bit R/L Shift Register			Z 8194	1.45 1.35				
195	4 Bit Shift Register			Z 8195	1.60 1.50		Z 8695	2.00 1.90	
221	Dual Monostable Multivibrator			Z 8221	1.45 1.35				
240	Octal Inv 8/L Dvr			Z 8240	2.20 2.10		Z 8740	2.00 1.90	
241	Octal Bus Line Driver			Z 8241	2.10 2.00				
244	Octal 3 State Driver			Z 8244	2.50 2.40		Z 8744	2.20 2.00	
245	Octal 3 State Transceiver			Z 8245	2.95 2.90		Z 8745	2.20 2.00	
257	Quad 2 I/P Multiplexer			Z 8257	1.40 1.30				
258	Quad 2 I/P Multiplexer			Z 8258	1.20 1.10				
259	8 Bit Address Latch			Z 8259	1.70 1.60				
266	Quad Exclusive Nor			Z 8266	1.25 1.15				
273	Octal D Type Flip Flop			Z 8273	2.25 2.10				
365	Hex Buffer	Z 7910	2.10 1.95	Z 8365	1.20 1.10				
366	Hex Inverter			Z 8366	1.20 1.10				
367	Hex Buffer			Z 8367	1.20 1.10				
368	Hex Inverter			Z 8368	1.20 1.10				
373	Octal Transparent Latch			Z 8373	2.50 2.10				
374	Octal D Type Flip Flop			Z 8374	2.25 2.10				
377	Octal D Type Flip Flop			Z 8377	2.10 2.00				
393	Dual 4 Bit Shift Register	Z 7923	4.70 4.50	Z 8393	1.70 1.60		Z 8793	2.00 1.90	
426	Quad Gate	Z 7926	2.00 1.80						
629	Volt Control Oscillator			Z 8429	6.50 6.15				
670	Register File			Z 8435	1.90 1.75				

## Vertical Trimpots

2.54mm Pin Spacing (5mm Overall)

R 2501	100
R 2503	200
R 2505	500
R 2507	1K
R 2509	2K
R 2512	5K
R 2514	10K
R 2516	20K
R 2518	50K
R 2520	100K
R 2522	200K
R 2524	500K
R 2526	1M
R 2528	2M

**.45¢ ea**  
10up **.40¢ ea**



5mm Pin Spacing (10mm Overall)

R 2551	100
R 2553	200
R 2555	500
R 2557	1K
R 2559	2K
R 2562	5K
R 2564	10K
R 2566	20K
R 2568	50K
R 2570	100K
R 2572	200K
R 2574	500K
R 2576	1M
R 2578	2M

**.50¢ ea**  
10up **.45¢ ea**



## Horizontal Trimpots

Enclosed Type

R 2450	100
R 2452	200
R 2454	500
R 2456	1K
R 2457	2K
R 2458	5K
R 2460	10K
R 2462	20K
R 2464	50K
R 2466	100K
R 2468	200K
R 2470	500K
R 2472	1M
R 2474	2M

**.65¢ ea**  
10up **.60¢ ea**



## 10 Turn Trimpots



R 2410	100R
R 2415	200R
R 2415	500R
R 2419	1K
R 2421	2K
R 2423	5K
R 2425	10K
R 2427	20K
R 2429	50K
R 2431	100K
R 2433	200K
R 2435	500K
R 2437	1M
R 2439	2M

**\$2.60 ea**  
10up **\$2.40 ea**

## Dual Gang Pots

6.35mm (1/4") x 25mm

Linear



R 2100	10K
R 2102	20K
R 2104	50K
R 2106	100K
R 2108	500K
R 2110	1M

**\$3.30 ea**  
10up **\$3.00 ea**

Logarithmic

R 2120	10K
R 2122	20K
R 2124	50K
R 2126	100K
R 2128	500K
R 2130	1M

## Miniature Single Gang

16mm diam. 6mm x 15mm shaft.

Linear

R 2040	1K
R 2044	5K
R 2046	10K
R 2048	20K
R 2050	50K
R 2052	100K
R 2054	500K
R 2056	1M

**\$1.60 ea**  
10up **\$1.40 ea**



Logarithmic

R 2060	10K
R 2062	50K

## Single Rotary Pots

6.00mm x 32mm. Plain Shafts

Linear

R 2001	500R
R 2003	1K
R 2005	5K
R 2007	10K
R 2010	20K
R 2012	50K
R 2014	100K
R 2015	500K
R 2016	1M
R 2018	2M

**\$1.60 ea**  
10up **\$1.40 ea**



Logarithmic

R 2020	1K
R 2022	5K
R 2024	10K
R 2026	20K
R 2028	50K
R 2030	100K
R 2031	500K
R 2032	1M
R 2034	2M

**\$1.60 ea**  
10up **\$1.40 ea**



## 3 Watt Wire Wound

22mm Diam. 6.35mm x 47mm

R 2150	10R
R 2152	25R
R 2154	50R
R 2156	100R
R 2158	200R
R 2160	500R
R 2162	1K
R 2163	2K
R 2164	5K
R 2166	10K

**\$8.50 ea**  
10up **\$7.95 ea**



## Splined Shaft Pots

16mm Diam. 6mm x 8mm

Linear

R 2095	10K	<b>\$1.65 ea</b>
R 2096	100K	
R 2097	500K	10up <b>\$1.45 ea</b>



## RF Chokes

Cat. No.	DC Inductance uH+-10%	Rated Resistance Ohm	DC Current (mA) Max.
L 7010	1.0	0.19	920
L 7012	1.5	0.23	830
L 7014	2.2	0.28	750
L 7016	3.3	0.34	670
L 7018	4.7	0.39	620
L 7020	6.8	0.48	550
L 7022	10	0.58	500
L 7024	15	0.72	460
L 7026	22	0.84	410
L 7028	33	1.03	370
L 7030	47	1.22	340
L 7032	68	1.47	305

All **\$1.20 ea**, 10up **\$1.05 ea**

Cat. No.	DC Inductance uH+-10%	Rated Resistance Ohm	DC Current (mA) Max.
L 7034	100	1.80	275
L 7036	150	4.20	175
L 7038	220	5.10	155
L 7040	330	6.40	137
L 7042	470	7.70	126
L 7044	680	9.40	113
L 7046	1000	14.00	100
L 7048	1500	8.00	155
L 7050	2200	14.00	137
L 7052	3300	22.00	100
L 7054	4700	30.00	100

## Resistors



Value in OHMS	.25W Metal Film 1%	.25W Carbon Film 5%	.5W Carbon Film 5%	1W Carbon Film 5%	5W Wire Wound 5%	Value in OHMS
0.0		R 0005				0.0
0.1					R 0301	0.1
0.22					R 0302	0.22
0.27					R 0303	0.27
0.33					R 0304	0.33
0.39					R 0305	0.39
0.47					R 0306	0.47
0.51					R 0307	0.51
0.56					R 0308	0.56
0.68					R 0309	0.68
0.82					R 0310	0.82
1.0		R 0010	R 0095	R 0201	R 0311	1.0
1.2		R 0011	R 0096	R 0202	R 0312	1.2
1.5		R 0012	R 0097	R 0203	R 0313	1.5
1.8		R 0013	R 0098	R 0204	R 0314	1.8
2.2		R 0014	R 0099	R 0205	R 0315	2.2
2.7		R 0015	R 0100	R 0206	R 0316	2.7
3.3		R 0016	R 0101	R 0207	R 0317	3.3
3.9		R 0017	R 0102	R 0208	R 0318	3.9
4.7		R 0018	R 0103	R 0209	R 0319	4.7
5.6		R 0019	R 0104	R 0210	R 0320	5.6
6.8		R 0020	R 0105	R 0211	R 0321	6.8
8.2		R 0021	R 0106	R 0212	R 0322	8.2
10	R 0510	R 0022	R 0107	R 0213	R 0323	10
12	R 0512	R 0023	R 0108	R 0214	R 0324	12
15	R 0514	R 0024	R 0109	R 0215	R 0325	15
18	R 0516	R 0025	R 0110	R 0216	R 0326	18
22	R 0518	R 0026	R 0111	R 0217	R 0327	22
27	R 0520	R 0027	R 0112	R 0218	R 0328	27
33	R 0522	R 0028	R 0113	R 0219	R 0329	33
39	R 0524	R 0029	R 0114	R 0220	R 0330	39
47	R 0526	R 0030	R 0115	R 0221	R 0331	47
56	R 0528	R 0031	R 0116	R 0222	R 0332	56
68	R 0530	R 0032	R 0117	R 0223	R 0333	68
82	R 0532	R 0033	R 0118	R 0224	R 0334	82
100	R 0534	R 0034	R 0119	R 0225	R 0335	100
120	R 0536	R 0035	R 0120	R 0226	R 0336	120
150	R 0538	R 0036	R 0121	R 0227	R 0337	150
180	R 0540	R 0037	R 0122	R 0228	R 0338	180
220	R 0542	R 0038	R 0123	R 0229	R 0339	220
270	R 0544	R 0039	R 0124	R 0230	R 0340	270
330	R 0546	R 0040	R 0125	R 0231	R 0341	330
390	R 0548	R 0041	R 0126	R 0232	R 0342	390
470	R 0550	R 0042	R 0127	R 0233	R 0343	470
560	R 0552	R 0043	R 0128	R 0234	R 0344	560
680	R 0554	R 0044	R 0129	R 0235	R 0345	680
820	R 0556	R 0045	R 0130	R 0236	R 0346	820
1K	R 0558	R 0046	R 0131	R 0237	R 0347	1K
1.2K	R 0560	R 0047	R 0132	R 0238	R 0348	1.2K
1.5K	R 0562	R 0048	R 0133	R 0239	R 0349	1.5K
1.8K	R 0564	R 0049	R 0134	R 0240	R 0350	1.8K
2.2K	R 0566	R 0050	R 0135	R 0241	R 0351	2.2K
2.7K	R 0568	R 0051	R 0136	R 0242	R 0352	2.7K
3.3K	R 0570	R 0052	R 0137	R 0243	R 0353	3.3K
3.9K	R 0572	R 0053	R 0138	R 0244	R 0354	3.9K
4.7K	R 0574	R 0054	R 0139	R 0245	R 0355	4.7K
5.6K	R 0576	R 0055	R 0140	R 0246		5.6K
6.8K	R 0578	R 0056	R 0141	R 0247		6.8K
8.2K	R 0580	R 0057	R 0142	R 0248		8.2K
10K	R 0582	R 0058	R 0143	R 0249		10K
12K	R 0584	R 0059	R 0144	R 0250		12K
15K	R 0586	R 0060	R 0145	R 0251		15K
18K	R 0588	R 0061	R 0146	R 0252		18K
22K	R 0590	R 0062	R 0147	R 0253		22K
27K	R 0592	R 0063	R 0148	R 0254		27K
33K	R 0594	R 0064	R 0149	R 0255		33K
39K	R 0596	R 0065	R 0150	R 0256		39K
47K	R 0598	R 0066	R 0151	R 0257		47K
56K	R 0600	R 0067	R 0152	R 0258		56K
68K	R 0602	R 0068	R 0153	R 0259		68K
82K	R 0604	R 0069	R 0154	R 0260		82K
100K	R 0606	R 0070	R 0155	R 0261		100K
120K	R 0608	R 0071	R 0156	R 0262		120K
150K	R 0610	R 0072	R 0157	R 0263		150K
180K	R 0612	R 0073	R 0158	R 0264		180K
220K	R 0614	R 0074	R 0159	R 0265		220K
270K	R 0616	R 0075	R 0160	R 0266		270K
330K	R 0618	R 0076	R 0161	R 0267		330K
390K	R 0620	R 0077	R 0162	R 0268		390K
470K	R 0622	R 0078	R 0163	R 0269		470K
560K	R 0624	R 0079	R 0164	R 0270		560K
680K	R 0626	R 0080	R 0165	R 0271		680K
820K	R 0628	R 0081	R 0166	R 0272		820K
1M	R 0630	R 0082	R 0167	R 0273		1M
1.2M		R 0083	R 0168			1.2M
1.5M		R 0084	R 0169			1.5M
1.8M		R 0085	R 0170			1.8M
2.2M		R 0086	R 0171			2.2M
2.7M		R 0087	R 0172			2.7M
3.3M		R 0088	R 0173			3.3M
3.9M		R 0089	R 0174			3.9M
4.7M		R 0090	R 0175			4.7M
5.6M		R 0091	R 0176			5.6M
6.8M		R 0092	R 0177			6.8M
8.2M		R 0093	R 0178			8.2M
10M		R 0094	R 0179			10M

