

ALTRONICS

12th
EDITION
1993
\$2.00

ELECTRONIC COMPONENTS CATALOGUE



FREE CALL ORDER HOTLINE PHONE 008 999 007
Jet Express Delivery - Australia Wide

Supplement to Electronics Australia and Silicon Chip Magazines February 1993

HERE IS A SAMPLING OF JUST A FEW OF THE WORLD CLASS PRODUCTS DESIGNED AND MANUFACTURED BY ALTRONICS IN AUSTRALIA



Our new REDBACK® 40 watt Public Address Amplifier, released only recently is already proving to be a success within Australia. With performance and specifications exceeding many other 'imported' brands the REDBACK® series is ideal for most paging and background music applications. See AUDIO Section for full details.



Just released, the WACKI® Bracket is already being exported overseas to the USA and Taiwan. Designed by the ALTRONICS team and proudly manufactured in Australia the WACKI® Bracket has a host of applications, including mounting speakers, lighting etc.



Designed and made in Australia, this new 1200 Watt Inverter will power a myriad of appliances from your 12 or 24V car battery.



The Harris Digital Voice Recorder is now a proven performer. Installations are as diverse as 'Message on Hold' for business telephone systems, shopping centre advertising and static display commentaries. See AUDIO Section for full details.

These fine REDBACK® Weather-Proof Columns and Monitors are available with either aluminium or 'Luran S' construction. By employing only the latest technology in speaker design and quality Carbon Fibre Coaxial speakers this new series offers excellent performance, indoors or out.



★ WHY YOU SHOULD BUY A
KIT PROJECT FROM

★ **ALTRONICS** ★

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.

Virtually all Altronics Kit chassis, cases and panels are fully drilled and punched. The tools you will need to assemble our projects are therefore simple hand tools and a soldering iron.

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.

Altronics build yourself projects include step by step instructions enabling the reasonably careful beginner to successfully complete most projects.

Only first quality components are used (not factory seconds as some of our competitors have been known to use in the past!)

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.

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.

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Dear Customer,

Welcome to 1993 and the 12th edition of our catalogue. You will be delighted to find Altronics prices have been held down for the third consecutive year. Some prices, in fact, are lower. Not that price is everything - as consumers are becoming increasingly ecology conscious emphasis is turning toward products that last - consequently we believe that demand will be strong for dependable, high quality products and components for the foreseeable future. During 1993 we are implementing a Quality Assurance (QA) programme in compliance with AS 3902 to strengthen the conscientious efforts made by our technical staff in selecting only high quality products and components for you, our valued customer.

The percentage of Australian designed and manufactured products continues to grow in our inventory - local products of which we can be justifiably proud are Rack Frames and Cases, Heatsinks, PA Amplifiers, Kits and the excellent new range of Redback Weatherproof Monitors, Sound Columns and Speaker Grills.

We are very proud to have recently initiated export sales to Taiwan and USA for several Altronics designed and produced "Redback" sound related products. It is early days yet of course but we are quietly hopeful of substantial export sales during the next year or two.

You will note many new kits and products for 1993, eg our revamped range of multimeters, the Comma Corp computer modems and the fantastic "Sure Shot" desoldering gun. Many other products and components have enhanced specifications for 1993 without costing you a cent extra from our last catalogue.

Many thanks to the letters and suggestions sent in from our customers - a special thanks to Phil Gower of Kingaroy in Queensland for his circuit improvement suggestions for the 600 and 1200 watt inverters, they both now give enhanced regulation and performance on inductive loads.

Remember we are here to provide a high level of service to you, so if you perceive a need for us to improve any aspect of our service or depth of product range, please write to me personally. The result could well be beneficial to us all.

Lastly a special thanks to all our loyal customers for your past business. We look forward to providing you with an even higher standard of service throughout 1993.

Yours

Jack O'Donnell

Jack O'Donnell
Managing Director



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

Depending on power capacity the various models will power most TV Sets, Hi Fi Turntables, AC Lighting, Electric Drills, Angle Grinders and Many Other Products

The Powerhouse 1200W Inverter

Includes Heavy Duty Battery Leads!

(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.

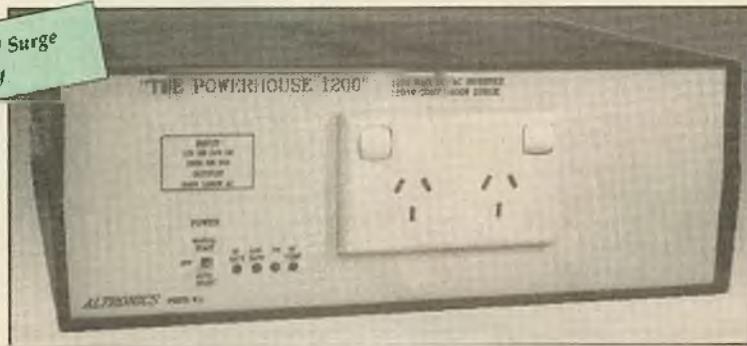
This kit comes to you in a fully drilled, pre punched chassis complete with silk screened front panel. Assembly of the kit is simplified as the majority of components mount on a single PCB. Thus virtually eliminating all external terminations. Suitable for use in camping, boating, fishing, mining, farming, remote settlements etc.

Features:

- Dual AC Power Outlet
- Selectable auto or manual operation
- Typically 88% efficient
- Manual or auto start facilities
- Low and high voltage battery cut out
- Housed in sturdy ABS housing ie. rust proof
- Phase protection for inductive loads
- Fast acting DC circuit breaker to protect against accidental reverse battery connection and overload
- Dimensions: 120(h) x 340(w) x 290(d) mm (approx)
- Weight: 12.3Kg (approx)
- Massive 1200W continuous 2400W surge will run almost anything
- 12 or 24V operation selected via internal wiring
- Auto start circuitry for standby operation

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

Massive 2400W Surge Capacity



K 6790 Kit Version **\$799.00**

K 6792 Fully Built & Tested 12V Input

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

EXCLUSIVE TO ALTRONICS

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 fluoros) 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:

- Dual AC Power Outlet
- Selectable auto or manual operation
- Typically 88% efficient
- Manual or auto start facilities
- Low and high voltage battery cut out
- Housed in sturdy ABS housing ie. rust proof
- Phase protection for inductive loads
- Fast acting DC circuit breaker to protect against accidental reverse battery connection and overload
- Dimensions: 120(h) x 340(w) x 290(d) mm (approx)
- Weight: 7.8Kg (approx)
- 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

Calculating Battery Drain

$$\text{CURRENT DRAIN FROM BATTERY (amps)} = \left(\frac{\text{Power Drawn by Load (watts)}}{\text{Battery Voltage (12 or 24V)}} \right) \times 1.05$$

$$\text{BATTERY LIFE Approx (hours)} = \frac{\text{Ampere Hour Rating of Battery}}{\text{Current Drawn From Battery}}$$



Well Over 1000 Units in Operation Australia Wide!

K 6770 Kit Version **\$499.00**

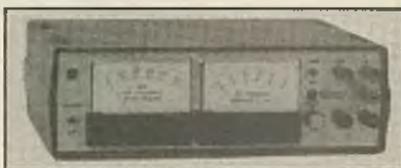
K 6774 Fully Built & Tested 12V Input

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

Note: SC & EA are the abbreviation for SILICON CHIP Magazine & ELECTRONICS AUSTRALIA Magazine Respectively

Laboratory Power Supply

Features Switchmode Technology



(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.

K 3300 \$195⁰⁰

Features:

- 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
- Max Output Current: 5 Amps Max
- Floating Output
- Ripple: Less than 5mV
- Dual Meters

Additional Options For K 3300

10 Turn Pot For Precision Voltage Control

K 3301 \$29⁵⁰

Fixed +12V Rails Independent of Variable Main Output

K 3302 \$15⁹⁵

Bench Top Power Supply



Great Power Supply for the Experimenter

One of our longest standing power supply kits still offers excellent value and performance, dollar for dollar. The ideal power supply for the experimenter as it offers protection via current limiting when you first power up your circuit.

Specifications:

- 3-30V to 1 Amp Max with Variable Current Limit.
- Output Voltage: 3 to 30V
- Output Current: 0 to 1 amp
- Load Regulation: 0.2% Max.
- Output Ripple: 2mV RMS Max.

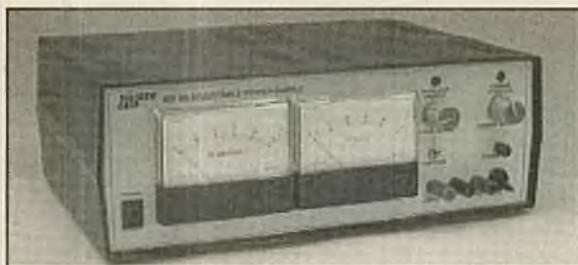
K 3210 \$109⁰⁰

(EA Jan '85)

Features:

- Variable Output
- Short Circuit Protected
- Full 1 Amp Available
- Variable Current Limit
- Separate Earth Terminal
- Dual Scale Meter

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 40mV p-p at 8A 35V
- Current limit 800mA-8.6A
- Over current limit 9A
- Foldback current less than 2A

K 3360 \$375⁰⁰

DUAL TRACKING POWER SUPPLIES

Low Cost Dual Tracking Supply



(SC Jan '88)

Being a dual tracking power supply, the kit enables easy testing or designing of op amp circuits that require split voltage rails. Can easily be used for many other applications such as memory and logic circuits. Ideal for Experimenting and Prototyping with Memory, Logic and Op Amps.

Features:

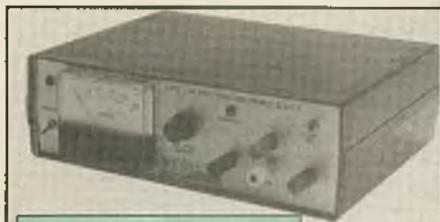
- Independently Adjustable + or - 1.2 to 18.5V at 1.7A
- Volt Meter
- Floating Ground
- Dropout Indicator
- Load Switch
- Compact Sturdy ABS Instrument Case
- Short Circuit Protection

K 3325 \$89⁰⁰

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.



Massive 100V Capability!

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 \$229⁰⁰

Digital High Performance Signal Generator

*Ideal for Audio
Experimenting
and Servicing!*



(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).

Specifications:

Frequency Range:0.1 Hz-500kHz in four ranges: 0.1-10Hz;
10-1000Hz, 1-100kHz, and 100-500kHz

Output Waveforms:.....Sine & square

Harmonic Distortion:.....Less than 0.1% from 0.1Hz-50kHz,
0.27% at 80kHz

Square Wave Rise Time: ..10ns

Square Wave Fall Time: ..10ns

Output Level:.....Sine wave: variable from 0-1.2V RMS
Square wave: variable from 0-5V p-p

Output Impedance:600ohm nominal

Load Impedance:.....600ohm to infinity

Protection:Short circuit protected

Display Accuracy:.....+/-2%, +/-1 digit

K 2547 **\$155⁰⁰**

1 GHz Digital Frequency Meter



*Compares Favourably to
Commercial Units Costing
Twice the Price!*

(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 **\$299⁰⁰**

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 9999µF in seven ranges with an accuracy of better than +/-1%.

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 9999µF. An over-range LED flashes whenever the capacitance value is too large for the range selected.

K 2524 **\$119⁹⁵**

Capacitance Meter Adaptor

(SC Nov '87)

Great for hand selecting exact values for timer circuits etc.

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

K 2520 **\$24⁹⁵**

*Plugs Straight into Your
Multimeter*



Low Cost Inductance Adaptor For Your Multimeter

(EA Dec '92)

Measuring the inductance of wire-wound components has not been easy until now, but here's a handy adaptor unit which allows the job to be done with a standard digital multimeter. It employs sound and accurate circuit techniques, but doesn't involve any costly or expensive components. It operates from a single 9V battery and provides two direct-reading measurement ranges.

K 2560 **\$39⁹⁵**

*Fantastic for Designing Precise
Crossovers for Speaker Systems
Plugs Directly into any Digital
Multimeter*



NEW FOR '93

300 Watt Inverter with Auto Start



1000's NOW IN USE

(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 Toroidal 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.

Features:

- Dual AC power outlet (individually switched)
- Selectable auto or manual operation
- Low battery cut-out
- Compact and lightweight design
- Complete with clamp-on battery leads
- Peak 600 watts capacity, 300 watts continuous use
- Dimensions: 80(h) x 250(w) x 220(d) mm (approx)
- Weight 4.4Kg (approx)
- Voltage regulated Current regulated
- Current overload protected
- Single PC Board construction - easy to build as there is very little internal wiring.

Can be Configured for 24 Volt Operation!

K 6750 Kit Version **\$305.00**

K 6755 Fully Built & Tested **\$399.00**

Compact 40 Watt Inverter



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 from 12V DC
- Battery connection leads provided
- Lightweight
- Uses Mosfet devices
- High efficiency - up to 88%
- Low heat dissipation

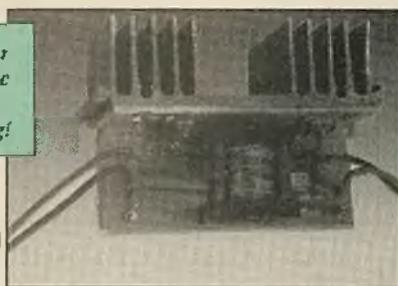
K 6710 **\$79.00**

Fluorescent Light Inverters

(SC Feb '91)

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 - 16W and 20 to 40W.

Ideal for Portable Fluoro Lighting!



K 6350 16W Version **\$35.95**

K 6360 20-40W Version **\$43.95**



240V Power Relay

Can be Used to Turn the TV on with Your VCR via Remote Control!

(EA Jan '92)

There's a simple project that monitors the power drawn from a master socket and automatically switches on a slave socket. It is versatile, because you 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**

300 Watt Pre-Built Economy Inverter

This inverter is an ideal unit for those who don't want to build it yourself. Available only in a pre-built format.

Features:

- Binding post terminals for easy 12V connection to your car or truck battery
- Complete with clamp-on battery leads
- 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
- Dimensions: 110(h) x 180(w) x 190(d) mm (approx)
- Weight 5.7Kg (approx)



M 8120 12V DC Input **\$249.00**

Note: Available in Pre-Built Format Only

Bench Amplifier

(ETI April '80)



One of the most useful pieces of equipment in an electronic workshop is a simple amplifier module to test circuits.

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

K 2105 **\$27.95**

Pre-Punched & Screened!

RF Detector Probe

(EA Jan '88)

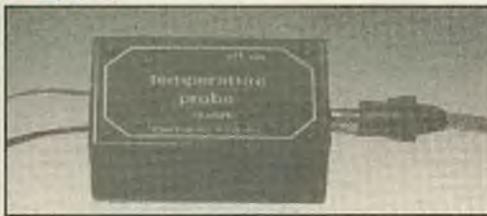
This simple RF probe is ideally suited for fault finding and trouble shooting in radios etc. It enables you to follow signals progressively through the circuit. Feeds directly into the input of an audio amp. Requires external power supply.

K 2565 **\$12.00**



Ideally Suited to our K 2105 Bench Amp!

Low Cost Temperature Probe



Ideal With Our K 2528 LCD Meter Kit

(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**

Colour TV Pattern Generator

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

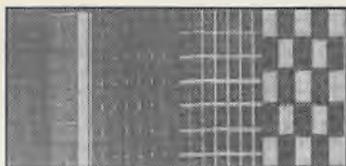


K 2710 **\$115.00**

(SC Nov '91)

This 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.

DC Electronic Fuse

Stop Blowing Those Fuses NOW!



(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:

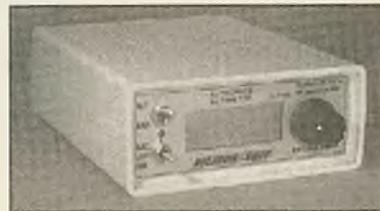
- Fast blow & slow blow settings
- Manual reset button
- LED fuse tripped indicator
- Operates off single 9V battery (not supplied)
- Two current settings easily adjustable via a pot and calibrated scale
- Housed in a rugged Jiffy Box.

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

K 2535 **\$39.50**

Digital Altimeter for Gliders and Ultralights

Why Pay Up To \$500 for a Commercial Unit When You Can Build this Kit, Save a Fortune & have Digital Accuracy?



(SC Sep-Oct '91)

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 balloons. 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**

Incredibly Compact!

Expanded Scale LED Voltmeter

(ETI Project 326)

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

• Invaluable where voltage monitoring is essential, i.e. battery charging circuit • Great as "state-of-the-art" car battery voltmeter to allow you to diagnose an electrical problem • Easily configured to provide a "Voltage High" or "Voltage Low" alarm output.

K 4326 **\$17.00**



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

General-Purpose 3.5 Digit LCD Panel Meter

Ideal Add-on to your Power Supply

(SC Sep '92)

Looking for a general-purpose 3.5 digit panel meter that doesn't cost the earth? This unit has switchable decimal points and can be built to read either voltages to 200V DC and current up to 2 amps. Operates from a 9V DC supply.

K 2528 **\$34.95**

NEW FOR '93



Low Ohms Adaptor For Your DMM



Measure accurately down to 10 milli Ohms. Ideal for measuring heating elements, light globes for loads etc.

(SC Feb '88)

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 from 1K to 0.01 ohm or 10 Milli ohms. Suitable for most multimeters.

K 2518 **\$24.95**

(Multimeter not Included)

Transistor Beta Tester

(S.C. March '91)

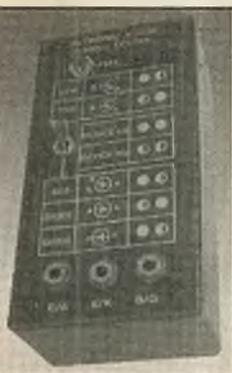
This simple Beta tester will check and measure the gain of most bipolar transistors. You simply connect the transistor, press the test button, rotate the knob until the LED lights, and read the gain from the calibrated dial scale. Requires 9V battery.

K 2534 **\$25.00**



Ideal for Gain Matching Transistors being used in Amplifier Stages!

In Circuit SCR, Diode & Transistor Tester



(EA Aug '83)

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

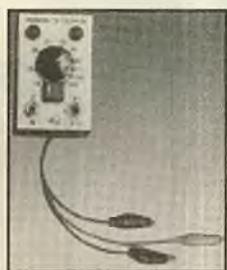
Features:

- 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**

Fully Automatic. Checks transistors in circuit. No need to unsolder suspect transistors.

Power Transistor Tester



(EA May '88)

Hand Select Transistors for Power Output Stages. 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. Suitable for both N.P.N. and P.N.P. types. Altronic Kit comes complete with screened box.

K 2532 **\$24.95**

Tests Gain & Vbe

Zener Diode Tester

Plugs Directly into a Multimeter



(ETI May '83)

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

K 2620 **\$19.95**

Digital Storage Cro Adaptor for PC's

(EA Jan '93)

This digital storage oscilloscope (DSO) adaptor is easy to build and connects to the printer port of an IBM compatible PC, and converts it into a digital sampling oscilloscope with a bandwidth of over 60kHz. Matching software available at a low cost from Altronics allows you to display captured waveforms, zoom in on segments of interest, and also save waveforms to disk and retrieve them again at a later date.

K 2805 **\$63.50**

K 2806 PC Software 5 1/4" **\$19.95**

K 2807 PC Software 3 1/2" **\$19.95**



NEW FOR '93

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 meg ohm 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. Resolve resistances from 1 Meg to 200 Meg. Incorporates dual range meter.

K 2555 **\$79.00**

Would suit electricians or technicians work van, toolbox or work bench. Save \$\$\$ On Commercial Units!

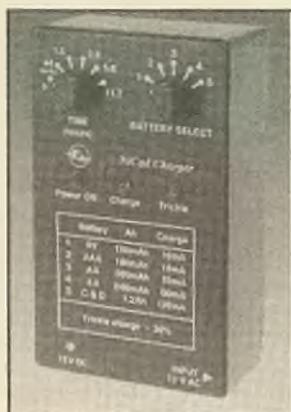
Automatic Charger for NiCads

(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 cell 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.

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**

Keeps Your Nicads in Top Condition!

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 a reduced current, which is selectable (custom position on the dial). 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
- Charge status LEDs

K 1660 **\$129.00**

Great for Remote Control Battery Packs



12V Intelligent Gell Cell Charger

(SC July '89)

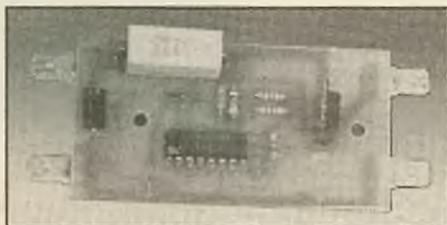
This simple circuit will recharge your 12V Gell Cells correctly, increasing their life span. Kit consists of one IC and a handful of external components plus the PCB.

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
- Supplied with chip details to allow experimentation & expansion of this kit
- Dedicated IC

K 1685 **\$24.50**



Solar Generator/Battery Generator

Charge Your Batteries Free From The Sun Also Allows Charging in Low Light Conditions

(ETI Dec '87)

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. **Incorporates a voltage doubler to take advantage of low light conditions.**

Note: Must be used in conjunction with a suitable solar panel.

K 1680 **\$13.95**



Heavy-Duty 5A Drill Speed Controller

(SC Sep '92)

This new speed controller can be used with power tools rated up to 5 amps. Use it to control the speed of circular saws, electric drills, lawn edgers and other appliances with universal "brush type" motors.

K 6010 **\$39.95**



NEW FOR '93

Nicad Battery Discharger

NEW FOR '93

(SC July '92)

Are you having battery problems with your video camera or mobile telephone? This low cost device will solve your problems. It will correctly discharge a nicad battery pack so that it can then be recharged to full capacity. People with mobile telephones or camcorders often rush out to buy a new battery pack in the belief that the one they have is a 'dud'. However the battery may still be OK, but simply needs reviving. Nicad batteries are rather touchy things when it comes to recharging. They like to be recharged by a constant current that is 1/10th their full discharge capacity. For example, 500mA cells should be charged at a constant 50mA for a period of 14 hours for a standard charge, although they can be fast charged if certain precautions are taken.

K 1640 **\$24.95**



Revamp Those Racing Packs!

Basic Car Alarm

(ETI Oct '87)

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

Features:

- Flashing LED to deter would be thieves and vandals.
- Installs in minutes
- Easy to build

K 4350 **\$15.00**

Ideal for the Experimenter



Check Out our Range of Sirens etc. in the SECURITY Section

Screacher Car Alarm

(EA Aug '86)

Here is a low cost car alarm designed with a new deterrent strategy.

Instead of using the alarm to try and draw attention of passers-by to the felony in progress, this alarm sounds inside the car to deafen the thief and make it to uncomfortable to proceed. Makes an ideal second/back-up alarm. Deafening 110dB Modulated Tone. Two sensor inputs - Normally open and normally closed enable simple connection to door, bonnet, boot light, switches etc.