OEM Specifications  
Continuous Working Voltage 250V  
Short Cycle working Voltage 500V

### Resistor Price List

	ea	10up	100up
0.25W Metal Film	8¢	-	7c
0.25W Carbon Film	6¢	-	4¢
0.5W Carbon Film	7¢	-	5¢
1W Carbon Film	16¢	-	13¢
5W Wire Wound	65¢	60¢	-

### Intermediate Value 0.25W Metal Film

Value	Cat	Value	Cat
11	R 0511	3.6K	R 0571
13	R 0513	4.3K	R 0573
16	R 0515	5.1K	R 0575
20	R 0517	6.2K	R 0577
24	R 0519	7.5K	R 0579
30	R 0521	9.1K	R 0581
36	R 0523	11K	R 0583
43	R 0525	13K	R 0585
51	R 0527	16K	R 0587
62	R 0529	20K	R 0589
75	R 0531	24K	R 0591
91	R 0533	30K	R 0593
110	R 0535	36K	R 0595
130	R 0537	43K	R 0597
160	R 0539	51K	R 0599
200	R 0541	62K	R 0601
240	R 0543	75K	R 0603
300	R 0545	91K	R 0605
360	R 0547	110K	R 0607
430	R 0549	130K	R 0609
510	R 0551	160K	R 0611
620	R 0553	200K	R 0613
750	R 0555	240K	R 0615
910	R 0557	300K	R 0617
1.1K	R 0559	360K	R 0619
1.3K	R 0561	430K	R 0621
1.6K	R 0563	510K	R 0623
2K	R 0565	620K	R 0625
2.4K	R 0567	750K	R 0627
3K	R 0569	910K	R 0629

### 1/4W Carbon Resistor Pack

Average Contents: 300 \$12.00 value

R 3501 **\$6.95**  
10 Up **\$5.95**



### 1/4W Metal Film Resistor Pack

Average Contents: 150

R 3505 **\$5.95**  
10 Up **\$5.50**



### Crystals

All parallel Resonant HC25



		ea	10up
Y 1010	3.579545	3.95	3.65
Y 1012	4.0	3.95	3.65
Y 1013	4.433619	3.95	3.65
Y 1015	4.77	3.95	3.65
Y 1015	8.0	3.95	3.65
Y 1025	10.0	3.95	3.65

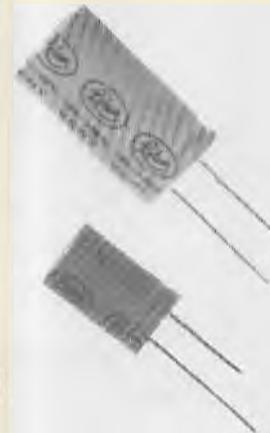


# CAPACITORS

# Electrolytic Capacitors

## PCB Mount (RB) Capacitors

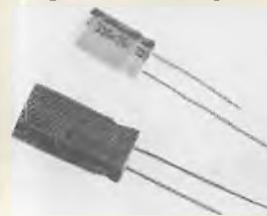
Features: • Low Impedance characteristics • Case sizes are smaller than conventional general-purpose capacitors, with very high performance. • Can size larger than 8mm diameter has safety vents on rubber bung. • Temperature Range -40 to +85 deg. C • Tolerance -10% to +50%.  
\*Ripple Current at 20° 100Hz



Cat.No.	uF	Working Voltage	Surge Voltage	Ripple Current mA	Can Diameter mm	Lead Spacing mm	Can Height mm	ea	ea	ea
								1-9	10-24	25up
R 5010	.47uF	63V	79V	18	5	2	12	.27	.23	.20
R 5018	1uF	63V	79V	25	5	2	12	.27	.23	.20
R 5024	2.2uF	25V	32V	37	5	2	12	.27	.23	.20
R 5028	2.2uF	63V	79V	37	5	2	12	.27	.23	.20
R 5034	3.3uF	25V	32V	46	5	2	12	.27	.23	.20
R 5038	3.3uF	63V	79V	46	5	2	12	.27	.23	.20
R 5044	4.7uF	25V	32V	59	5	2	12	.27	.23	.20
R 5048	4.7uF	63V	79V	59	5	2	12	.27	.23	.20
R 5054	6.8uF	25V	32V	71	5	2	12	.27	.23	.20
R 5058	6.8uF	63V	79V	71	5	2	12	.27	.23	.20
R 5082	10uF	16V	20V	86	5	2	12	.27	.23	.20
R 5084	10uF	25V	32V	86	5	2	12	.27	.23	.20
R 5085	10uF	35V	44V	86	5	2	12	.27	.23	.20
R 5088	10uF	63V	79V	86	5	2	12	.27	.23	.20
R 5084	22uF	25V	32V	87	5	2	12	.27	.23	.20
R 5088	22uF	63V	79V	134	6.3	3.5	12	.35	.32	.29
R 5094	33uF	25V	32V	108	6	2.5	12	.30	.27	.24
R 5098	33uF	63V	79V	164	8	3.5	12	.38	.35	.32
R 5102	47uF	16V	20V	120	5	2	12	.30	.27	.24
R 5104	47uF	25V	32V	129	6	2.5	12	.32	.29	.26
R 5105	47uF	35V	44V	108	6.3	2.5	12	.37	.34	.31
R 5108	47uF	63V	79V	220	8	3.5	12	.42	.38	.35
R 5122	100uF	16V	20V	176	6	2.5	12	.32	.29	.26
R 5124	100uF	25V	32V	195	6.3	3.5	12	.45	.40	.36
R 5125	100uF	35V	44V	246	8	3.5	12	.60	.55	.50
R 5128	100uF	63V	79V	370	10	5	17	.75	.70	.65
R 5142	220uF	16V	20V	272	8	3.5	12	.35	.30	.27
R 5144	220uF	25V	32V	326	8	3.5	12	.60	.55	.50
R 5148	220uF	63V	79V	570	13	5	12	.90	.85	.75
R 5154	330uF	25V	32V	416	10	5	12	.65	.60	.55
R 5158	330uF	63V	79V	766	13	5	12	.95	.90	.85
R 5162	470uF	16V	20V	467	10	5	12	.60	.55	.50
R 5164	470uF	25V	32V	548	10	5	17	.70	.65	.60
R 5165	470uF	35V	44V	690	13	5	17	1.00	.90	.80
R 5168	470uF	63V	79V	942	16	7.5	17	1.50	1.35	1.20
R 5182	1000uF	16V	20V	751	10	5	17	.75	.70	.65
R 5184	1000uF	25V	32V	830	13	5	17	.95	.90	.80
R 5185	1000uF	35V	44V	1046	13	5	21	1.40	1.25	1.15
R 5188	1000uF	63V	79V	1450	18	7.5	32	1.95	1.85	1.70
R 5202	2200uF	16V	20V	1020	13	5	21	.95	.90	.80
R 5204	2200uF	25V	32V	1180	16	7.5	21	1.40	1.30	1.15
R 5206	2200uF	50V	63V	1650	18	7.5	21	2.90	2.65	2.40
R 5208	2200uF	63V	79V	1680	22	10	21	4.70	4.30	3.80
R 5214	3300uF	25V	32V	1268	18	7.5	31	1.95	1.75	1.60
R 5216	3300uF	50V	63V	1680	22	10	31	4.70	4.30	3.90
R 5222	4700uF	16V	20V	1471	16	7.5	32	1.90	1.50	1.35
R 5224	4700uF	25V	32V	1614	18	7.5	35	2.75	2.25	2.00
R 5226	4700uF	50V	63V	1938	25	12.5	40	4.98	4.60	4.10
R 5234	10000uF	25V	32V	2617	25	12.5	40	5.98	5.50	5.00

## PCB Mount (RB) Low Leakage Capacitors

Features: Very low leakage current • Low impedance characteristics • Long life • Capacitance tolerance +/- 20% • Can be used as a replacement for tantalum capacitor • Temperature Range -40 to +85 deg C.



Cat.No.	uF	Working Voltage	Surge Voltage	Ripple Current mA	Can Diameter mm	Lead Spacing mm	Can Height mm	ea	ea	ea
								1-9	10-24	25up
R 6006	.1uF	50V	63V	7	5	2	11	.35	.30	.27
R 6016	.15uF	50V	63V	9	5	2	11	.35	.30	.27
R 6026	.22uF	50V	63V	11	5	2	11	.35	.30	.27
R 6038	.33uF	50V	63V	14	5	2	11	.35	.30	.27
R 6046	.47uF	50V	63V	17	5	2	11	.35	.30	.27
R 6056	.68uF	50V	63V	21	5	2	11	.35	.30	.27
R 6088	1uF	50V	63V	25	5	2	11	.35	.30	.27
R 6076	1.5uF	50V	63V	31	5	2	11	.35	.30	.27
R 6088	2.2uF	50V	63V	37	5	2	11	.35	.30	.27
R 6098	3.3uF	50V	63V	46	5	2	11	.35	.30	.27
R 6106	4.7uF	50V	63V	55	5	2	11	.35	.30	.27
R 6115	6.8uF	35V	44V	66	5	2	11	.35	.30	.27
R 6125	10uF	35V	44V	72	5	2	11	.35	.30	.27
R 6135	15uF	35V	44V	89	6	2.5	11	.35	.30	.27
R 6145	22uF	35V	44V	108	6	2.5	11	.40	.35	.32
R 6154	33uF	25V	32V	121	6	2.5	11	.40	.35	.32
R 6155	33uF	35V	44V	137	8	3.5	11.5	.40	.35	.32
R 6164	47uF	25V	32V	150	6.3	3.5	11.5	.40	.35	.32
R 6165	47uF	35V	44V	164	8	3.5	11.5	.40	.35	.32
R 6174	68uF	25V	32V	180	5	3.5	11.5	.40	.35	.32
R 6175	68uF	35V	44V	220	8	3.5	11.5	.45	.40	.35
R 6182	100uF	16V	20V	219	6.3	3.5	11.5	.45	.40	.35
R 6185	100uF	35V	44V	269	8	3.5	15	.45	.40	.35
R 6192	220uF	16V	20V	324	8	3.5	11.5	.45	.40	.35
R 6195	220uF	35V	44V	459	10	5	20	.65	.60	.55
R 6202	330uF	16V	20V	456	10	5	16	.45	.40	.35
R 6205	330uF	35V	44V	584	13	5	21	.80	.75	.70
R 6212	470uF	16V	20V	613	10	5	21	.60	.45	.40
R 6215	470uF	35V	44V	765	13	5	21	.95	.90	.85

**ALTRONIC COMPONENTS • PHONEORDER TOLL FREE 008 999 007**

# Electrolytic & Greencap Capacitors

# CAPACITORS

## PCB Mount (RB) Bipolar Capacitors



Features: Radial lead, bi-polarized, suitable for crossover network of high pitched and low-pitched sounds in high-fidelity sound systems • Have excellent frequency characteristics • Low leakage current and low dissipation factor • Temperature range -40 +85°C • Tolerance +/-20% at 20°C 1kHz.

Cat.No.	uF	Working Voltage	Surge Voltage	Ripple Current mA	Can Diameter mm	Lead Spacing mm	ea 1-9	ea 10-24	ea 25up
R 6510	1uF	50V	63	30	8	3.5	.45	.40	.36
R 6520	2.2uF	50V	63	44	8	3.5	.45	.40	.36
R 6530	3.3uF	50V	63	54	8	3.5	.45	.40	.36
R 6540	4.7uF	50V	63	65	8	3.5	.45	.40	.36
R 6550	6.8uF	50V	63	70	8	3.5	.45	.40	.36
R 6560	10uF	50V	63	88	10	5	.85	.60	.55
R 6570	22uF	50V	63	145	10	5	.75	.70	.65
R 6580	47uF	50V	63	220	13	5	1.15	1.05	.90
R 6590	100uF	50V	63	363	16	7.5	1.60	1.45	1.30

## Chassis Mount Electrolytics — Can Type With Clip

Features: Fixes easily to PCB or Metal Chassis • Capable of passing high ripple current • High values of capacitance and voltage in a compact low profile package • Operation temperature Range -40 +85°C • Capacitance Tolerance +/-20% at 20°C, 100Hz) • Tag type terminals for easy connection.