K 4360 **\$49.50**



A Great Alarm for the Second Car!

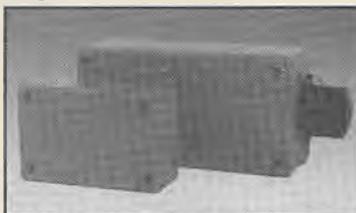
Ultrasonic Proximity Detector / Reversing Alarm

(SC 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 predetermined 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 it comes on automatically every time you reverse. It has an effective range of about 1 metre. This Altronics kit comes complete with all parts, boxes and cable.

K 4310 **\$34.50**



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.



LED Digital Tachometer

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

(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 0-9900 RPM with a resolution of 100 RPM. This unit will work with just about any 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 **\$32.00**



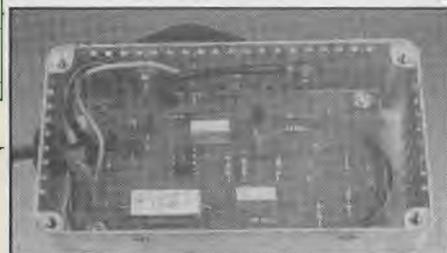
High Energy Ignition System

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

(SC May '88)

This "state of the art" electronic ignition system uses the same semi-conductors as found in modern motor car ignitions. Extends the life of plugs and points. Increases power and improves fuel economy. Compatible for 4, 6 and 8 cylinder engines. Uses dedicated Motorola IC. Install one into your car and start saving \$\$\$ from the very first day. Comes with full explanation of your vehicle's ignition system.

K 4015 **\$58.50**



DC-DC Converter for Car Amplifiers

(SC Dec '90)

Car battery input to +/-35-50V at 1.15A output

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 etc.

Specifications:

Output Voltage: +/-35 to 50V adjustable
 Input Voltage: 10 to 13.8V DC
 Power Output: 100watts continuous
 No Load Current: 100mA @13.8V in
 Efficiency: 80% @ 100 watts out
 Line Regulation: 2% from 11 - 13.8V
 Load Regulation: 2% no load to full load
 O/P Ripple: 30mV P/P at all loads
 Temp. Cutout: 80°C (adjustable)
 Low Volt. Cutout: 10V DC
 Current Cutout: 15Amp primary / 1.15A secondary

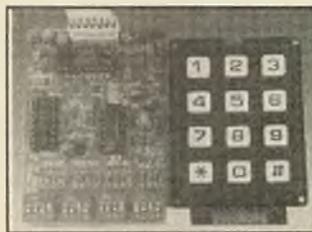
K 4100 **\$139.00**



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

Four Digit Combination Lock

This extremely compact & 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 child proof locks or just about anything that comes to mind.



(SC Dec '90)

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 S 4390. Electrical switchplate and batteries not supplied.

K 1925 **\$44.50**

Great for Car Security Too!

Infra-Red Light Beam Relay

(S.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).



K 1920 **\$32.95**

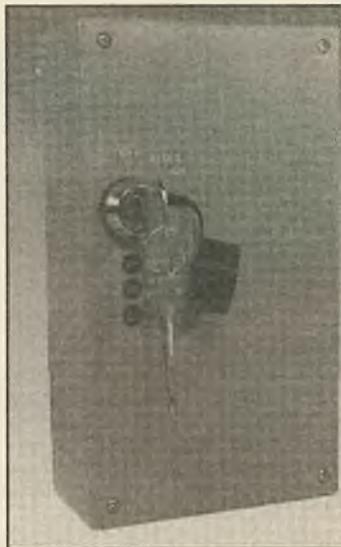
Can be Customised to Interface an Alarm System

2 Sector Alarm System

(EA March-April '89)

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
- Auxiliary relay for external siren etc
- Key switch operation
- Operates on virtually any type of sensor
- Can be easily customised to accept Digital Keypads (as left or in Alarm Accessories Section)



K 1910 **\$89.00**

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

Repairs To Kits

If you become stuck with a particular problem in one of our kits which you are unable to fix, we do offer a kit repair service at reasonable cost. All work is covered by a 90 day warranty and is performed by trained service personnel. On larger kits estimates are available (A charge is applicable). Before sending a kit in for servicing please feel free to contact our kit department on (09) 328 2199 as we may be able to offer assistance over the phone.

Altronics kit sets only.

Multi-Station Headset Intercom

NEW FOR '93

(SC Jun '92)

This multi-station headset intercom is designed to provide clear communication in high noise environments such as at race tracks and rock concerts. It is compatible with existing commercial systems and features low noise circuitry.

For every headset to be used, you require a sub-station. Up to 12 sub-stations can be used from the one power supply. Sub-stations are connected on a loop-in, loop-out basis ie. daisy chained together. Each power supply unit is capable of powering up to 12 sub-stations. The power supply unit runs from 240V AC and delivers about 36V DC to each sub-station.

This system allows for relatively low noise, hands free communication over several hundred metres of cable.

Kits come pre-punched and silk screened. Sub-stations are supplied with quality XLR connectors. Altronics C 9070 aviation headset would work very well with this system.

K 5250 Power Supply Unit **\$74.95**

K 5255 Sub-Station **\$64.95**

Electronically Compatible to Commercial Units Costing \$5 More!



10-Station Telephone Exchange For Your Home

Works Just Like an Office Telephone System at a Fraction of the Cost!



(SC Aug/Sept '92)

This great unit allows you to place calls on hold, intercom other extensions, answer calls from any extension and transfer calls. It is expandable up to 10 extensions, and is compatible with all DTMF (touch tone) telephones. Operation is as simple as pressing '*' to place a call on hold and press the extension number (0 - 9) and the respective station rings. Once answered you have a two way intercom with which you can announce a call. To pick up the incoming call from hold press '#'. A neat feature is that all extensions will ring when an incoming call is placed on hold for 10 seconds so that it won't be forgotten. The basic kit is complete with power supply, case and facilities for 3 extensions. Extra extension boards allow expansion in multiples of 3. Fantastic for home or small office. No more shouting from room to room. Not Austel approved see warning.

K 1430 Basic Kit **\$189.00**

K 1435 3 Way Expansion Board **\$79.95**

NEW FOR '93

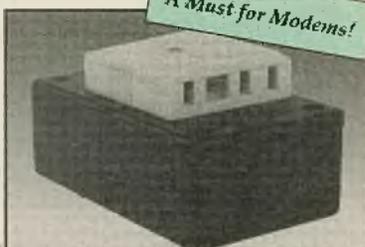
Telephone Line Grabber

(SC Mar '88)

The Telephone Line Grabber has been designed to prevent interruption from one extension to another. When one extension is being used it automatically mutes the other extension(s). This allows complete security for your call - no more interruptions from the kids lifting and listening in. No more accidental over-dialling. Also great for use with modems. One unit required for each extension. Requires no external power supply. Not Austel approved see warning.

K 1415 **\$19.95**

Causes No Loading on the Telephone Line



Telephone Off Hook Indicator

(SC Nov '87)

Use 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 power supply. Runs off the telephone line. One module required for each phone. Not Austel approved see warning.

K 1400 **\$9.95**

Ideal for Call Privacy!

Warning!

In Order to Comply with the Telecommunications Act, we draw your attention to the following: "This customer equipment has no AUSTEL permit and may be dangerous or damage a telecommunications network. Connection to a telecommunications network is an offence under section 253 of the Telecommunications Act 1991 and may attract a maximum fine of \$12,000".

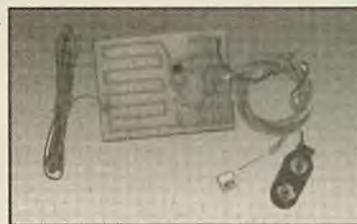
FM Radio Microphone

K 1106 **\$11.50**

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 (adjustable). Runs from a single 9V battery. High sensitivity microphone insert supplied. Long range transmission approximately 30M in ideal conditions.

Uses: • Wireless Microphone • 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.



FM Stereo Transmitter

(SC Oct '88)

Simply connect your CD player or any other line level source to the mini transmitter which converts the audio signal to an FM signal. This FM signal can then 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. Ultra compact design. Simple to build and construct.

Specifications:

Operating Voltage:.....1.5V DC
 Quiescent Current:.....3mA
 Harmonic Distortion:3% for 200mV P/P input
 Stereo Separation:45dB @ 1kHz
 Frequency Range:.....88.1 to 107.9MHz

K 1120 **\$34.95**

Turn Your CD Player Into a Mini FM Transmitter



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**



Video Enhancer

(EA Oct '83)

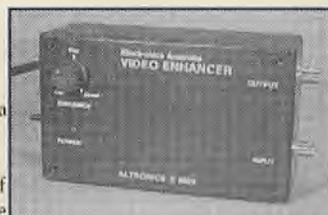
Here's a simple but effective video enhancer that is super easy to build at a fraction of the cost of commercial models. Unit sharpens picture detail, and can actually improve the quality of a copy by amplifying the top end of the video signal. Complete kit supplied with silk screened front panel.

Specifications:

• Signal to noise ratio.....50db ref. 1V p-p
 • Frequency response (flat):.....1Hz to 6.5MHz -3db
 • Boost and cutplus and minus 6.3db
 • Gain0db
 • Input impedance82 Ohms
 • Output Impedance.....68 Ohms

K 5825 **\$42.50**

Sharpens up your picture when copying video to video or camera to video



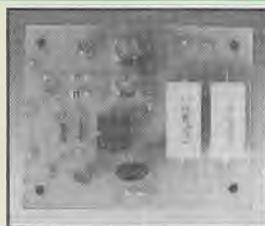
Bridge Adaptor for Stereo Amplifiers

*For Those Who Seek More Power
Get an Amazing Four Times Power
Output from Your Amplifier!*

(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
Signal to Noise Ratio:.....-10dB @ 1V RMS/1k Impedance

K 5565 **\$16.⁸⁰**



2 Way Active Crossover

(E.A. Jan '92)
This great kit enables you to customise your sound system to suit your needs.

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 there are no losses involved. One per channel is required. Operates on and +/-15V rails. The result is much better sound with less distortion. Comes with a range of resistors to select the crossover frequency.

K 5570 **\$19.⁹⁵**

NEW FOR '93



Sub-Woofer Adaptor

(EA May '89)
This fantastic adaptor simply 'samples' your stereo amp output and provides a single channel output of bass frequencies not normally reproduced from Hi-Fi systems to feed a separate sub-woofer amp. Unwanted audio spectrum is removed with the Frequency Control (cut-off threshold adjustable 60-130Hz). Also includes an 'out of phase' output enabling the use of stereo amp in a bridge configuration for those who really want to rattle the floorboards. Requires 12V AC M 9020 plugpack.

Specifications:
Harmonic Distortion:.....0.006%
Signal to Noise Ratio:.....-83dB/300mV Output
Input Impedance:.....10k Ohms
Output Impedance:.....<1k Ohms
Max Output Voltage:.....6V RMS
Cut Off Freq. Range:.....60Hz to 130 Hz
Filter Slope:.....-12dB /octave

Get an amazing bass improvement from your stereo system.

K 5560 **\$29.⁹⁵**



Mono Speaker Protection Kit

(ETI Oct '82)
Cheap Insurance for that \$1000 Speaker System.
Protect your valuable loudspeaker system with this easy to build kit. Provides both DC and overpower protection for your valuable Hi-Fi speakers up to 1500 watts. Unit disconnects the speakers within 1/10th of a second of a fault occurring. Just connects into the speaker line. Installs in minutes. N.B. one kit is needed for each speaker box. Self powered - requires no external power supply!