Cat. No.	uF	Working Voltage	Surge Voltage	Ripple Current mA	ea 1-9	ea 10up
R 6710	4000uF	63V	80	1814	10.80	9.90
R 6720	8000uF	63V	80	2039	19.50	17.50
R 6730	10000uF	50V	80	2473	16.50	15.00
R 6712	4000uF	75V	95	2870	16.00	15.00
R 6722	8000uF	75V	95	4200	19.50	17.50
R 6740	10000uF	100V	125	5630	29.50	26.00

## PCB Mount Electrolytic Capacitors With Auxilliary Lead

Has an auxilliary terminal (not electrically connected), which acts as a stabiliser and allows more positive fixing to PCB, to withstand vibration and transit movement.



Cat. No.	uF	Working Voltage	Surge Voltage	Ripple Current mA	ea 1-9	ea 10up
R 6820	4700uF	50V	63	2400	6.60	5.95
R 6825	4700uF	80V	100	3000	9.95	9.15
R 6840	10000uF	50V	63	3300	9.95	9.15



## 600V Greencaps

Cat No	Value	Lead Space	ea	ea 10up	ea 100up
2700	.001uF	4mm	.25	.20	.18
2701	.0012uF	4mm	.25	.20	.18
2702	.0015uF	4mm	.25	.20	.18
2703	.0018uF	4mm	.25	.20	.18
2704	.0022uF	4mm	.25	.20	.18
2706	.0033uF	4mm	.25	.20	.18
2708	.0039uF	4mm	.25	.20	.18
2710	.0047uF	4mm	.25	.20	.18
2712	.0056uF	4mm	.25	.20	.18
2714	.0068uF	4mm	.25	.20	.18
2716	.0082uF	4mm	.25	.20	.18
2718	.01uF	4mm	.25	.20	.18
2719	.012uF	4mm	.25	.20	.18
2720	.015uF	4.5mm	.25	.20	.18
2721	.018uF	4.5mm	.25	.20	.18
2722	.022uF	4.5mm	.25	.20	.18
2724	.033uF	4.5mm	.25	.20	.18
2726	.039uF	5mm	.25	.20	.18
2728	.047uF	5mm	.28	.25	.22
2730	.056uF	5mm	.28	.25	.22
2732	.068uF	7mm	.28	.25	.22
2734	.082uF	7mm	.28	.25	.22
2736	.1uF	7mm	.28	.25	.23
2737	.12uF	7mm	.39	.35	.31
2738	.15uF	7mm	.39	.35	.31
2739	.18uF	10mm	.50	.45	.40
2740	.22uF	10mm	.50	.45	.40
2742	.27uF	10mm	.50	.45	.40
2744	.33uF	15mm	.50	.45	.40
2746	.47uF	15mm	.69	.60	.54
2748	1.0uF	21mm	1.40	1.25	1.10
2750	2.2uF	27mm	2.10	2.00	1.50
2752	3.3uF	0.0mm	2.95	2.75	2.45

## High Voltage 630V Greencaps

Cat No	Value	Lead Space	ea	ea 10up	ea 100up
R 2770	.01uF	5.5mm	.35	.30	.20
R 2772	.022uF	5.5mm	.35	.30	.20
R 2774	.033uF	5.5mm	.40	.35	.30
R 2776	.047uF	5.5mm	.40	.35	.30
R 2778	.1uF	5.5mm	.90	.80	.75
R 2780	.22uF	5.5mm	1.05	.95	.80
R 2782	.33uF	5.5mm	1.30	1.15	1.05
R 2784	.47uF	5.5mm	1.35	1.20	1.10

## Capacitor Value Guide

pF	nF	uF	mF	F	EIA Code
100	0.1	0.0001	—	—	101
820	0.82	0.00082	—	—	821
1000	1	0.001	—	—	102
8200	8.2	0.0082	—	—	822
10,000	10	0.01	—	—	103
82,000	82	0.082	—	—	823
100,000	100	0.1	0.0001	—	104
—	820	0.82	0.00082	—	824
—	1000	1	0.001	—	105
—	8,200	8.2	0.0082	—	825
—	10,000	10	0.01	—	106
—	82,000	82	0.082	—	826
—	100,000	100	0.1	0.0001	107
—	—	820	0.82	0.00082	827
—	—	1000	1	0.001	108
—	—	8200	8.2	0.0082	828
—	—	10,000	10	0.01	109
—	—	82,000	82	0.082	829
—	—	100,000	100	0.01	—
—	—	—	820	0.82	—
—	—	—	1000	1	—

PHONE ORDER TOLL FREE 008 999 007. ALTRONIC COMPONENTS

# CAPACITORS

## Ceramic, Tantalum & Miscellaneous Capacitors

### 50V Ceramic Capacitors

Cat No	Value	Lead Space	ea	10up	100up
R 2791	1pF	3mm	.18	.15	.12
R 2792	2pF	3mm	.18	.15	.12
R 2793	3pF	3mm	.18	.15	.12
R 2794	4pF	3mm	.18	.15	.12
R 2795	5pF	3mm	.18	.15	.12
R 2796	6pF	3mm	.18	.15	.12
R 2797	7pF	3mm	.18	.15	.12
R 2798	8pF	3mm	.18	.15	.12
R 2810	10pF	3mm	.18	.15	.12
R 2811	12pF	3mm	.18	.15	.12
R 2812	15pF	3mm	.18	.15	.12
R 2813	18pF	3mm	.18	.15	.12
R 2814	22pF	3mm	.18	.15	.12
R 2815	27pF	3mm	.18	.15	.12
R 2816	33pF	3mm	.18	.15	.12
R 2817	39pF	3mm	.18	.15	.12
R 2818	47pF	3mm	.18	.15	.12
R 2819	56pF	3mm	.18	.15	.12
R 2820	68pF	2.5mm	.18	.15	.12
R 2821	82pF	2.5mm	.18	.15	.12
R 2822	100pF	3mm	.18	.15	.12
R 2823	120pF	3mm	.18	.15	.12
R 2824	150pF	3mm	.18	.15	.12
R 2825	180pF	3mm	.18	.15	.12
R 2826	220pF	3mm	.18	.15	.12
R 2827	270pF	3mm	.18	.15	.12
R 2828	330pF	3mm	.18	.15	.12
R 2829	390pF	3mm	.18	.15	.12
R 2830	470pF	3mm	.18	.15	.12
R 2831	560pF	3mm	.18	.15	.12
R 2832	680pF	3mm	.18	.15	.12
R 2833	820pF	3mm	.18	.15	.12
R 2834	.001uF	3mm	.18	.15	.12
R 2837	.0022uF	3mm	.18	.15	.12
R 2840	.0033uF	3mm	.18	.15	.12
R 2842	.0047uF	3mm	.18	.15	.12
R 2843	.0056uF	5mm	.35	.30	.25
R 2844	.0068uF	5mm	.35	.30	.25
R 2845	.0082uF	5mm	.35	.30	.25
R 2846	.01uF	3mm	.18	.15	.12
R 2850	.022uF	5mm	.18	.15	.12
R 2855	.033uF	5mm	.18	.15	.12
R 2860	.047uF	5mm	.18	.15	.12
R 2865	.1uF	5mm	.35	.30	.25

### Tantalum

Cat No	Value	Volts	Lead Space	ea	10up
R 2620	.1uF	35V	5mm	.70	.65
R 2622	.22uF	35V	5mm	.70	.65
R 2624	.33uF	35V	5mm	.70	.65
R 2626	.47uF	35V	5mm	.70	.65
R 2628	1uF	35V	5mm	.70	.65
R 2630	1.5uF	35V	5mm	.75	.70
R 2632	2.2uF	35V	5mm	.80	.75
R 2634	3.3uF	35V	5mm	.70	.65
R 2635	4.7uF	35V	5mm	.70	.65
R 2636	4.7uF	35V	5mm	.95	.95
R 2637	6.8uF	35V	5mm	.95	.85
R 2638	10uF	25V	5mm	1.10	.98
R 2640	15uF	25V	5mm	1.10	.98
R 2642	22uF	16V	5mm	1.10	.98
R 2644	33uF	10V	5mm	1.10	.98
R 2646	47uF	6.3V	5mm	1.35	1.25
R 2648	100uF	3V	5mm	1.50	1.35

### 50V Monolithic Capacitors

Cat No	Value	Lead Space	ea	10up	100up
R 2900	.001uF	5mm	.22	.20	.18
R 2915	.022uF	5mm	.22	.20	.18
R 2910	.01uF	5mm	.22	.20	.18
R 2920	.033uF	5mm	.22	.20	.18
R 2925	.047uF	5mm	.24	.22	.20
R 2930	.1uF	5mm	.24	.22	.18
R 2935	.22uF	5mm	.55	.50	.45
R 2940	.33uF	5mm	.55	.50	.45
R 2945	.47uF	5mm	.70	.60	.55
R 2950	1uF	5mm	1.35	1.15	1.05



### AC Capacitor

As used in mains isolation applications eg Telephone line isolation equipment. Modems etc. PCB mount. 2uF 440V AC.

R 6900 \$4.95 ea  
10 up \$4.45 ea



### Trimmer Capacitors

D Series, top adjust, 2 pin, 5mm pin spacing. Colour coded for capacitance range identification.

R 4001	2-7pF	Red
R 4003	3-11pF	White
R 4005	3.5-20pF	Blue
R 4007	5-30pF	Yellow
R 4009	8.5-40pF	Brown
R 4011	8.5-50pF	Green
R 4013	8.5-70pF	Black

All \$1.45  
10 up \$1.30



### 60-160pF Variable Tuning Capacitor

R 2601 \$1.75 ea  
10 up \$1.40 ea



### Greencap Capacitor Packs

Average Contents: 50  
\$12.00 value.

R 3510 \$5.95  
10 Up \$5.50



### Ceramic Capacitor Packs

Average Contents: 100  
\$14.00 value.

R 3515 \$5.95  
10 Up \$5.50



### Electrolytic Capacitor Pack

Average Contents: 40  
\$14.00 value.

R 3520 \$6.50  
10 Up \$6.20

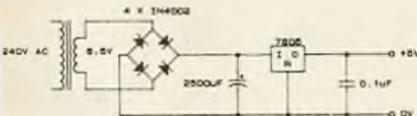


### Typical Power Supply

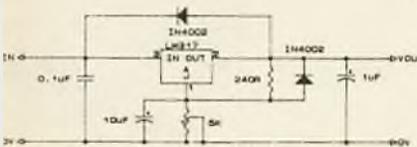
(Regulated Output: 5V/1Amp)

Other voltage regulators can be used in this configuration, the only change necessary is with the transformer secondary output voltage. To maintain line regulation, a DC voltage input to device of not less than 2.5V above regulator output voltage is required.

E.g.: If a 15V regulator is used, then a DC input of not less than 17.5V is required — thus a transformer voltage change is necessary.



### LM350 or LM317



1. R2 should be 5K Ohm variable resistor unless non adjustability is required, in which case the following formula can be used for specific resistance:

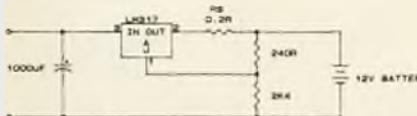
$$R2 = (96 \times V_{out}) - 240 \text{ where: } R2 \text{ is in Ohms.}$$

2. Vin should be at least 2.5 volts higher than Vout.

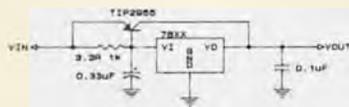
3. Capacitor voltage ratings must be chosen appropriately.

4. If input or output of the regulator is shorted to ground, the diodes shown will protect the regulator

### 12V Battery Charger



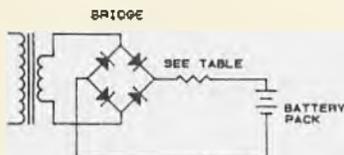
### Increase Output Current of Regulator



To increase the output current above the normal rating of the regulator, we simply add an appropriate PNP Power Transistor (to a positive regulator) or NPN (to a negative regulator). The circuit below will deliver in excess of 4 amps with the power transistor mounted to a heatsink.