K 5051 **\$17.⁵⁰**



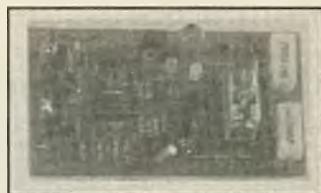
Flexible Stereo Loudspeaker Protection Circuit

(EA Oct '92)
This small module will save your expensive loudspeakers from damage due to an amplifier fault or destructive drive signals. It includes an 'intelligent' de-thump circuit, and can be either built into an existing amplifier or housed in its own enclosure as a free-standing unit. Can connect direct to amp power rail or to an external 15V DC.

K 5052 **\$29.⁹⁵**

Cheap Insurance for Those Expensive Speakers!

NEW FOR '93



Surround Sound Decoder

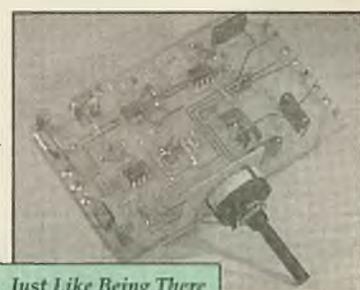
(EA Jan '92)
Build this surround sound processor and envelope yourself with the stunning realism and dramatic sound impact available from surround encoded videos or TV transmissions. It can also enhance conventional stereo, by providing a rear or 'ambience' channel. The 'surround sound' process increases the sensation of 'being there', by producing an effect channel to create surround sounds which a conventional stereo system cannot produce. Movie buffs have all experienced the spectacular sound effect at the cinema. Planes that fly in from behind then pass over the audience to land at the front of the cinema, explosions that envelope everyone. Impressive stuff!

Movie buffs have all experienced the spectacular sound effect at the cinema. Planes that fly in from behind then pass over the audience to land at the front of the cinema, explosions that envelope everyone. Impressive stuff!

K 5585 **\$39.⁹⁵**

NEW FOR '93

Just Like Being There at the Movies!



Baby Room Monitor & FM Transmitter

(S.C. Jan '91)
This Baby Room Monitor allows you to listen to your baby from a remote location using a conventional FM receiver. It runs 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**

Transmits to Your Standard FM Radio!



New 4-Channel Lighting Desk

(SC June/July '91)

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

Industry Standard!



DiscoLite Chaser & Colour Organ

(SC July-Aug '88)

The DiscoLite flashes party lights on and off in beat with music from your amplifier.

Features:

- 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 or direct inputs for beat triggering or audio modulation of lights
- Sensitivity control
- Individually pre-settable sensitivity levels for each channel
- Front panel LEDs mimic light display
- Altronics Kit pre-punched and silk screened

K 5805 \$159.⁵⁰



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

Voice Operated Relay

(EA April '82)

This versatile Vox circuit is triggered whenever a noise or sound is made causing a relay to close for a pre-set time.

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 switch-over
- Reaction sensitivity and 'On Time' are fully variable
- Optional manual over-ride.

Requires microphone.

Specifications:

Attack Time.....10mS
 Power Requirements:.....9-12V DC
 Microphone Requirements:.....600 - 50k Ohm

K 5540 \$22.⁰⁰



Beat Triggered Strobe

(AEM July '85)

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, safety and overall appearance. Includes silk screened panel. Two tube option available which boosts lighting output.

Add Some Life To Your Next Party



K 5790 Strobe Kit \$79.⁹⁵

K 5795 Two Tube Option \$16.⁵⁰

Low Cost "Karaoke" Adaptor

(EA Nov '91)

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 via 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 x 9V batteries.

K 1170 \$34.⁹⁵



Simply Connects in line Between CD or Tape Deck & Amp.

LED Bargraph Display/VU Meter

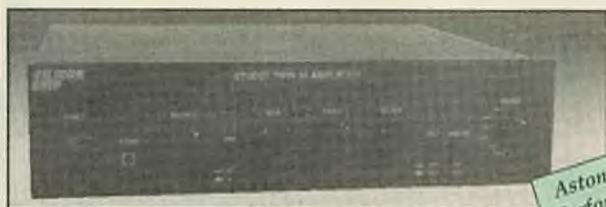
(ETI Oct '83)

This easy to build universal 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. Operates from 7 to 15V DC.



K 5412 \$23.⁹⁵

Compact Stereo 50 + 50W Amplifier



Astonishing Performance!

(SC Feb and March '92)

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 47 Watts per channel RMS. Into 8 Ohms makes an ideal stereo amp for the flat or home unit. Incorporates polyswitch protection.

Specifications:

- Inputs:**.....(Switchable) Phono, Tape, CD & Tuner
- Output Power:**.....55W into 8 Ohms, 80W into 4 Ohms (1 Ch Driven)
47W into 8 Ohms, 70W into 4 Ohms (both Ch Dri.)
- Harmonic Distortion:**...typically less 0.05% (20Hz to 20kHz)
- Frequency Response:**...15Hz to 35kHz, +/-1dB
- Signal to Noise Ratio:**...105dB unweighted, 117dB A-weighted
- Input Sensitivity:**.....Phono: 4.3mV
High Level: 235mV
- Damping Factor:**.....>50

K 5045 **\$299.00**

Includes Super High Quality Enclosure

Balanced Input Pre-Amp

(ETI Dec '82)

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

Specifications:

- Frequency Response:**.....12Hz-60kHz
- T.H.D.:**.....Less than 0.012%
- Input Impedance:**.....nominal 560 Ohms
- Output Impedance:**.....nominal 260 Ohms
- Common Mode Rejection Ratio:**...easily adjustable to 80dB

K 5530 **\$19.95**

Very Simple to Build!



General Purpose Pre-Amp

(ETI July '76)

Makes a great phono, tape, mic, and just about any other pre-amp. Based upon a single LM 382 IC. Requires 10-40V DC. Output automatically biased to about 6V with 100dB ripple rejection.

K 5510 **\$18.50**



4 Channel Mic/Guitar Mixer and Preamp

Excellent Value For Money!



(SC Jan '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 with a low level output (guitars etc.). 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.

Specifications:

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

K 5535 **\$49.95**

Single 'DI' Box

(EA Oct '87)

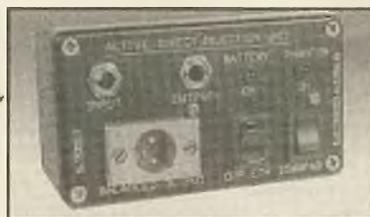
Converts high impedance devices, ie. electric guitar pickups, synthesizers etc. to low level balanced outputs to be fed over long lines. This is done to prevent hum and noise pickup.

Features:

- Sturdy diecast box
- Black tough industrial. powder coat finish
- Professionally screen printed
- Output Earth isolation switch
- 15dB pad switch
- Phantom powered (by a mixing desk etc through existing signal cable) or internal 9V battery

K 5550 **\$55.00**

As Used by the Professionals Save \$\$\$ over Commercial Equipment



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.

- Signal to Noise Ratio:**.....>-100dB (unweighted 20kHz)
- Frequency Response:**.....15Hz to 50kHz
- Distortion:**.....<0.01%
- Input Impedance:**.....approx 420K Ω
- Output Impedance:**.....<600 Ω
- Current Consumption:**.....approx 20mA (15V AC)

K 5555 **\$79.95**



Playmaster 'Pro Series One' High Power Mosfet Amplifier

(EA Dec '89-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%
- 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

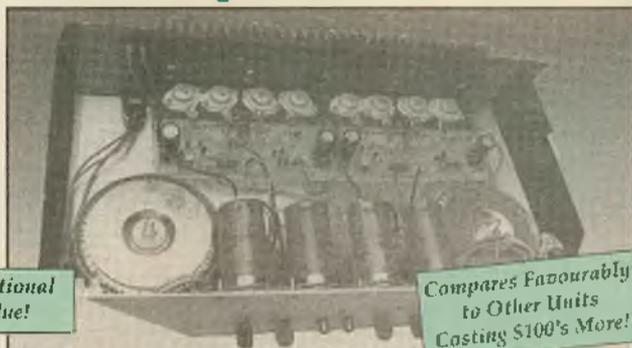
Sensitivity:.....0.83V RMS for 100W into 8 Ohms

IHF Pulse Power:.....190w RMS into 8 ohms

Input Impedance:.....33kΩ approx.

Output Slew Rate:.....>60V/Vs

Dampening Factor:.....>50



Exceptional Value!

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

K 5070 **\$599.00**

Looks & Sounds So Good that Your Friends Wont Believe you Built it Yourself

Studio 200 Stereo Control Unit



(SC June-July '88) Housed in slim 1 unit rack case. Inputs include phono, CD, tuner, VCR, two auxiliary 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.

Features: • Extremely low noise on phono and line level inputs • Very low harmonic and inter-modulation distortion • Separate headphone amp for clarity and definition • Tone defeat switch • Tone and balance controls with centre detent

Specifications:

Frequency Response:.....20Hz to 20kHz(Phono Input) +/-0.3dB

10Hz to 100kHz(High Level Inputs) +/-1dB

Total Harmonic Distortion:.....Less than 0.005%, at rated output

Tone Controls:.....Bass: +/-10dB at 100Hz

Treble: +/-12dB at 10kHz

Input Sensitivity:.....4.3mV @ 1 kHz (Phono Input)

240mV (High Level Inputs)

Input Impedance:.....50kΩ

Overload Capacity:.....150mV @ 1kHz (Phono Input)

Output Level:.....Rated 1.25V, Max. 8.4V RMS

Output Impedance:.....470Ω

Headphone Output:.....40mW into 8Ω, 100mW into 32Ω

K 5015 **\$229.00**

Out performs Commercial Units Costing \$\$\$ Or More!

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. Requires +/-50V DC supply

Specifications:

Power Output:.....50W into 8Ω

.....64W into 4Ω

Freq. Response:.....25Hz-20kHz,+/-1dB

Input Sensitivity: 1V RMS

Input Impedance: 47kΩ

T.H.D.:.....0.05%

Dampening Factor: 50

Stability:.....Unconditional

K 5115 **\$49.95**



Ultra Compact Design!

Playmaster Pro Series One 200W Mosfet Module

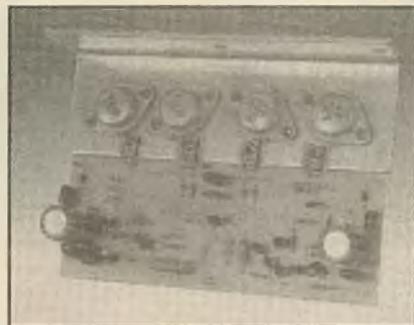
(EA Dec '89)

This amplifier module has all the same high specs as the Stereo Pro Series One (K 5070 above), but in short form ie.

One mono module - no power supply or case. Fantastic for use in stage amps, juke boxes, amplifier racks (multi-amplifier setups) discos etc.

Requires +/-69V DC power supply. See above K 5070 for full 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 Ohm load

Freq. Response:.....45Hz to 68kHz

Input Impedance:.....100kΩ (approx)

Output Impedance:.....0.1Ω (approx)

K 5112 **\$26.95**

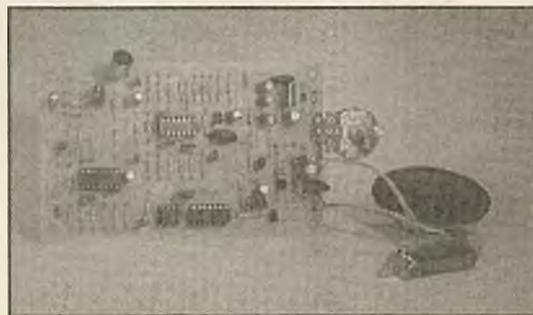


Ideal Test Amplifier!

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 plug-pack. 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.

PC 9510 **\$32.95**



Digital Voice Recorder

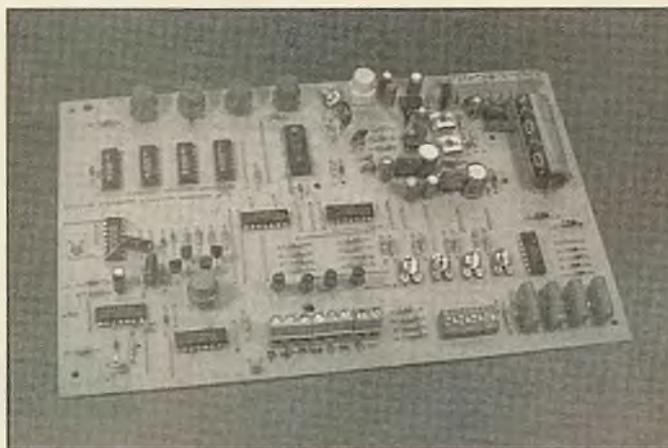
(S.C. Dec '89)
The Days Of Tape Decks Are Numbered. This Digital Recorder delivers astonishing reproduction of voice and-or music without any moving parts. There is a digital voice recorder that can store 4 different signals, voice, sound or a music source of up to 30 seconds each or one recording of up to 2 minutes. This digital voice recorder uses a dedicated 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.

PC 9550 PCB Format **\$129.00**

*\$100's Cheaper than Many
Other Commercial Imported
Digital Recorders!*



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.

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



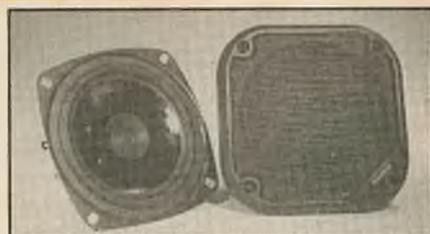
Attention Universities, TAFE Colleges, Technical Schools, Schools, Government Departments etc. If you buy any electronic components or equipment either phone or fax us with your list of requirements today. We currently supply such establishments all over Australia. We are able to supply goods ordered on an official order form on a 30 day account to any Government Department. Priority is given and all such orders are usually dispatched 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.

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

C 9327 **\$34.95**

Covered by a Full 12 month
Warranty



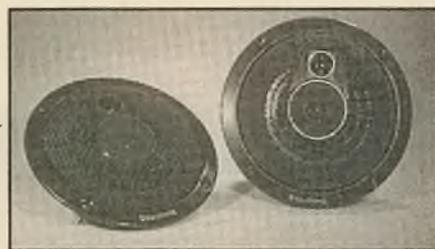
3 Way 40 Watt Flush Mount

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 to 20,000Hz • Complete with wire and hardware

C 9328 **\$59.95**

Covered by a Full 12 month
Warranty

*Super Slim Design Design. Ideal
for Mounting in Car Doors!*



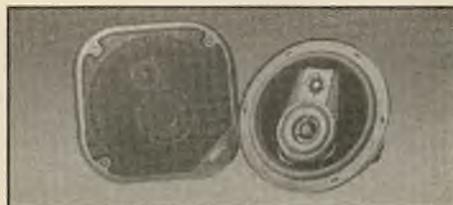
3 Way 100 Watt Flush Mount

• High Performance 6.5" 3 Way • Power Handling 100 Watts Max • 4 ohms Impedance • Hi-Grade Barium Magnet • Dome Tweeter • Polypropylene Coated Cone • Frequency Response 50 to 20,000Hz • Complete with Wire and Hardware • Dimensions 94.5D x 1.65W mm

C 9339 **\$95.95**

*New
For '93*

Covered by a Full 12 month
Warranty



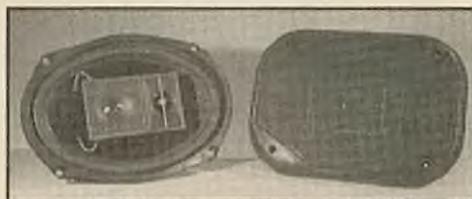
160 Watt 6" x 9" Tri-axials

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

C 9334 **\$139.95**

Covered by a Full 12 month
Warranty

*Outstanding
Reproduction!*



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

C 9337 **\$79.95**

Covered by a Full 12 month
Warranty



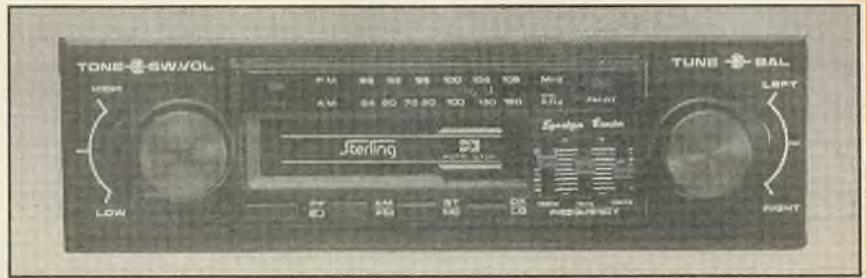
Stereo AM/FM Car Radio Cassette Player with 3 band graphic Equalizer

- AM/FM MPX Stereo Receiver
- Analog Frequency Display
- Night Illumination
- Stereo Cassette Player
- Locking Fast Forward
- 3 band Graphic Equaliser
- 30 Watts Output
- LO/DX Switch
- FM Stereo Indicator

**New
For '93**

9122 **\$119.⁹⁵**

*Covered by a Full 12 month
Warranty*



Auto Reverse Car Radio Cassette Player

- AM/FM Stereo
- High Power 30 Watts
- LCD Digital Display
- Digital Quartz Clock
- Auto Reverse Tape Function
- Locking Fast Forward and Rewind
- Preset Scan
- Night Illumination
- Separate Bass and Treble
- 30 Station Preset (18FM/12AM)
- PLL Synthesizer Tuner
- 4 Way Fader Control
- Push Button Controls for Up/Down Channel Tuner
- RCA Line Level Outputs for use with Optional Amplifier
- Chassis 178W x 50H x 150D mm
- IAC Noise Reduction

**New
For '93**

9130 **\$299.⁹⁵**

*Covered by a Full 12 month
Warranty*

*New Stylish Appearance with
up to 30 Pre-set Stations!*



Deluxe 7 Band Graphic Equaliser/Analyser/Booster

With In Built Spectrum Analyser

- 12db boost-cut • Power on-off • 2 channel high power amplification •
- Two or four speaker hook up • 2 x 50 Watts max • In built spectrum display • Fader control • Slider adjustment controls • Night illumination •
- Input impedance: High 47K Ω / 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.

9150 **\$176.⁹⁵**

*Covered by a Full 12 month
Warranty*



7 Band Graphic Equaliser-Booster

Enhances Your Car Sound

- 7-Band graphic equaliser • 12dB boost-cut • Power on-off •
- 2-channel high power amplification • Two or four speaker hookup • 2 x 50 watts max • 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

9140 **\$114.⁹⁵**

*Covered by a Full 12 month
Warranty*



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 ruggedly constructed for continuous use. They 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

AUDIOLINE 830

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 control
- 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

A 0492 **\$119.⁹⁵**

A 0493 Optional Remote Control **\$24.⁹⁵**

Covered by a Comprehensive 12 Month Replacement Warranty



Remote Control DTMF Answering Machine

AUDIOLINE 860

Features:

- Day and Time Stamp
- 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

A 0495 **\$149.⁹⁵**

A 0498 Optional Remote Control **\$19.⁹⁵**

Covered by a Comprehensive 12 Month Replacement Warranty



Combination Telephone And Remote Control Answering Machine

The simplest of all to use for the non-technically minded.

AUDIOLINE 915

Features:

- Dual Recording - digital (for outgoing) and micro cassette for incoming message
- 2 x 256k D-Ram micro processor for high quality digitally recorded OGM (max 16 seconds)
- 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 (A 0499)
- 12 month replacement guarantee
- Austel Permit; A91-30E-0145
- Full function Remote Control included for playback, reset, save, OGM Change

A 0497 **\$269.⁰⁰**

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

A 0498 Option Remote Control **\$19.⁹⁵**

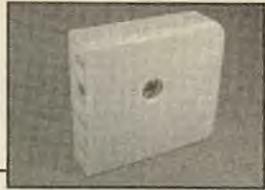
Incorporates State-of-the-Art Digital Voice Recording!

Covered by a Comprehensive 12 Month Replacement Warranty



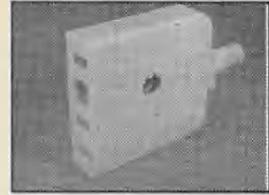
Telephone Wall Socket

Austel Approved (610W)
P 0988 \$5⁵⁰



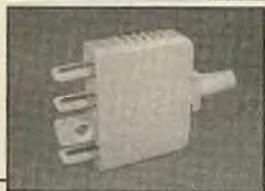
Telephone Line Socket

Austel Approved (610F)
Complete with strain relief tail.
P 0987 \$4³⁵



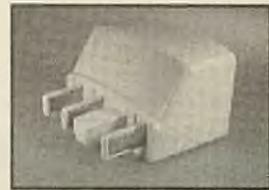
Telephone Line Plug

Austel Approved (605A)
Complete with strain relief tail.
P 0985 \$3⁷⁵



Telephone Double Adaptor

Austel Approved (M600)
Converts a standard socket into a double socket to allow you to plug in two phones or extension bell etc.
P 0995 \$4⁹⁵



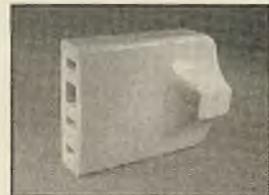
Modular to Australian Telephone Adaptor

Austel Approved (605M)
Converts from a modular (6 way 4 wire) socket to a standard Australian plug. (Not suitable for mode 3 modems).
P 0998 \$4⁹⁵



Australian to Modular Telephone Adaptor

Austel Approved (610M)
Converts from a modular (6 way 4 wire) socket to a standard Australian socket.
P 0999 \$6⁹⁵



Telephone Extension Lead

Austel Approved Two convenient lengths available. Australian Plug to Australian Socket.
P 0990 5 Metres \$12⁹⁵
P 0992 10 Metres \$15⁹⁵



Modular to Modular Lead

Austel Approved
4.5 metre long. Modular (6 way 4 wire) plug to modular (6 way 4 wire) plug.
P 0989 \$9⁵⁰



Conversion Cord

Austel Approved
Converts from a standard Australian plug to a modular (6 way 4 wire) plug. 1.8m long. As used on many answering machines etc.
P 0994 \$9⁵⁰



Telephone Extension Bell

Simply plugs into a standard telephone wall socket. With 10 metre lead. Can be used in conjunction with the P 0995 telephone double adaptor.
P 0996 \$29⁵⁰



Modular to Modular Adaptor

Female modular 6 way 6 wire to female modular 6 way 6 wire. For joining two telephone line cables together etc.
P 0983 \$4⁹⁵



NEW FOR '93

Modular Telephone Plugs and Sockets

PCB Mount Sockets

Gold Plated Contacts



	ea	10up	ea	10up
1402 4 Way-4 Wire	\$1.15	\$1.05		
1405 6 Way-6 Wire	\$1.50	\$1.35		
1408 8 Way-8 Wire	\$3.85	\$3.75		

Crimp Type Plugs

Gold Plated Contacts



	ea	10up	ea	10up
P 1412 4 Way-4 Wire	.25c	.20c		
P 1414 6 Way-4 Wire	.25c	.20c		
P 1415 6 Way-6 Wire	.30c	.25c		
P 1418 8 Way-8 Wire	.50c	.45c		

Low Profile Modular Sockets

Gold Plated Contacts



	ea	10up	ea	10up
P 1422 4 Way-4 Wire	\$1.15	\$1.05		
P 1425 6 Way-6 Wire	\$1.50	\$1.35		
P 1428 8 Way-8 Wire	\$3.85	\$3.75		

Telephone Line Isolation Units

All Austel Approved.