### A Simple Charger

The circuit below depicts a constant current nicad battery charger. Normally the correct charge current is printed on the body of the nicad cell. However, the table below can be used as a guide to the value of the series limiting resistor.

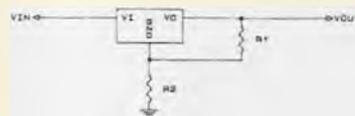


### Application Guide

The figures in each of the four columns show the value (in Ohms) of the series resistor, and its power rating (in watts) these values should result in charge currents within 10% of the stated ratings. Otherwise it is possible to insert a current meter in series with charged cells, while charging, and trying other resistor values until an adequate charge level is acquired.

Type of Cell	4 Cells	6 Cells	8 Cells
5 5020	500mAh	AA 5V	7.5V
5 5022	1.5AH	C 220/1W	150/1W
5 5023	4AH	D 56/5W	47/5W
5 5024	120mAh	D 22/10W	18/5W
5 5024	120mAh	9V Transistor Battery (x1)	12/5W
680/0	25W		

### Boost Output Voltage of Three Terminal Regulator



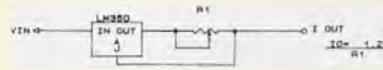
With the addition of two resistors, regulators can be configured to give higher output voltages or even made variable, values of the resistors required are devised as follows

Where Vreg is the normal regulator voltage and Vup is the amount by which the regulator has to be boosted above Vreg.

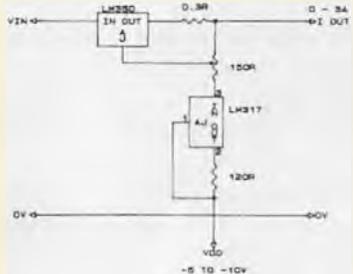
Typical Examples:

Vout	Reg/Voltage	R1	R2
6	5V	220	39
9	5V	220	150
13-8	12V	560	68
18	15V	680	120
30	24V	1K2	220

### Precision Current Regulators



### Adjustable Current Regulator



### Peak, Average and RMS Relationships

The TRM RMS often causes confusion. RMS stands for root-mean-squared and can be calculated from the table below. To explain this term simply, it is best done through an example. A 100 volt RMS A.C. waveform will cause the same power dissipation as a 70 volt D.C. when put on a resistive load. The power dissipation will be identical for both.

As most test equipment does not actually measure RMS value but measures average value. Knowing this, we can convert average values back through the formula to calculate true RMS. Value as long as we know the wave shape.

Given Value	Multiplying Factor to Get			
	Average	RMS	Peak	Peak-to-Peak
Average	—	1.11	1.57	3.14
RMS	0.9	—	1.414	2.828
Peak	0.637	0.707	—	2.0
Peak-to-Peak	0.32	0.3535	0.5	—

care has been taken in preparation of this catalogue. However Altronics disclaims liability of errors, typographical or otherwise. Liability is also disclaimed from any information given in this catalogue. All information is for reference only and should not be acted upon. Responsibility of consequences of any kind, be it direct or indirect as a result of this catalogue is denied totally by Altronics.

### Moving Coil Meters and Shunts

One of the most basic methods of measuring currents is with a Moving Coil Meter which normally are made to measure, either milliamperes or microamps. By the addition of a resistance they can be made to measure, either volts or higher currents. If a resistor is placed in series, the meter will then act as a Volt Measuring Device and if in parallel, the resistor will then be a Current Shunt.

The principle of a Current Shunt is to bypass the majority of the current to be measured away from the moving coil itself, but to still allow current measurement of the current flowing.

### Voltage Multipliers

These movements can be made to display volts by simply adding to series resistor formula as follows



Where  
R = Multiplier Resistance In Ohms  
V<sub>1</sub> = Full Scale Reading In Volts  
I<sub>s</sub> = Full Scale Reading In Amps  
R<sub>m</sub> = Meter Resistance In Ohms

### Ammeter Shunts

The value of the movement can also be multiplied by placing a resistor in parallel across the coil movement. Formula as follows:



$$R = \frac{R_m}{N - 1} = \frac{I_m R_m}{I_s}$$

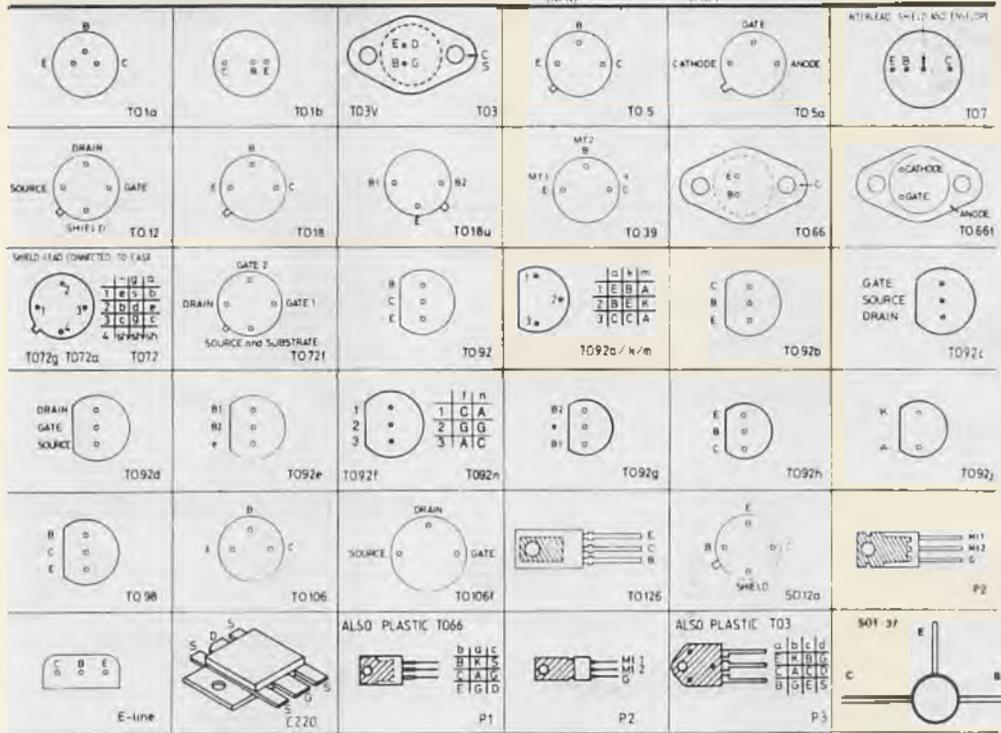
Where  
R = Resistance In Ohms  
R<sub>m</sub> = Meter Resistance  
N = Multiplication Factor  
I<sub>m</sub> = Meter Current  
I<sub>s</sub> = Shunt Current

### Conversion Table

millimetres/inch	25.4
centimetres/foot	30.48
metres/yards	0.914
kilometres/mile	1.609
grams/ounce	28.35
kilograms/pound	0.454
litres/pint	0.567
litres/gallon	4.54
litres/cubic foot	28.32
Watts/Horsepower	746
Coulombs/Amp Hour	3600

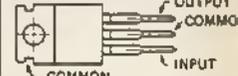
## Transistor Cases

(All Viewed from Below Unless Stated)

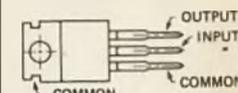


## Voltage Regulators

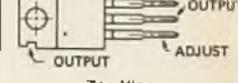
Connections for TO-220 package. 78XX positive series regulators.



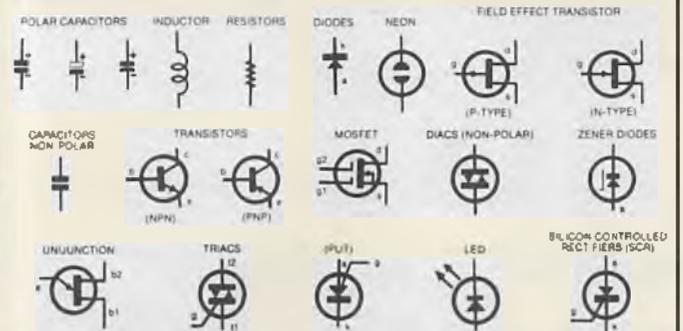
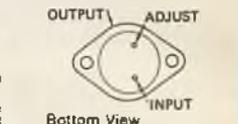
Connections for TO-220 package. 79XX negative series regulators.



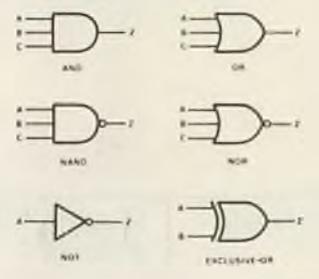
Connections for TO-220 package. LM317T and LM350T positive regulators.



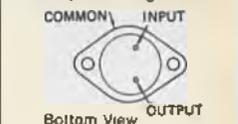
TO-3 package LM317K and LM350K positive regulator.



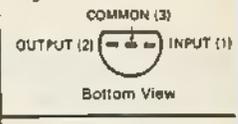
## Logic Gates



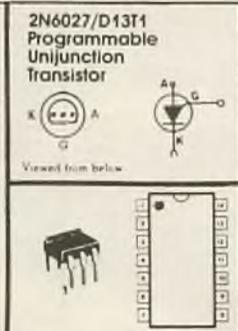
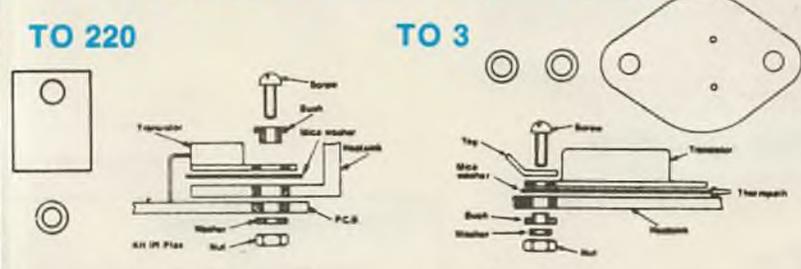
Connections TO-3 package. 78H05 positive regulator.



Connection TO-92 package. 78LXX positive series regulators.



## Suggested Mounting Methods



**Mei 12 NPN Darlington Photo Transistor**  
 Pd = 200mW  
 Ic = 150mA  
 Vceo = 40V  
 If = 3mA (typ), H = 2mW/Cm<sup>2</sup> b  
 Id = 100nA, Vce = 5V  
 viewed from below

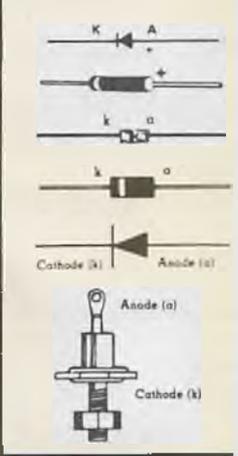
**FPT 100 NPN Photo Transistor**  
 Pd = 100mW  
 Ic = 25mA  
 Vceo = 30V  
 If = 1.4mA (typ), H = 5mW/Cm<sup>2</sup>  
 Id = 2nA (max), Vce = 5V

**Small Signal FETs**

G Gate  
 S Source  
 D Drain

N5457  
 N5458  
 N5459  
 N5460  
 N5461  
 MPF106

## Diodes

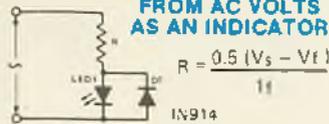


## LED's

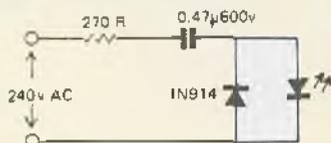
Light Emitting Diodes are a special type of diode which lights up when a voltage is applied. They are available in red, green, yellow, orange and in various sizes and shapes. LEDs are polarized, and can be damaged by reverse connection. As a general rule, the longer lead is the positive.