Type 1: Designed to interface paging output of PABX or commander phone systems to P.A. amplifier.

P 0610 \$99⁰⁰

Type 2: Provides music on hold to your Commander phone system.

Music input can be a radio, tape deck, land line etc. Max output 100mV P-P. Suits 'SB' type Commander.

P 0615 \$99⁰⁰

Type 3: Similar to the Type 2 (A 0615) except that the maximum output is 2.8V P-P. Suits series 'S' Commander.

P 0620 \$99⁰⁰



Push Button Telephone

Great for use as a second phone around the house or office. Includes last number memory redial, mute function ringer on/off switch and dialling indicator. Supplied complete with wall bracket, standard telephone plug and curly cord.

A 0490 \$19⁹⁵

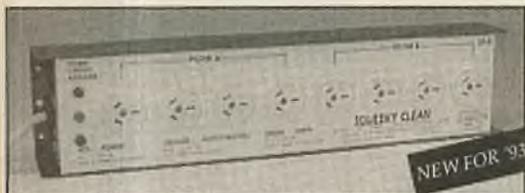


Squeaky Clean Mains

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 Squeaky Clean Mains Filter. Most modern personal computers and their peripheral equipment are filtered 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 Squeaky Clean Filter.

All Squeaky 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 8170 8 Outlet, Double Filter Model **\$289.00**



P 8150 Double Outlet, Single Filter Model **\$130.00**

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 12u)
- Protection Modes:Active-Neutral, Active-Earth
- Earth Leakage:Will not trip a 20mA Earth leakage breaker
- Outlets:2 outlets, single filter
- Cable Length:1m (approx)
- Dimensions:120mm (L) x 75mm (W) x 50mm (D)
- App. No. N10717

P 8170 Specifications

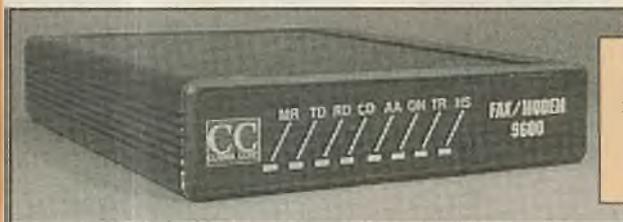
- Load Rating:Continuous 10 Amps, circuit breaker at 240V AC
- Clamping Voltage:390V Peak or 275V RMS
- Peak Impulse Current:4800 Amps
- Protection Modes:Active-Neutral, Active-Earth and Neutral Earth
- Earth Leakage:Will not trip a 20mA Earth leakage breaker
- Outlets:8 outlets, 2 individual filters
- Cable Length:1m (approx)
- Dimensions:435mm (L) x 100mm (W) x 65mm (D)
- Response Time:<18ns
- Protection Energy:240 Joules
- App. No. N10716

1 Year Warranty!

FAX/MODEMS

Fax/Modem

NEW FOR '93



The Comma Fax/Modem will turn your PC (or Macintosh) into both a fax machine which can transmit faxes up to 9600 baud, as well as a Modem which supports both 1200 and 2400 baud.

The Comma Fax/Modem uses the latest technology in digital signal processing to ensure lasting trouble free operation.

Send faxes from home. The Comma Fax/Modem is a fully featured fax machine similar to units costing over \$1000, which will transmit and receive faxes at up to 9600 baud. Your faxes can now be sent directly from your PC without having to print them first. Programs supported such as Ventura Publisher, WordPerfect, Windows, TIFF and Dr Halo to name but a few. You can view incoming faxes on-screen or print them using a standard dot matrix printer. Incoming files can also be exported in either TIFF or PCX formats for use in popular graphic packages. Only print the faxes you want to keep - just think of the savings on expensive fax paper.

Time Saving. The Comma Fax/Modem will also receive faxes in the background while you continue to work. When faxing out, the Fax/Modem will redial an engaged number so you can be sure your faxes are sent. The software also automatically keeps a complete log of both incoming and outgoing faxes. Also supported are cover pages, broadcast faxes, and scheduling. The software keeps a database type register of regularly used fax numbers for easy retrieval.

It's a modem as well. The Comma Fax/Modem is a fully AT command compatible modem. Features include V22/V22bis standards (V21/23 is an option) both 1200 and 2400 baud rates are supported as well as auto answer, dialling and disconnect. You will find it compatible with all popular communication software.

Free Software. With each modem you will receive the QL2 Fax/modem software featuring both pull-down and mouse support.

Specifications: • Data Format Async: 10 or 11 bit • Line Speed: 1200 and 2400 for data • 2400, 4800, 7200 and 9600 for fax • 300 and 1200/75, 75/1200 on 1234FV model • DTE Speed: 75, 300, 1200, 2400, 4800, 7200, 9600, 19200 • Data Throughput: 2400 bps for CC9600 • 9600 bps 1234FV model • CCITT Modes: V22, V22bis, for CC9600 • V21, V22/23, V22bis for 1234FV model • V21ch2, V27ter, V29 for fax all models • Fax Modes: EIA PN2388 Class 2 • DTE Interface: CCITT V24 and EIA RS-232C • Looptest: CCITT V54 • Data Compression: CCITT V42bis (BTLZ) and MNP5 (1234FV only) • Error Correction: CCITT V42 (LAPM) and MNP 2-4 (1234FV only) • Line Impedance: 600 ohms nominal • Transmit Level: -15dbm • Receive Sensitivity: -43dbm • Modulation: V21/V23/BeU J03FSK • V22/V22bis/Bell 212 - DPSK • V27ter/V29-QAM • Power: 8-12V AC 500MA

D 1590 **\$349.00**

CC V3242 Fax/Modem

NEW FOR '93

Turn Your PC or Mac into a Fax with One of These state-of-the-Art Fax/Modems!



The Comma 3242 is an integrated, high performance modem that supports all popular CCITT and Bell

modem standards, including the newest standard, CCITT recommendation V32bis for dialup communications at 14.4K bit/s and all CCITT standards for full FAX operation. The modem can operate full-duplex and half-duplex in synchronous and asynchronous data format at 9600, 7200, 4800 and 2400, 1200 and 300 bit/s. Additional features include DTMF tone generation and receiver, High Level Data Link Control (HDLC) framing, and Adaptive Differential Pulse Code Modulation (ADPCM). It satisfies the CCITT Group 3 facsimile data rates of 9600, 7200, 4800 and 2400 bit/s. It can perform tonal and HDLC framed binary signalling requirements according to 1.30 recommendation. The modem is capable of operating over the general switched telephone network (PTSN) and leased-line with the proper telephone line interface.

Features: • PSIN modem standards: V32bis, V32, V23, V22bis, V22, V21 and Bell 212 and 103 • Leased-line modem standards: V29, V27ter, V26bis and Bell 208 and 201 • Group 3 facsimile modem standards: V29, V27 and V21 Channel 2 • Full-duplex HDLC mode • Trellis-Coded modulation (TCM) at 7200- 14400 bit/s • Asynchronous and synchronous data • 2 wire PSTN and leased-line operation • DTMF tone generation and receiver • Auto-speed negotiation from V32bis to V21/Bell 103 • Automatic retrain • Automatic local-echo hybrid balance • Far end echo cancellation with a round trip delay of 1.7 seconds • Transmit compromise equaliser • Adaptive equaliser in the receiver • Receiver signal quality monitor • Receiver signal level monitor • High level command/response interface • V24/RS-232 interface signals • Low power consumption • TR29 Class 1 Fax Command Set • V42bis and MNPI-5 • Software for IBM PC or Macintosh • V54 tests: Analog Loop, Digital Loop, Remote Digital Loop

D 1595 **\$699.00**

Why pay \$1499.00 for a V32 Modem?

General Products

ALTRONICS
PHONEORDER 008 999 007

HIGH PERFORMANCE COMPUTER FANS

240VAC Models

240V AC 80mm Type

Specifications:
Air Flow:.....30CFM
Input Power: 14W max.
Speed:.....2300 - 2750 RPM
Noise Level:..31dBA
Material:.....Diecast Alum. Frame
Size:.....80 x 80 x 38mm
Bearing Type:Sleeve Bearing
P 1020 **\$25⁵⁰**

240V AC 120mm Type

Specifications:
Air Flow:.....105CFM
Input Power: 20W max.
Speed:.....2550 - 2900 RPM
Noise Level:..43dBA
Material:.....Diecast Alum. Frame
Size:.....120 x 120 x 38mm
Bearing Type:Sleeve Bearing
F 1030 **\$25⁹⁵**

Low Voltage DC Models

12V DC 80mm Type

Specifications:
Air Flow:.....24CFM
Input Power: 1.6W
Speed:.....2300 - 2500 RPM
Noise Level: ..27dBA
Material:.....Thermoplastic
Size:.....80 x 80 x 25mm
Bearing Type:Sleeve Bearing
P 1050 **\$17⁵⁰**

24V DC 120mm Type

Specifications:
Air Flow:.....80CFM
Input Power: 6W
Speed:.....3000 - 3450 RPM
Noise Level:..44dBA
Material:.....Diecast Alum. Frame
Size:.....120 x 120 x 25mm
Bearing Type:Sleeve Bearing
F 1040 **\$25⁹⁵**

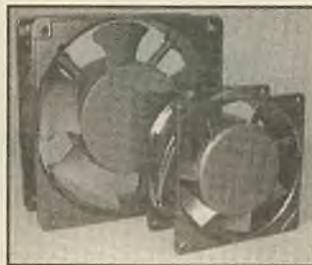
Fan Finger Guards

All metal construction.

Chrome plated.

P 1022 To Suit 80mm Fans

P 1032 To Suit 120mm Fans **\$2⁴⁵**



COMPUTER LEADS & ADAPTORS

D25 Male to Centronics Lead. 1.8m.
P 0758 **\$10⁸⁰**



D25 Male to Centronics Lead. 3.6m
P 0759 **\$12⁹⁵**

D25 Male to D25 Male Lead. 1.8m
P 0762 **\$10⁹⁵**



D25 Male to D25 Female Lead. 1.8m
P 0764 **\$19⁹⁵**

D25 Male to D9 Female Peripheral Lead. 30cm
P 0761 **\$5⁶⁰**



D25 Female to D9 Male Peripheral Lead. 30cm
P 0763 **\$5⁹⁵**

D25 Male to D25 Male Gender Changer
P 0765 **\$9⁷⁵**



D25 Female to D25 Female Gender Changer
P 0760 **\$9⁷⁵**

D9 Male to D9 Male Gender Changer
P 0800 **\$9⁹⁵**



D9 Female to D9 Female Gender Changer
P 0805 **\$9⁹⁵**

D25 Male to Modular (6 way 6 wire) Modem Adaptor
P 0810 **\$9⁹⁵**

D25 Female to Modular (6 way 6 wire) Modem Adaptor
P 0820 **\$9⁹⁵**

RS-232 ACCESSORIES

RS-232 Open Jumper Box

Open style jumper box. Allows quick and simple re-configurations to D25 port. Ideal for prototyping etc. Tinned jumper lead set supplied.

P 1525 **\$21⁹⁵**

NEW FOR '93



Null Modem

Use when Transmit DATA and Receive DATA need to be reversed.

D 1530 **\$6⁹⁵**



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.

P 1520 **\$9⁹⁵**



A-B Switch Box D25-D25

Two way printer-peripheral-computer switch with D25 female 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.

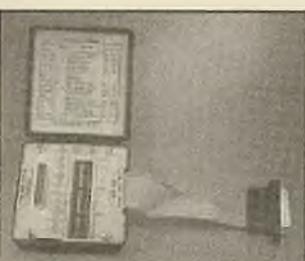
D 1570 **\$49⁹⁵**



In-Line RS-232 Break Out Box

Designed for circuit testing, mounting and patching. It has ten signal powered LEDs 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 re-configure and patch all of the 24 active lines.

P 1540 **\$99⁹⁵**



RS-232 Surge Protector

D25 plug to D25 female socket. Helps to prevent damage to computer equipment caused by voltage spikes.

D 1510 **\$22⁵⁰**

NEW FOR '93



Mains Plug

P 8210 \$2.70



Clear Mains Plug

P 8215 \$2.70



Inline Mains Socket

P 8230 \$5.95



Surface Mount Socket

P 8234 \$6.10



IEC Mains Connector

6 Amp
P 8310 \$1.95



IEC Mains Chassis Socket

P 8326 \$3.95 **NEW FOR '93**



IEC Mains Chassis Socket 10 Amp

P 8320 \$2.95



IEC Mains Socket 6 Amp With Fuse Holder

Holds M205 fuse plus a spare!
P 8324 \$4.50



Mains Plug IEC Male Line 10 Amp

P 8328 \$3.90



Power Outlets

P 8240 Single \$9.95

P 8245 Double \$17.00



Blank Plate

P 8040 \$3.20



Mounting Blocks

P 8045 38mm Deep \$3.20

P 8047 13mm Deep \$2.90



IEC Power Leads

A 2410 3 Pin Mains Plug to IEC Socket 1.8m \$9.95
A 2415 IEC Male to Female IEC Lead 2.0m \$15.95



Mains Leads

A 2400 7.5 Amp 1.8m \$4.15

A 2405 10 Amp 1.8m \$5.95



MISCELLANEOUS GENERAL PRODUCTS

Pin Point UltraSonic Cleaner

Gently cleans Computer Connectors, PCB's, Switches, Relays, Jewellery, Glasses, Watches, Fuel Injectors and other Very Fine Parts.

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 penetrate deep into cracks and holes. This personal ultrasonic cleaner won't scratch precious jewellery or glass. Tank size 150 x 90 x 55mm approx.

Specifications: Power Supply: 240V 50Hz, Power Consumption: 300mA, Frequency: 40kHz +/- 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 \$229.00



Clock Movement

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

X 1010 \$13.50



Audio & Video Head Cleaners

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.

A 9200 Audio Cassette \$3.95

A 9310 VHS Video \$12.50



Famous TDK Audio

Cassette Tapes

		ea	10 up
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	SA90	\$7.50	\$6.95
A 4032	SA100	\$7.95	\$7.50



Photoelectric Light

Socket

NEW FOR '93

What a great idea. Never leave a light on all day again. This adaptor plugs into a normal bayonet type light socket. The light globe then plugs directly into the adaptor which then turns off during daylight and on at night. Operates via normal light switch. Variable sensitivity adjustment. Great for security purposes. Installs in seconds. Note: for internal use only, not recommended for outdoor use unless adequately protected from moisture.

S 5320 \$17.95

Simply Plugs In - No Additional Installation Required!



Wet Type Floppy Disk Cleaners

Today's computer hardware and software doesn't come cheap, and is often difficult to replace. So protect your valued investments with our floppy disc cleaners.

D 1807 3.5" Kit Both

D 1809 5.25" Kit \$5.95 ea



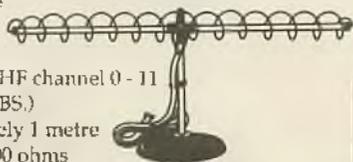
VHF & VHF/UHF TV ANTENNAS & ACCESSORIES

These antennas offer several advantages over their competitors. Namely they are 100% Australian made, and constructed from 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.

PLEASE NOTE DUE TO THE SIZE OF TV ANTENNAS AND THEIR FRAGILE NATURE, WE ARE UNABLE TO DESPATCH THEM THROUGH OUR MAIL ORDER SERVICE.

Spiral Indoor Antenna

Great for use in good reception areas. For VHF channel 0 - 11 only. (Not SBS.) Approximately 1 metre in length. 300 ohms impedance. (For 75 ohm use add the L 1012 TV balun.)

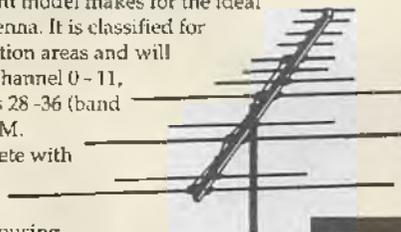


L 2018 \$11⁹⁵

All Outdoor Antennas 100% Australian Made!

Medium/Fringe VHF & UHF

This 12 element model makes for the ideal suburban antenna. It is classified for average reception areas and will receive VHF channel 0 - 11, UHF channels 28 - 36 (band 4 - SBS) and FM. Comes complete with 75 ohm waterproof termination housing.

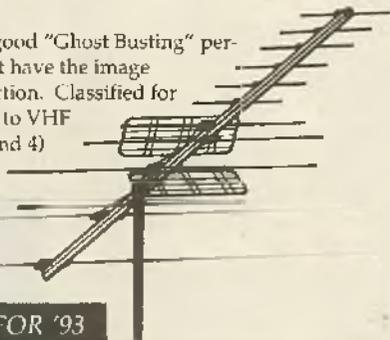


L 2008 \$72⁰⁰

NEW FOR '93

Super VHF/UHF

This 14 element antenna gives good "Ghost Busting" performance. Ideal for pictures that have the image ghosting caused by signal reflection. Classified for poor performance areas. Suited to VHF channels 0 - 11, UHF 28 - 36 (band 4) [SBS] and FM. Comes complete with 75 ohm waterproof termination housing.

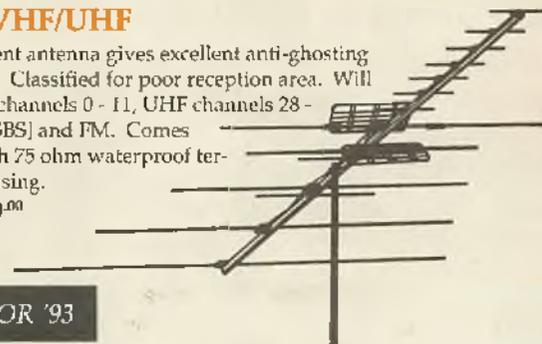


L 2012 \$99⁰⁰

NEW FOR '93

Deluxe VHF/UHF

This 18 element antenna gives excellent anti-ghosting performance. Classified for poor reception area. Will receive VHF channels 0 - 11, UHF channels 28 - 36 (band 4) [SBS] and FM. Comes complete with 75 ohm waterproof termination housing.



L 2016 \$119⁰⁰

NEW FOR '93

TV Splitters

Suitable for VHF-UHF TV and FM radio. Spring loaded cable clamps enable super quick termination for 75Ω coax. Available in two models, 2 and 4 way. Each can be reversed to become a combiner. High isolation between outputs.

- Insertion Loss:
L 1310 2 Way 3.5dB
L 1320 4 Way 6.5dB
L 1310 2 Way \$5³⁰
L 1320 4 Way \$13⁵⁰



Weatherproof Balun

Converts 300 ohm antenna output to 75 ohm coaxial downlead to suit most modern TVs.



L 1020 \$4⁵⁰

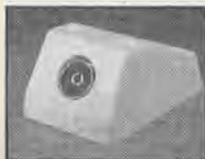
Indoor TV Balun

300 to 75 Ohm
L 1012 \$2³⁰



TV Outlet

TV outlet single 75 ohm coaxial socket. Surface mount, miniature size, complete with mounting screws. Colour white.



L 1030 \$2⁹⁵

Outdoor Diplexer

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



L 1404 \$13⁹⁵

TV Antenna Loft Mount

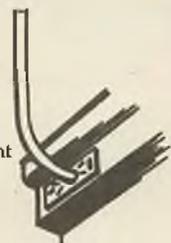
Sturdy steel construction. Mounts antenna 335mm above ceiling joists. Single bolt fixing.



L 2030 \$10⁹⁵

Antenna Facia Bracket

Galvanised steel. Pole height 1.2 metres.



L 2035 \$19⁹⁵

TV Antenna Fly Leads

- Both 1.8m Long.
P 0755 Male-Male, (75Ω Socket to TV) \$3.70
P 0757 Male-Female, (Video to TV) \$3.70



75 Ohm Pal TV Connectors

	ea	10up
P 0227 Metal Plug	\$1.80	\$1.60
P 0228 Plastic Plug	.95¢	.85¢
P 0230 Metal Line Socket	\$1.65	\$1.45

P 0233 Female To Female Adaptor
\$1.00 ea, 10up .90¢ ea



For Cable Suitable for use in TV Installations Refer to WIRE & CABLES Section. For Plugs and Sockets as used with TV Installations See the CONNECTORS Section.

BATTERIES

Duracell Alkaline

	Size	
S 4810	AAA	\$1.60 ea
S 4815	AA	\$1.50 ea
S 4820	C	\$2.95 ea
S 2825	D	\$3.95 ea
S 4830	9V	\$6.50 ea



GP Mercury Free

	Size	
S 4850	AAA	\$1.10 ea
S 4855	AA	.85¢ ea
S 4860	C	\$1.45 ea
S 4865	D	\$1.95 ea
S 4870	9V	\$2.85 ea



Nicad Rechargeable Batteries



		ea	10 up
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	9V 120mAh	\$17.85	\$16.50

Premium Grade - Good for up to 1000 re-charges. Charge Rate 10% of total battery ampere hour rating.

Battery Snap & Holders

		ea	10 up
P 0455	9V Battery Snap	.30¢	.25¢
S 5025	2 x AA Cells	.60¢	.55¢
S 5026	1 x AA Cell	.55¢	.40¢
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¢
S 5048	1 x PCB Mount 9V	.75¢	.65¢
S 5050	9V Metal Retaining Clip	.35¢	.30¢



P 0455



S 5048

Button Calculator And Watch Batteries

Silver Oxide 1.5V

				ea
S 5000	G13	SR44	396	\$3.45
S 5002	G12	SR43	392	WL1 \$2.75
S 5004	G10	SR1130	393	WL6 \$2.95
S 5012	G2	SR726	357	WL14 \$3.45



Alkaline 1.5V

S 5014		LR44	A76	\$2.25
S 5016		LR43	186	\$2.25
S 5018		LR1130	189	\$2.25

Lithium 3V

S 4998		CR 2025		\$3.95
S 4999		CR 2032		\$3.95



12V Lead Acid Backup Batteries

Premium grade long life. Sealed lead acid batteries. Ideally suited for security alarm panels.