### OPERATING A LED FROM AC VOLTS AS AN INDICATOR



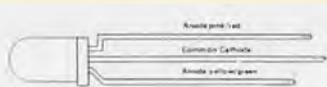
### OPERATING DIRECTLY FROM 240V AC MAINS



### OPERATING A LED FROM DC VOLTS AS AN INDICATOR

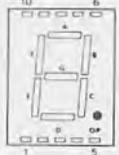


## Tri-Colour LED



## 7 Seg Display Pinouts

Characteristic	FN0 500 FN0 507	FN0 500 FN0 507 H02P3300	510 510 T75 03 H02P3301
Digit Size	12.7mm	12.7mm	12.7mm
Colour	Red	1. Seg E	1. Seg E
Avg. Fwd Current	25 mA	2. Seg B	2. Seg B
Segment	L7 V	3. Common	3. Common
Fwd Voltage	1.7 V	4. Seg C	4. Seg C
Min Reverse Breakdown Voltage	3 V	5. Seg D	5. Seg D
Max Rev. Current	100 uA	6. Seg F	6. Seg F
Light Intensity	600 ucd	7. Seg A	7. Seg A
Max. Pul. Drop	400 mV	8. Common	8. Common
		9. Seg F	9. Seg F
		10. Seg G	10. Seg G



Eg.:

- |                     |                     |
|---------------------|---------------------|
| For I = 10mA        | For I = 20mA        |
| 3V DC use 150 Ohm   | 3V DC use 68 Ohm    |
| 6V DC use 470 Ohm   | 6V DC use 220 Ohm   |
| 9V DC use 820 Ohm   | 9V DC use 390 Ohm   |
| 12V DC use 1k Ohm   | 12V DC use 560 Ohm  |
| 24V DC use 2.2k Ohm | 24V DC use 1.2k Ohm |

COLOUR	RED	ORANGE	YELLOW	GREEN
V <sub>F</sub> (TYPICAL)	1.8V	2.0V	2.1V	2.2V

## BPW 50

Sensitive Area

Silicon Photo Diode

Cont. Reverse Voltage	Max	32V
Tot. Power. Disp.	Max	150mW
U T Tamb = 25°C		
Dark Reverse Current		30nA
Vr = 10V Ee = 0		30mA
Light Reverse Current		
Vr = 5V Ee = 1mW/cm²		
Wavelength at peak emission	typ	930nm

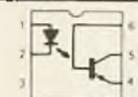
## Opto Coupled TRIAC Driver MOC 3021



Specifications:

Package Dissipation	330mW
Surge Isolation Voltage	7500V
Peak blocking voltage:	400
LED Trigger Current (max)	15mA
LED Fwd Voltage (max)	1.5V

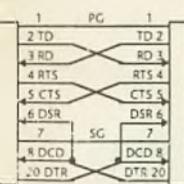
## Optic Coupler 4N28



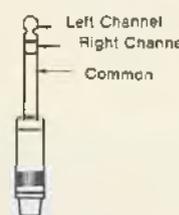
Specifications:

Diode: Vr — 3 volts; If — 80mA cont; If — 3A peak; Vf @ 50mA — 1.5A max; Pd — 150mW  
 NPN Photo Transistor: Vce — 30 volts; Vcb — 70 volts; Pd — 150mW Ice — dark current - 50nA max (Vce = 10 volts)  
 Total device rating: Pd — 250mW. Isolation voltage 500min.

## Null Modem Connections



## Headphone Plug



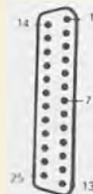
## RS232 Connections

Pin No.	Signal
2	TX Data
3	RX Data
7	Sig.GNP
4	RTS
5	CTS
8	RLSD
6	DSR
20	DTR



## Rear Panel D 25 Parallel Printer Port

Pin No.	Signal
1.	Strobe
2.	Data 0
3.	Data 1
4.	Data 2
5.	Data 3
6.	Data 4
7.	Data 5
8.	Data 6
9.	Data 7
10.	Acknowledge
11.	Busy
12.	Paper End
14.	Auto Feed
15.	Error
16.	Initiate

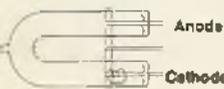


## Centronics Connections



No.	Signal
1	SIGNAL GROUND
2	DATA BIT 0
3	DATA BIT 1
4	DATA BIT 3
5	DATA BIT 4
6	DATA BIT 5
7	DATA BIT 6
8	DATA BIT 7
1	DATA STROBE
10	DATA ACKNOWLEDGE
11	INPUT BUSY READY

## Xenon Tube Pinouts



## PC Floppy Drive

Power Connections

Pin	Power
1	+12 Volts
2	+12 Volts Return
3	+5 Volts Return
4	+5 Volts



## Din Connectors

Notes — The numbering of the contacts is shown as seen on the mating face of the connector.

Notes 2 — The same connectors are used for monaural and stereophonic systems.

Notes 3 — Normally, it is recommended to connect the shell of the plug to terminal 2 of the connector to ensure that the screen is earthed.

TABLE 3	IEC Type designation	Socket connector	Application	1	2	3	4	5
Microphone	D1	D2	Monaural system (balanced)	Hot lead		Return lead		
Microphone			Monaural system (unbalanced)	Hot lead				
Microphone			Stereophonic system (balanced)	Hot lead of left-hand channel		Return lead of left-hand channel	Hot lead of right-hand channel	Return lead of right-hand channel
Microphone			Stereophonic system (unbalanced)	Hot lead of left-hand channel			Hot lead of right-hand channel	
Record player	D3	D4	Monaural system		Screening earth			
See Note 2			Stereophonic system			Hot lead of left-hand channel		Hot lead of right-hand channel
Taperecorder			Monaural system	Input signal			Connected to 3	
See Note 2			Stereophonic system	Input signal of left-hand channel	See Note 3	Output signal of left-hand channel	Input signal of right-hand channel	Output signal of right-hand channel

## CAPACITORS

The job of a capacitor is to store an electrical charge, though they can transmit an alternating current. They cannot pass a direct current.

The markings on capacitors puzzle amateurs and professionals alike. There are many different codes in use, the most common being the 'EIA Code'.

The most commonly used capacitor types are greencaps, ceramics, electrolytic and tantalum. Electrolytic and tantalum capacitors are both polarised. This means they must be installed the correct way around. They have a positive and negative lead.

## DECIMAL MULTIPLIERS

Capacitance is measured in farads. But the unit of a farad is much too large to be of practical use in most cases. Purely for convenience, we use sub-multipliers to save extremely long figures. For example, instead of writing 0.000000000001 farads, simply use 1pF (1 picofarad).

Following are the more common prefixes and the relationships to one another.

Abbrev.	Prefix	Multiply by	or
p	pico	0.000000000001	10 <sup>-12</sup>
n	nano	0.000000001	10 <sup>-9</sup>
u	micro	0.000001	10 <sup>-6</sup>
m	milli	0.001	10 <sup>-3</sup>
-	UNIT	1	10 <sup>0</sup>
k	kilo	1000	10 <sup>3</sup>
M	mega	1000000	10 <sup>6</sup>

- 1000 pico units = 1 nano unit
- 1000 nano units = 1 micro unit
- 1000 micro units = 1 milli unit
- 1000 milli units = 1 unit
- 1000 units = 1 kilo unit
- 1000 kilo units = 1 mega unit

## CIRCUIT NOTATION

Component values in some circuits are given as they are spoken — e.g. 4.7pF for 4.7 picofarads, 6.8nH for 6.8 nanohenries. Others replace the decimal point with the sub-multiplier's first letter — e.g. 4n7 for a 4.7nF capacitor, or a 4.7nH inductor.

## CAPACITOR MAGNITUDES

- 1,000,000pF = 1uF or 1,000nF
- 100,000pF = 0.1uF or 100nF
- 10,000pF = 0.01uF or 10nF
- 1,000pF = 0.001uF or 1nF
- 100pF = remains as is (100pF)
- 10pF = remains as is (10pF)
- 1pF = remains as is (1pF)

## Capacitors and Inductors — Reactance and Resonance

Capacitors and inductors can be used to impede the flow of current in a circuit much like the job of a resistor. However, unlike resistors, the impedance of these components varies with frequency. The impedance of an inductor increases with increasing frequency, while the impedance of a capacitor increases with decreasing frequency. The impedance of capacitors and inductors is termed reactance while the impedance of a resistor is termed resistance.

Capacitive Reactance can be calculated from the following formula:

$$X_C = \frac{1}{2\pi fC}$$

For an inductor the formula becomes:  $X_L = 2\pi fL$ .

Where:  
 $X_C$  is the Capacitive Reactance in ohms  
 $X_L$  is the Inductive Reactance in ohms  
 $C$  is the Capacitance in Farads  
 $L$  is the Inductance in Henries  
 $f$  is the Applied Frequency in Hz

Reactive and resistive impedances cannot be added numerically, because Reactive Impedances are imaginary and Resistive Impedances are real. This following formula gives total impedance of a resistor in series with a reactive component.

$$Z = \sqrt{X^2 + R^2}$$

Where:  
 $Z$  = Complex Impedance in Ohms  
 $X$  = Capacitive or Inductive Reactance  
 $R$  = Resistance (of the Resistor) in Ohms.

Placing an Inductor and Capacitor in parallel, at a particular frequency, termed the 'Resonant Frequency', the magnitude of their reactances will be equal and the parallel network will have a very high impedance which decreases either side of the resonant frequency. The opposite happens if the components are placed in series. The network will have a very low impedance which increases at either side of the Resonant Frequency.

The Resonant Frequency of an LC network is given by:

$$f = \frac{1}{2\pi\sqrt{LC}}$$

## Capacitors and Their Uses

**Electrolytic Capacitors (aluminium)**

Ideal for Use:

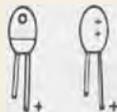
- Smoothing or filtering rectified AC
- Energy Storage (as in PSU's)
- Bypassing and coupling in audio
- Timing in non critical circuits

BT Or Axial Style      RB Or PC Mount



**Tantalum Capacitors**

Very low leakage, high reliability, long life and offer an extreme size advantage.



**Ceramic Capacitors**

Ceramic's offer small physical size with high capacitance as well as low cost.

- Generally there are two uses:
1. For high stability and light tolerance in (RF) radio frequency circuits.
  2. (RF) capacitors. Also for spike suppression in digital circuits and power supply filtering.

**Greencaps (Metalised Polyester)**

Widely used in general purpose applications, lowest cost.

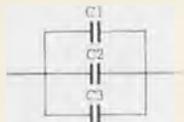
**Capacitors in Series**

Capacitors in series are similar to resistors in parallel you add the reciprocals as follows:

$$C_T = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}}$$

**Capacitors in Parallel**

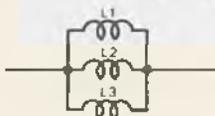
Capacitors behave exactly the opposite to resistors: when capacitors are in parallel, you add them:



$$C_T = C_1 + C_2 + C_3 + \dots$$

**Inductors in Parallel**

$$L_T = \frac{1}{\frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3} + \dots}$$



**Inductors in Series**

$$L_T = L_1 + L_2 + L_3 + \dots$$

## Capacitor Value Conversions

pF	nF	uF	mF	EIA Code
100	0.1	0.0001	—	101
820	0.82	0.00082	—	821
1000	1	0.001	—	102
8200	8.2	0.0082	—	822
10,000	10	0.01	—	103
82,000	82	0.082	—	823
100,000	100	0.1	0.0001	104
—	820	0.82	0.00082	824
—	1000	1	0.001	105
—	8,200	8.2	0.0082	825
—	10,000	10	0.01	106
—	82,000	82	0.082	826
—	100,000	100	0.1	107
—	—	820	0.82	827
—	—	1000	1	108
—	—	8200	8.2	828
—	—	10,000	10	109
—	—	82,000	82	829
—	—	100,000	100	—
—	—	—	820	—
—	—	—	1000	—

## CAPACITOR CODES

Most capacitors will have their value printed on them. However, there are a number of capacitor manufacturers who use the 'IEC' code. The 'IEC' code is a numerical code that works in a similar way to the resistor colour code: two figures followed by a multiplier. Quite often there is a single letter, indicating tolerance.

The code is worked out in picofarads, so there is a chance you may have to use the appropriate multiplier. For example a capacitor may have a code '104k'. This decodes as 0.1uF, 10%. The first two figures give 10, the third figure '4' gives 0000, and the last 'k' = 10%. Therefore, the capacitor is 10,000pF, 10%. This is normally expressed as 0.1uF or 100nF — capacitors with a value below 0.001uF are expressed in Picofarads.

There may be a further figure marked on the capacitor, this would normally be the maximum voltage rating.



1st Figure of Value  
 2nd Figure of Value  
 Number of Zeros (Multiplier)  
 Tolerance (+/-%)

## VOLTAGE RATING

Usually capacitors are marked with the 'V' symbol. Most electrolytics clearly indicate their voltage rating: polyester or greencaps usually show the voltage — less the 'V' symbol. Quite often ceramics show no voltage ratings at all.

## TOLERANCE

Tolerance indicates how close the capacitors marked value is to its actual value.

A tolerance can be marked several ways, numerically as a code. Consisting of a single letter or a colour band or dot. Tolerance code letters are usually placed immediately after the value. Commonly used tolerance codes are:

Code	Colour	Tol.	Code	Colour	Tol.
A	—	+20-10(z)	L	—	+/-15%
C	Red	+/-0.25pf	M	Black	+/-20%
D	Green	+/-0.5pf	N	—	+/-30%
E	White	+/-1pF	P	—	+/-100-
F	Brown	+/-1%	Q(2)	—	+30-10
G	Red	+/-2%	S	—	+50-20
J	Green	+/-5%	W	—	+50-10
	White	+/-10%	W(2)	—	+40-20
			Z	Grey	-80-20

## POLARITY

Capacitors that are polarity conscious, such as electrolytics are usually marked with a 'A' + or '-' symbol adjacent to one lead.

## Resistors

Generally resistors are recognised by coloured rings around their body. They are normally either carbon film, metal film or wire wound.

Large wattage resistors are generally rectangular and have their value printed on them. These are normally wire wound type, encased in ceramic for heat dissipation.

Resistance is measured in Ohms, which can be abbreviated to Ohm or R. When a measurement of thousands of Ohms is made, this is abbreviated to K, or Kilo-Ohm, also millions of Ohms to M, for Meg-ohm.

- 1 Ohm = 100R
- 100 Ohm = 4.7K or 4K7
- 1,000 Ohm = 10K
- 200,000 Ohm = 1.2M or 1M2
- 1,000,000 Ohm = 10M

To determine the individual resistance value, we use the coloured rings around the resistor. Usually, the first three rings indicate its resistance, and the fourth is tolerance.

Tolerance is how much the stated value of resistance varies from the actual resistance. This is given as a percentage.

eg. 5% tolerance would mean the last band is Gold or 10 Ohm 5% tolerance resistance could be anywhere between 95-105 Ohms. Circuits generally take this into account.

To determine exact value of resistance, the first two rings are the significant value, the third ring is the number of zeros to follow or the multiplier.

- Examples:
- 10 Ohms, 5% = Brown, Green, Black Gold
  - 10 Ohms, 5% = Brown, Black, Red, Gold
  - 10K Ohm, 5% = Blue, Green, Yellow, Gold
  - 1M Ohm, 5% = Brown, Black, Blue, Gold
  - 1K Ohm, 1% = Yellow, Violet, Red, Brown
  - 10 Ohm, 5% = Yellow, Violet, Orange, Gold

## Resistors In Series

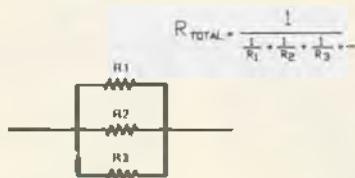
Resistors in a series circuit are simply added together to find the total resistance.

eg. if we had a 100 Ohm, 1.5K Ohm and a 10K Ohm resistor connected in series, this would be the same as a single 11.6K Ohm Resistor.

$$R_{TOTAL} = R_1 + R_2 + R_3$$



## Resistors In Parallel



## Ohm's Law

The relationship between resistance, voltage and current is defined by Ohm's Law. The formulas are:

$$V = I \times R$$

$$I = V / R$$

$$R = V / I$$



Where:  
 E = Volts  
 R = Resistance in Ohms  
 I = Current in Amps

An easier way to remember Ohm's Law is by this diagram. Just cover up the value you are looking for, and the formula shows.

## Power In A Circuit

When you pass current through a particular component, energy is given off in the form of heat, similar to the job of a resistor. The following formula's will help to calculate power dissipation

$$P = V \times I$$

$$V = P / I$$

$$I = P / V$$



Where:  
 P = Power in Watts  
 V = Volts  
 I = Current in Amps

## Colour Band Layouts

1% Resistors (metal film) 5 bands. These resistors have 5 colour bands, the first three give the significant value. The fourth band is the number of zero's to follow or the multiplier and the fifth becomes the tolerance.

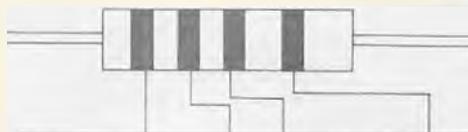
The preferred value system was developed to provide a logical progression from one value to the next in resistors, capacitors and inductors. Depending on the tolerance of the particular components, within each decade, there can be between 3 and 192 preferred values. The tables below show the more common series. Values given in each series are repeated in every decade.

### (5% Tolerance) 12 Per Decade (E12 Series)

10, 12, 15, 18, 22, 27, 33, 39, 47, 56, 68, 82

### (1% Tolerance) 24 Per Decade (E24 Series)

10, 11, 12, 13, 15, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82, 91.



COLOUR	TURNS	UNITS	MULTIPLIER	TOLERANCE
Black	0	0	1	20% (M)
Brown	1	1	10	1% (F)
Red	2	2	100	2% (G)
Orange	3	3	1000	-
Yellow	4	4	10000	-
Green	5	5	100000	-
Blue	6	6	1000000	-
Violet	7	7	-	-
Grey	8	8	-	-
White	9	9	-	-
Gold	-	-	0.1	5% (J)
Silver	-	-	0.01	10% (K)



## Pin XLR Connectors

Viewed From Front

IEC Standard

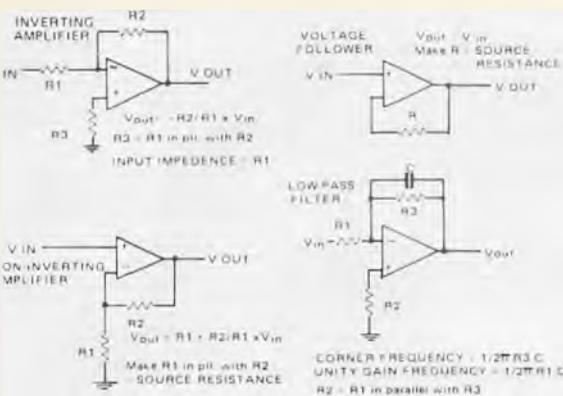
Common Alternative



1. Earth/Shield
2. In Phase (Hot)
3. Out Of Phase (Cold)

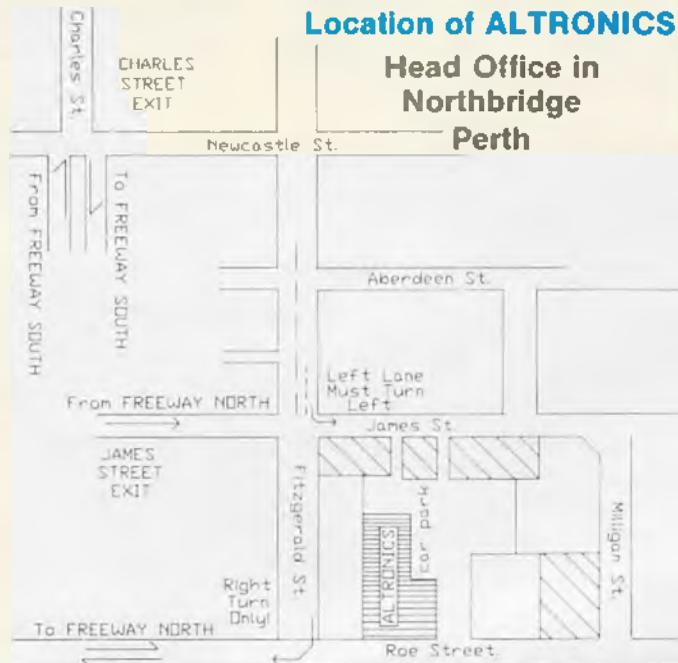
1. Earth/Shield
2. Out Of Phase
3. In Phase

## Standard Op Amp Configuration



## Location of ALTRONICS

Head Office in  
Northbridge  
Perth



## Free Call Phone Order

Reserved for retail M/O customers only

Just phone your order  
— Toll Free on  
**008 999 007**

(up to 7pm Eastern Standard  
Time or 5pm Western Time)

## Local Orders (Perth) 328 1599

New Same Day Delivery to  
Perth metro area. (COD  
excepted). For wholesale and  
technical enquiries please  
phone (09) 328 2199.

## Ordering

### 4 Easy Ways To Order



**FAX**

(09) 328 4459

Please remember to include a  
phone number in case Fax is  
unreadable.

**MAIL**

Altronics Mail Order  
PO Box 8350  
Stirling Street,  
Perth, Western Australia 6849

## PERSONAL SHOPPERS

We pride ourselves with the  
standard of service we offer  
you — the electronics buying  
public. Altronics staff are all  
technically competent and will  
be only too pleased to assist  
with your enquiries.

**Retail Store Address**  
174 Roe St., Perth WA 6000  
Ph (09) 328 1599

**Shop Hours**  
8.30am-5.15pm Monday-Friday  
8.30am-8.00pm Thursday  
8.30am-12 noon Saturday

## General Order Information

### Minimum Order

Altronics minimum is \$10.00 exclusive of  
delivery charge.

### 14 Day Satisfaction Guarantee

If you are dissatisfied with our goods and  
services for any reason, please return to  
our premises within 14 days of our  
despatch date and we will refund your  
purchase in full, less transport costs. All  
returned goods must be in as sold  
condition and include all packing  
instructions, invoices etc.

### Warranties

3 months from date of supply. Faulty  
goods must be returned to our store with  
evidence of purchase and \$4 money  
order, cheque or stamps to cover return  
postage.

### Damaged Goods

At Altronics we take care in the protective  
packing of each consignment. In the  
unlikely event of your goods arriving  
damaged you must file a claim with the  
carrier concerned — do not open parcel if  
you suspect goods are damaged.

### Insurance

Is available at the rate of \$1.00 per \$100  
or part thereof (min charge is \$1.00).  
Remember we can only accept claims for  
damage or loss etc where the  
consignment is insured.

### Back Orders

Should any item ordered be temporarily  
unavailable, we automatically place this  
on back order. If this is inconvenient  
please advise upon receipt of partial  
shipment.

### Sales Tax

All prices in this catalogue include Sales  
Tax. Tax free scales can be made: (a)  
Where official Sales Tax exemption is  
supplied. (b) Where each item on the  
order is not less than \$10.00 and the  
overall value is not less than \$20.00. Our  
staff will simply deduct Sales Tax where  
possible.

### Monthly Accounts

30 day mini convenience credit accounts  
are available to schools, universities,  
government institutions, sorry, we do not  
run accounts for private companies or  
individuals.

### Prices

Some prices may alter during the life of  
this catalogue. Circumstances such as  
exchange rates, sales tax and import duty  
can significantly influence prices and are  
regrettably beyond our control.

### Delivery to Post Office Boxes

We can deliver to P.O. Boxes only where  
your full address is also supplied for our  
records. Jetservice or Road Express  
deliveries cannot be made to P.O. Boxes

### Overseas Orders

The delivery rates quoted here apply to  
Australia only. Overseas orders are  
welcome — please send M.O. in A\$  
allowing sufficient air or sea postage.

### New Zealand Customers

Your orders are very welcome. You may  
pay by Bankdraft, N.Z. bankcard or Visa.  
Please allow additional postage.

### Papua New Guinea Customers

We accept Visa and Bankcard. Please  
allow additional Postage.

### Complaints

At Altronics we take great pride in the  
goods and service we offer. If you have  
any constructive comments or complaint  
please phone:

JACK O'DONNELL (09) 328 2199

or write:

C/- Altronic Distributors Pty Ltd  
P.O. Box 8350, Perth Stirling Street  
Western Australia 6849

**Resellers, Manufacturers, Bulk Users.** Excellent discounts apply to resellers and bulk users. Please contact us at our Parent  
Company

Altronic Distributors Phone (09) 328 2199 Fax (09) 328 4459

## ALTRONICS DELIVERY SERVICE CHARGES

Please Nominate Desired Service and include Delivery Charges With Your Order  
(If You Are Unsure of Weight Please Call for Confirmation).

### Mail

\$3.50 to 500g

\$5.50 to 1kg

\$8.00 to 5kg Max

Orders are despatched same  
day as receipt (where  
possible). Over 5kg's see Road  
Express.

### Overnight Jetservice

\$10.00 to 3kg

\$23.00 to 5kg Max

Next day delivery to capital  
cities and suburbs. Allow  
additional 24-48 hours for  
country areas.

### Overseas Airmail

(NZ - PNG)

\$15.00 to 1kg

and thereafter \$5.00 per kg  
(If order is of very light weight  
please ring for Airmail quote).

### Road Express (Heavy Service)

\$12.00 to 10kg

\$15.00 over 10kg

All orders 5kgs or more must  
travel Road Express. Allow  
approx 7 days for receipt of  
your order.

### Perth Metro Courier Delivery

Now we can deliver to the Perth metropolitan area in as little as 60 minutes. C.O.D. as well. Just ring us on 328 1599 for delivery  
quotes on our new courier service. (Contact us for information on our free trial offer).

**ALTRONIC**  
COMPONENTS

**PHONEORDER TOLL FREE 008 999 007**



## ALTRONIC RESELLERS

Chances are there is an Altronics Reseller right near you — check this list or phone us for details of the nearest dealer.

**Blue Ribbon Dealers** are highlighted with a ■. These dealers generally carry a comprehensive range of Altronic products and kits or will order any required item for you.

**Don't forget our Express Mail and Phone Order Service** — for the cost of a local call, Bankcard, Visa or Mastercard holders can **Phone Order for same day dispatch.**

**Please Note:** Resellers have to pay the cost of freight and insurance and therefore the prices charged by individual dealers may vary slightly from this Catalogue — in many cases, however, Dealer prices will still represent a significant cost saving from prices charged by Altronics Competitors.

### WA

#### COUNTRY

##### ALBANY

BP Electronics ■.....	(098)	412681
Micro Electronics.....	(098)	412077
Micro Electronics.....	(097)	218222
Esperance Communications.....	(090)	713344
Bird Electronics.....	(099)	641831
Batavia Lighting.....	(099)	211278
Geraldton TV & Radio.....	(099)	212777
Today's Electronics ■.....	(090)	216212
Lance Rock Retravision.....	(09)	5351246
Micro Electronics.....	(09)	5812206
Ivan Tomek Electronics.....	(091)	732531
TV Joe's.....	(09)	5271806
D & G J Pease.....	(096)	811132

##### BUNBURY ESPERANCE GERALDTON

##### KALGOORLIE MANDURAH

##### PORT HEDLAND ROCKINGHAM WYALKATCHEM

### QLD

#### CITY

##### WEST END WOODRIDGE

Deisound PL ■.....	(07)	8396151
B.A.S. Audiotronics.....	(07)	8447566
David Hall Electronics ■.....	(07)	6082777

#### COUNTRY

##### BUNDABERG GLADSTONE

##### MACKAY

##### MAROOCHYDORE

##### MARYBOROUGH

##### NAMBOUR

##### PIALBA

##### ROCKHAMPTON

##### TOOWOOMBA

##### TOWNSVILLE

Bob Elkins Electronics.....	(071)	721761
Supertronics.....	(079)	724456
Philtronics.....	(079)	578855
Mal's Electronics ■.....	(074)	436111
Keller Electronics.....	(071)	214551
Nambour Electronics.....	(074)	411961
Keller Electronics.....	(071)	283741
Access Electronics (East St.).....	(079)	221051
Hunt's Electronics.....	(076)	329677
Super Solex ■.....	(077)	724461

### SA

#### CITY

##### BRIGHTON FINDON HOLDEN HILL LONSDALE ENFIELD

Force Electronics ■.....	(08)	2125505
Force Electronics ■.....	(08)	3770512
Force Electronics ■.....	(08)	3471188
Force Electronics ■.....	(08)	2617088
Force Electronics ■.....	(08)	3260901
Aztronics ■.....	(08)	3496340

#### COUNTRY

##### MT GAMBIA WHYALLA

South East Electronics.....	(087)	250034
Eyre Electronics.....	(086)	454764

### NT

##### ALICE SPRINGS DARWIN

Farmer Electronics.....	(089)	52238
Ventronics.....	(089)	85362

### TAS

##### HOBART LAUNCESTON

George Harvey ■.....	(002)	34223
George Harvey ■.....	(003)	31653

### VIC

#### CITY

##### BORONIA BURWOOD CHELTENHAM CROYDON FOOTSCRAY HUNTINGDALE PRESTON

All Electronic Components.....	(03)	6623506
Ray Cross Electronics ■.....	(03)	7622422
G. B. Telespars.....	(03)	8890503
Talking Electronics.....	(03)	5842386
Truscott Electronics ■.....	(03)	7233860
G. B. Telespars ■.....	(03)	3186559
Stewart Electronic Components.....	(03)	5433733
G. B. Telespars.....	(03)	4705847
Preston Electronics ■.....	(03)	4840191

#### COUNTRY

##### BAIRNSDALE BALLARAT BENDIGO GEELONG MILDURA WARRNAMBOOL

LH & LM Crawford.....	(051)	525677
Ballarat Electronics.....	(053)	311947
KC Johnson ■.....	(054)	411411
Teleparts.....	(052)	217288
McWilliam Electronics.....	(050)	236410
Koroit Electronics.....	(055)	627417

### NSW

#### CITY

##### SMITHFIELD

David Reid Electronics ■.....	(02)	2671381
Chantronics.....	(02)	6097211

#### COUNTRY

##### COFFS HARBOUR NEWCASTLE RAYMOND TCE TAREE WAGGA WAGGA WARNERS BAY WINDSOR WOLLONGONG

Coffs Harbour Electronics.....	(066)	52568
Novocastrian Elect. Supplies.....	(049)	56256
Alback Electronics.....	(049)	873411
Brad's Electronics.....	(065)	52660
Phillips Electronics.....	(068)	216551
Vilec Distributors.....	(049)	56680
M & E Electronics & Commun.....	(045)	77593
Newtek Electronics ■.....	(042)	27162
Vimcom Electronics.....	(042)	28440

### MORE ALTRONIC DEALERS WANTED

If you have a Retail Shop, you could increase your income significantly by becoming an Altronic Dealer.  
Call Brian Sorensen on (09) 328 2199 for details.

# Index

## A

Adaptor, DC-DC.....	76
Adaptor Plugs.....	87
Adaptors, Power.....	76
Aerials - Car Radio.....	26
CB.....	26
TV.....	27
Alarms & Accessories.....	19-25
Alignment Tools.....	71
Allen Keys.....	71
Alligator Clips.....	88
Amplifiers, Audio - Built.....	58,59
Answering Machines.....	30
Antennas - Car Radio.....	26
TV, FM.....	27
Attenuators, Speaker.....	49
Audio Adaptors.....	87
Audio Connectors.....	87
Audio Generator.....	64,65
Audio Leads.....	90
Audio Mixers.....	60
Audio Transformers.....	74,75
Aviation Headphones.....	52

## B

Baluns - TV Antenna.....	27
Baluns & Formers.....	39
Banana Plugs & Skts.....	68
Barrel Switches.....	24
Batteries.....	26
Battery Rechargers.....	76
Battery - Holders.....	26
9V Snaps.....	96
Bench Vice.....	71
Bezels.....	36
Binding Posts.....	88
Bipolar Capacitors.....	99
BNC Connectors.....	86
Boards, Circuit.....	35
Books.....	77-79
Boxes.....	36-39
Braid, De-soldering.....	70
Breadboard.....	35
Bridge Rectifiers.....	92
Burglar Alarms.....	19-22
Buzzers.....	24,25

## C

Cabinet Handles.....	35
Cables - Audio.....	89, 90
Cables - Mains Leads Telephone.....	31
TV.....	34
Cable Bushings.....	41
Cable Clips.....	41
Cable Ties.....	41
Cabinets.....	38,39
Calculators.....	32
Canon Type Connectors.....	87
Capacitors.....	98-100
Capacitor Packs.....	100
Capacitor Suppressors.....	26
Car Alarms.....	19

Car Sound Accessories.....	28,29
Car Aerials.....	26
Car Battery Clips.....	88
Car Radio & Acc.....	26,28,29
Car Suppressor Caps.....	26
Cases.....	38,39
Cassettes, Audio.....	32
Cathode Ray Osc.....	66,67
CB Radio Accessories.....	26
Centronics Connectors.....	85
Ceramic Capacitors.....	100
Ceramic Capacitor Packs.....	100
Ceiling Grilles.....	50
Charger - NiCad, Gel.....	76
Solar.....	76
Chokes.....	96
Circuit Breakers.....	42
Cleaners - Audio.....	32
Computer.....	33
Video.....	32
Clock Movement.....	32
Cloth, Speaker.....	52
CMOS IC's.....	93-95
Coaxial Cable.....	89
Component Drawers.....	40
Component Packs.....	97,100
Compressor, CD.....	59
Computer Accessories.....	33
Computer Cable.....	89,90
Computer Leads/Accs.....	33
Connectors.....	84-88
Contact Cleaner.....	72
Copperclad PCB.....	35
Cores.....	39
Cradle Relays.....	84
Crimp Connectors.....	42
Crimping Tool.....	79
CRO.....	66,67
Crocodile Clips.....	88
Crossovers.....	52
Crystals.....	97
Cutters.....	70,71

## D

D Connectors.....	85
Dalo Pen.....	35
Data.....	191-105
Data Books.....	77-79
Desoldering Tools.....	69,70
Desoldering Braid.....	70
Diacs.....	72
Diecast Boxes.....	39
Digital Multimeters.....	62,63
Digital Voice Recorder.....	53
DIL Switch.....	62
DIN Plugs/Skts.....	87
Diodes.....	92
Diplexers, TV.....	27
Displays, LED & LCD.....	92
Door Strike.....	25
Double Adp - Telephone.....	31
Downlight Speakers.....	49
Drill & Bits.....	71

## E

Earphones/Plug.....	52
Electrical Tape.....	72
Electrolube Products.....	72
Electrolytic Capacitors.....	98,99
Enamel Copper Wire.....	90
Etching Equipment.....	35,72
Extractor Tool, IC.....	71

## F

Fans & Guards.....	33
Fax Switch.....	31
Feet, Rubber/Plastic.....	41
Ferric Chloride.....	35
Ferrite - Rods.....	39
Cores.....	39
Beads.....	39
FET's.....	91,93
Filters, Mains.....	34
Flashing LEDs.....	92
Flashtubes, Xenon.....	36
Floodlight PIR.....	23
Formers, - Coil.....	39
Potcore.....	39
Freezer Spray.....	72
Frequency Counter.....	64
Frequency Generators.....	64
Fuses.....	42
Fuseclips.....	42
Fuseholders.....	42

## G

Gas Soldering Irons.....	69
Gel Batteries.....	26
Gel Battery Charger.....	76
Globes & Holders.....	36
Glue.....	72
Goose-necks.....	54
Greencaps.....	89
Greencap Packs.....	100
Grilles, Speaker.....	50
Grommets.....	41
Guitar Speaker.....	47

## H

Handles.....	35
Hardware.....	25-35
Headers, Pin.....	85,88
Headphones.....	52
Heatshrink Tubing.....	90
Heatsinks.....	44
Heatsink Compound.....	44
Hi Fi Speakers.....	46-52
Holders, Battery.....	26
Hole Punch.....	71
Home Alarms.....	20-23
Hook-Up Wire.....	89
Horn Speakers.....	50
Horn Tweeters.....	48
Horwood Boxes.....	38

## I

IC's.....	92-95
IC Extractor Tool.....	71
IC Inserting Tool.....	71
IC Sockets.....	88
IC Test Clips.....	88
IDC Cable.....	90
IDC Connectors.....	85
IEC Plugs/Sockets.....	84
Illuminated Bezels.....	36,92
Infra Red - Detectors.....	21-23
LED's.....	92
Indicators.....	36,92
Indoor TV Antennas.....	27
Inductors.....	39
Innerbond.....	52
Instrument Cases.....	38,39
Insulation Tape.....	72
Insulators, Transistor.....	35
Integrated Circuits.....	92-95
Inverters.....	6,7,76
Irons, Soldering.....	68,69

## J

Jacks/Plugs.....	84-88
Jewellers Screwdrivers.....	71
Jiffy Boxes.....	38

## K

Keyboard Switch.....	81
Key Switches.....	82
Kits.....	4-18
Kit Index.....	4
Knobs.....	45

## L

Lacquer, Spray.....	72
Lamps.....	36
Lamp Socket.....	36
Lead Acid Batteries.....	26
Leads, Audio.....	90
Computer.....	33
Car Radio.....	26
Telephones.....	31
TV & Video.....	90
LED's.....	92
LED Holders.....	41,92
Logic Probes.....	65
Loudspeakers.....	46-51,53
Loudspeaker Acc.....	49,50,52
Lubricants.....	72
Lugs, Solder.....	42

# Index

## M

Machine Pin IC Skts.....	89
Mail Order.....	106-108
Mains - Cable.....	34,89
Filters.....	34
Plugs & Sockets.....	34
Terminal Blocks.....	88
Matrix Pins & Sockets.....	35
Megaphone.....	47
Memory IC's.....	93
Mercury Switch.....	81
Metal Film Resistors.....	97
Meter - Panel.....	61
Microphones.....	54
Microphone Acc.....	54
Microphone Cable.....	89
Microphone Insert.....	54
Microphone Stands.....	55
Microphone Transformers.....	74
Micron Soldering Irons.....	68
Microswitch.....	80
Mini Toggle Switches.....	81
Mixers.....	60
Monolithic Capacitors.....	100
Motorola Data Books.....	77
Movement Detector, PIR.....	21-23
Multimeters.....	61-63
Multimeter Testleads.....	90
Multimeter Testlead Acc.....	88

## N

Neons.....	36
Nibbling Tool.....	71
NiCad Batteries.....	26
NiCad Chargers.....	76
Nuts & Bolts.....	40

## O

Opto Couplers.....	92
Oscillator, Audic.....	64,65
Oscilloscopes & Probe.....	66, 67

## P

PA Equipment.....	56-60
PA Speakers.....	47-51
Panel Lamps.....	36
Panel Meters.....	61
Panels, Racks.....	36
Parts Cases & Drawers.....	40
Passive IR Detectors.....	21-23
Passives.....	96-100
PC Boards, Blank.....	35
PC Board Holder.....	70
PC Drills.....	71
PC Etchant Materials.....	72
PC Lacquer.....	72
PC Pen.....	35
PC Pins.....	35
PC Supports.....	41
PC Terminals.....	88
Photo Etch.....	72
Piezo Buzzers.....	24,25
Piezo Sirens.....	24,25
Piezo Speakers, Tweeters.....	48
Pin Switches.....	81

Plastic Boxes.....	38
Plastic Tubing.....	90
Pliers.....	70
Pluggacks.....	76
Plugs & Sockets.....	84-88
Banana.....	88
BNC.....	86
Canon Type.....	87
Car Radio.....	86
Centronics.....	85
D Type.....	85
DC Power.....	84
DIN.....	87
Electrical.....	84
Headers.....	84,85
IC Sockets.....	88
IDC.....	84,85
RCA.....	86
Scart.....	86
Speaker.....	86
Telephone.....	84
TV.....	86
Polypropylene Speakers.....	46
Pot Cores.....	39
Potentiometers.....	96
Polyester Capacitors.....	99
Power Leads.....	34
Power Supplies.....	76
Pressure Mat.....	25
Probes - GND.....	68
Multimeter.....	90
Logic.....	66
Prototyping Boards.....	35
Pushbutton Switches.....	80,82
PVC Tape.....	72

## Q

Quartz Clock Movements.....	32
Quick Connect Lugs.....	42

## R

Rack Cabinets.....	36
Rack Frames.....	37
Rack Panels.....	37
Rainbow Cable.....	90
RCA Connectors.....	86
Rechargeable Batteries.....	26
Reed Switches & Coils.....	81
Regulators.....	92
Relays.....	83,84
Remote Control, IR.....	32
Resistors.....	97
Resistor Packs.....	97
RF Chokes.....	96
Ribbon Cable.....	90
Ring Cores.....	39
RF Generator.....	65
Rocker Switches.....	80
Rotary Switches.....	82
Rubber Feet.....	41

## S

Scart Plug.....	86
Screwdriver, Neon.....	71
Sets.....	71
Screws.....	40
Security Equipment.....	19-25,
SCR's.....	92
Semiconductors.....	91-95
Service Aids.....	72
Shielded Cable.....	89
Signal Generators.....	64,65
Sirens.....	19,23-25
Silastic Compound.....	72
Silicon Grease.....	44
Slide Switches.....	80
Sockets.....	84-88
Sockets, IC.....	88
Solar Battery Charger.....	76
Solder.....	70
Solder Lugs.....	42
Solder Suckers.....	70
Solder Wick.....	70
Soldering Equipment.....	68-70
Solvents.....	72
Sound Columns.....	51
Spacers.....	40
Speakers.....	46-51
Speaker Accessories.....	52
Speaker Crossovers.....	52
Speaker Cloth.....	52
Speaker Grilles.....	50
Speaker Horns.....	50
Speaker Line Transformers.....	75
Speaker Kit.....	53
Speaker Wire.....	89
Splitters, TV.....	27
Spade Lugs.....	42
Spray Cans.....	72
Standoffs.....	40
Stickers, Alarm.....	25
Storage Systems.....	40
Strobe Lamps.....	23
Strobe Tube (Xenon).....	36
Superglue.....	72
Suppressors.....	26
Switches.....	80-82

## T

Tagstrips.....	88
Tamper Switches.....	81
Tantalum Capacitors.....	100
Tapes & Accs.....	32
Telephone.....	31
Telephone Answer Machines.....	30
Telephone Double Adaptor.....	31
Telephone Leads.....	31
Telephone Plugs/Sockets.....	31
Terminals.....	42,88
Terminal Strips.....	88
Test Clips.....	88
Test Equipment.....	61-67
Test Leads, Multimeter.....	90
Thumbwheel Switch.....	81
Tinned Copper Wire.....	90
Toggle Switches.....	81
Tools.....	68-71

Toroidal Cores.....	39
Toroidal Transformers.....	
Audio.....	75
Mains.....	73
Transducers, Ultrasonic.....	25
Transformers.....	73-75
Transistors.....	91
Triacs.....	92
Trimmer Capacitors.....	100
Trim pots.....	96
Trigger Transformer.....	74
TTL IC's.....	94,96
Tubing.....	90
Tuner AM/FM.....	59
Tuning Capacitors.....	100
Tweeters.....	48
Tweezers.....	71
TV Antennas.....	26,27
TV Accessories.....	27
TV Cable.....	69
TV Leads.....	27,90
TV Plugs & Sockets.....	86

## U

UHF TV Antennas.....	27
UHF Connectors.....	86
Ultrasonic Cleaner.....	32
Ultrasonic Transducers.....	25

## V

Velostat.....	35
Veroboard.....	35
VHF TV Antennas.....	27
Vice.....	71
Video Accessories.....	32
Video Cables.....	89,90
Voltage Regulators.....	92
VU Meters.....	61

## W

Washers.....	40
Watch Batteries.....	26
Weatherproof Speakers.....	50,51
Window Foil, Alarm.....	25
Winding Wire.....	90
Wire & Cable.....	89,90
Wire Strippers.....	70
Wire Wrap.....	90
Wireless, PA.....	57
Wirewound Pots.....	96
Wirewound Resistors.....	97
Woofers.....	47,48

## X

Xenon Strobe Tube.....	36
------------------------	----

## Z

Zener Diodes.....	92
-------------------	----

# SILICON CHIP

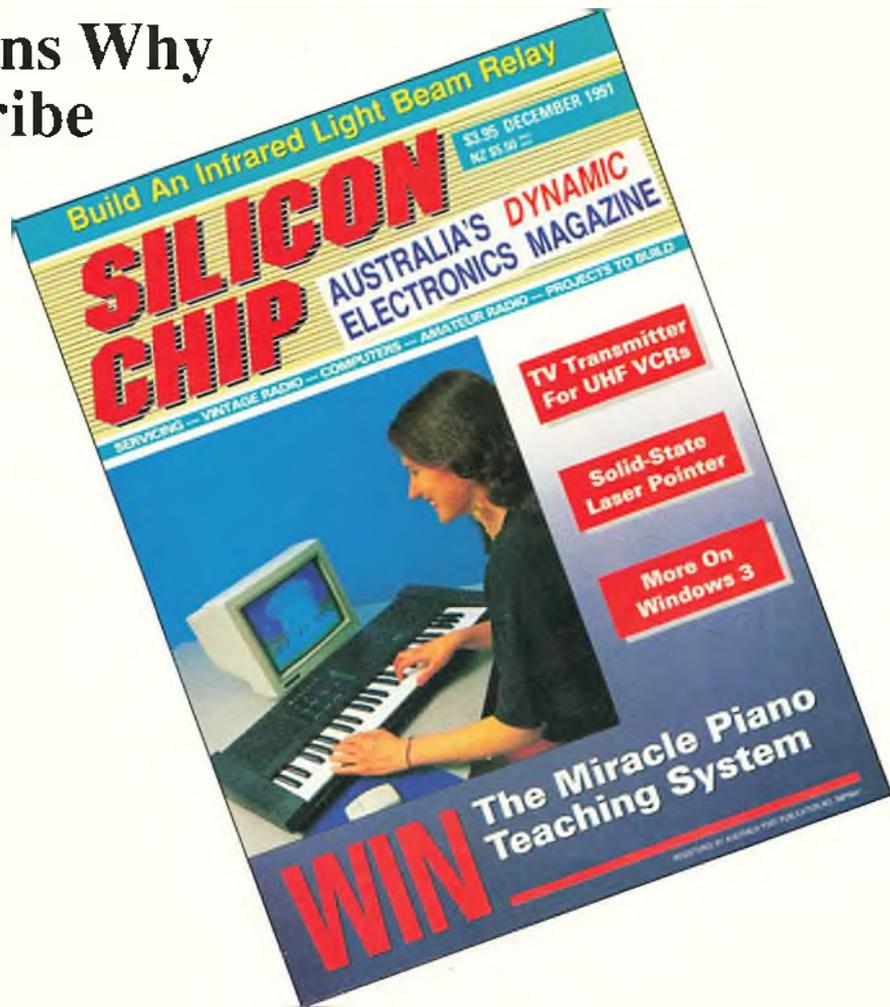
AUSTRALIA'S BRIGHTEST ELECTRONICS MAGAZINE

## Three Good Reasons Why You Should Subscribe

**1.** You get a discount on the newsstand cover price. Last year, we were forced to increase the cover price of the magazine because of rising costs but we have held the subscription to the old price. And if you work in electronics, you may be able to claim the subscription cost as a tax deduction.

**2.** You'll never miss an issue. Sometimes, it can be very hard to find SILICON CHIP in the newsagents because it sells out early. By taking out a subscription, you don't have to search for it – it arrives in your letter box in mint condition.

**3.** Get a discount on the binder too. You'll want to store & protect your issues of SILICON CHIP, so we give you a special discount on the binder. It's despatched with the first issue.



Subscribe by phoning (02) 979 5644 & quoting your credit card number, or fax your details to (02) 979 6503

### INSIDE EACH ISSUE

- ★ Constructional Projects For The Enthusiast
- ★ The Serviceman's Log
- ★ Vintage Radio – Technology From The Past
- ★ Articles On Computers & Radio Remote Control
- ★ New Circuit Ideas & Techniques
- ★ Amateur Radio Projects & Features

# ALTRONICS

Quality Electronic Products and Components at DIRECT IMPORT PRICES Plus  
Many Products Designed by ALTRONICS and Manufactured in Australia

## See inside for:

**Audio, Microphones and  
Accessories**

**Books**

**Boxes, Chassis and  
Hardware**

**Cables and Leads**

**Capacitors**

**Connectors, Plugs and  
Sockets**

**Consumer Items**

**Kits**

**Resistors and Potentiometers**

**Security**

**Semiconductors**

**Switches and Relays**

**Test Equipment and Panel  
Meters**

**Tools and Service Aids**

**Transformers and Cores**

**HEAD OFFICE &  
DISTRIBUTION CENTRE**

174 Roe Street,  
Perth, W.A.

Phone: (09) 328 2199

Retail Shop Phone: (09) 328 1599

Fax: (09) 328 4459



**Free Call Order Hotline Phone 008 999 007**  
**Jet Express Delivery - Australia Wide**

Supplement to Electronics Australia and Silicon Chip Magazine February 1992