S 5065	1.2AH \$29. ⁹⁵	42W 50H 96L
S 5067	3AH \$44. ⁹⁵	67W 60H 132L
S 5069	4AH \$49. ⁹⁵	68W 100H 90L
S 5070	6.5AH \$54. ⁹⁵	65W 100H 90L



Dimensions:

Listed after price. N.B. Height does not include connection tabs. All dimensions in mm.

ANTENNAS & ACCESSORIES

5' Whip

Fibreglass helical whip with standard chrome brass ferrules. $\frac{5}{16}$ " 24 TPI female thread.

L 3200 \$19.⁹⁵

5' Tuneable Whip

Sturdy PVC covered helical whip with easily tuneable top whip 120mm long. Standard $\frac{5}{16}$ " 24 TPI female thread.

L 3205 \$39.⁹⁵

UHF Antenna

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

L 3212 \$34.⁷⁵



Whip Lead and Base

PL259 plug to L 3220 base with L 3200 5' whip antenna ready for immediate installation. 12' lead.

L 3210 \$34.⁷⁵



Spring Base Aerial

Heavy Duty Stainless Steel. 1.5m extended length.

C 9410 \$17.²⁵

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



Standard Base

$\frac{5}{16}$ " male fitting, low profile design.

L 3220 \$4.²⁵



12' Lead and Plug

Antenna lead of RG58AU cable with a PL259

plug one end, and stripped and fitted with terminals to the other.

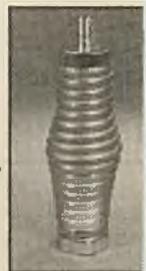
L 3225 \$14.⁵⁰



Heavy Duty Tension Spring

Ideal for use with the L 3200 and L 3205 Antennas. $\frac{5}{16}$ " thread.

L 3230 \$27.⁹⁵



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	RESISTANCE
Q 0500	1mA	210Ω
Q 0505	50uA	3.6kΩ
Q 0506	100uA	3.9kΩ
Q 0508	1A	3.2Ω
Q 0510	5A	3.2Ω
Q 0515	10A	3Ω
Q 0525	30V	29.4kΩ
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	RESISTANCE
Q 0530	1mA	210Ω
Q 0531	1A	3.2Ω
Q 0533	5A	3.2Ω
Q 0535	30V	29.4kΩ
Q 0538	50V	49.5kΩ

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	RESISTANCE
Q 0540	1mA	210Ω
Q 0550	100uA	3.9kΩ

Dimensions

	Width	Height	Face Height	Rear To Face	Mounting Hole	Bolt Length
MU-45	59	53	11	31	45.5	12
MU-52E	80	66	12	35	52.6	13
MU-65	100	82	12	37	65.6	13

Dimensions in mm.

All supplied with template and mounting hardware.

Digital Voltmeter

This well designed LCD module will take care of most of your requirement for digital displays. It can cater for DC Voltages as well as current measurements up to 2 Amps. Small, compact, reliable and comes complete with plastic surround to give a professional finish.

Specifications:

Digits:	3.5 13mm Height
Ranges:	200mV, 2V, 20V, 200V, 1000V, 200uA, 2mA, 20mA, 200mA, 2A
Input Impedance:	10MΩ
Power Supply:	9V DC
Over-range Indicator:	'1'
Battery Life:	5000 Hours (approx)
Cutout Size:	54 x 33mm
Accuracy:	+0.5% (2 digit)

Q 0560 \$39.⁹⁵



NEW FOR '93

Alphanumeric Dot Matrix LCD Module

This compact LCD module has 96 inbuilt ASCII characters as well as 92 special letters which can be displayed on a 16 character by 2 line screen. The module will hold the current input on the display using its own built in memory, thus making it very easy to drive. Some possible applications could be within fax machines, measuring instruments, telephone applications or any other area where machine user feedback is required.

Specifications

Module Size:	84 x 44 x 9.7mm
Display Size:	61 x 15.8mm
Character Size:	2.96 x 5.66mm
Contrast Ratio:	10
Number of Characters:	16 Characters by 2 lines
Viewing Angle:	Between 50 - 80° Longitudinal 60 - 120° Lateral
Supply Voltage:	5V DC
Power Supply Current:	1mA Typical

NEW FOR '93

See SEMICONDUCTORS Section for Our Range of Other LCD Displays

Z 7299 \$35.⁰⁰



ANALOGUE MULTIMETERS

Economy Pocket Tester

2000 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 \$21.⁹⁵

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



17 Range Economy 3.5 Digit 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.

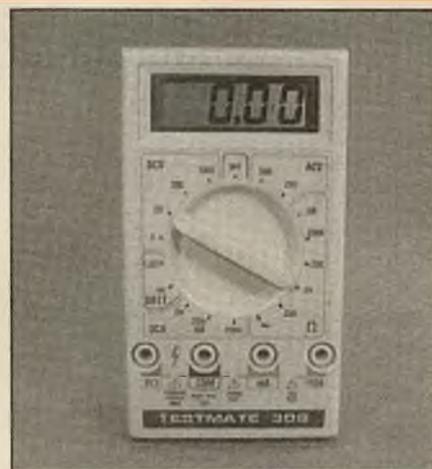
Specifications:

- 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 Current:1.0mA
- Test Voltage:3.2V Max
- Battery Test Ranges:1.5V, 9V Loaded
- Battery Test Current:1.5V 100mA, 9V 6mA

Q 1056 **\$49.95**

Q 1057 Carry Case to Suit \$12.50

*Ideal for the
Beginner!*



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, with manual over-ride
- Memory Mode for Eliminating lead resistance
- Low OHM Range
- Hold Facility
- Automatically indicates negative inputs
- Low Battery Indicator
- Continuity check with Buzzer

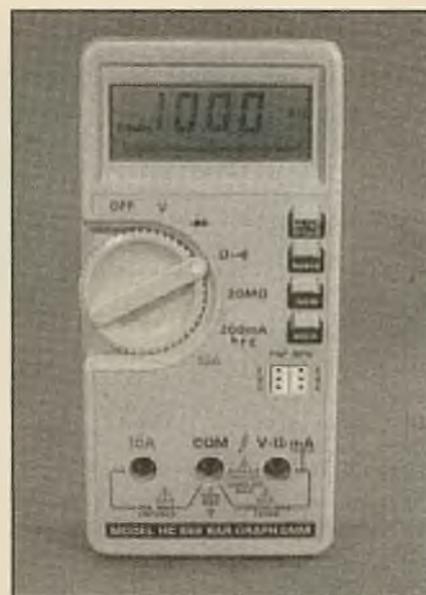
Specifications:

- DC Voltage Ranges:5 (200mV, 2V, 20V, 200V, 1000V)
- Input Impedance:100M ohm, 200mV Range. 10M ohm, on 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
- Display:3.5 digit LCD

Q 1075 **\$119.00**

Q 1077 Hard Holster to Suit \$12.50

Q 1076 Carry Case to Suit \$12.50



24 Range 3.5 Digit High Accuracy Specification Digital Multimeter

With an accuracy of around 1% and with its 20 Amp range in both AC and DC, it would have to be one of the best value multimeters available today.

Specifications:

- DC Voltage Ranges:200mV, 2V, 20V, 200V, 1000V
- Max Resolution:0.1mV
- AC Voltage Ranges:2V, 20V, 200V, 750V
- Max Resolution:1mV
- DC Current Ranges:2mA, 200mA, 2A, 20A
- Max Resolution:1µA
- AC Current Ranges:200mA, 2A, 20A
- Max Resolution:100µA
- Resistance Ranges:200 ohm, 2K, 20K, 200K, 2M, 20M
- Max Resolution:0.1 ohm
- Transistor Tester:Can test NPN and PNP signal transistors
- Display:3.5 Digit LCD Display
- Battery:9V Battery

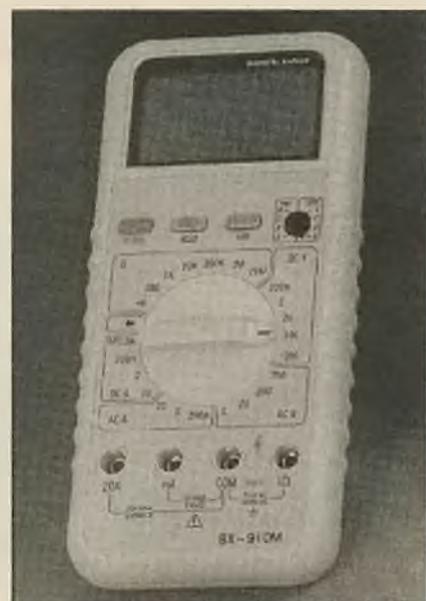
Q 1030 **\$99.00**

Q 1068 Carry Case to Suit \$12.50

Q 1040 Protective Holster to Suit \$15.95

*Massive 20 Amp
Current Ranges!
Ideal for Technicians
or Hobbyists*

NEW FOR '93



24 Range 3.75 Digit DDM with Frequency Measurement and Cap Meter

Includes frequency and capacitance ranges. With the addition of a built in logic probe and screen hold button it would have to be one of the most useful DMM's available today.

Specifications:

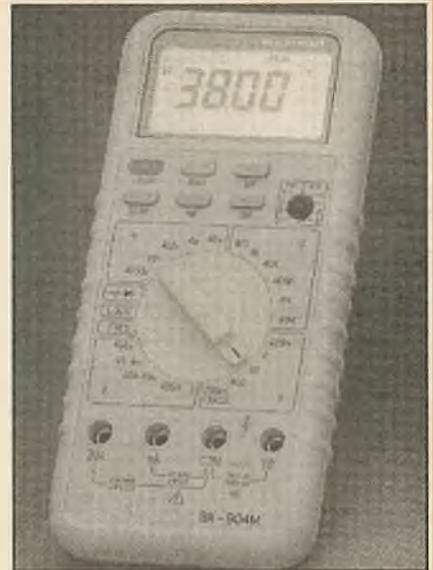
- DC Volts Range:400mV, 4V, 40V, 400V, 1000V
- Max Resolution:100µV
- AC Voltage Ranges:400mV, 4V, 40V, 400V, 750V
- Max Resolution:100µV
- DC Current Ranges:400µA, 4mA, 40mA, 400mA, 2A, 20A
- Max Resolution:0.1µA
- AC Current Ranges:400µA, 4mA, 40mA, 400mA, 2A, 20A
- Max Resolution:0.1µA
- Resistance Ranges:400 ohm, 4K, 40K, 400K, 4M, 40M
- Max Resolution:0.1 ohm
- Frequency Ranges:1KHz, 10KHz, 100KHz, 1MHz
- Max Resolution:1Hz
- Capacitance Ranges:400pF, 40nF, 400nF, 4µF, 40µF
- Max Resolution:1pF

Q 1035 **\$169.00**

Includes In-Built Logic Probe & 1MHz Frequency Counter!

NEW FOR '93

- Q 1068 Carry Case to Suit **\$12.50**
- Q 1040 Protective Holster to Suit **\$15.95**



Auto Ranging 3.75 Digit Digital Multimeter

This incredible multimeter would have to be one of the most comprehensive on the market today. It is capable of doing all the normal voltage, current and resistance readings, as well as capacitance, frequency, minimum and maximum sampling, relating measurements, storing previous readings, limit setting, signal transistor gain checking and is full auto-ranging.

Specifications:

- DC Voltage Ranges:400mV, 4V, 40V, 400V, 1000V
- Max Resolution:100µV
- AC Voltage Ranges:4V, 40V, 400V, 750V
- Max Resolution:1mV
- DC Current Ranges:2mA, 2A, 20A
- Max Resolution:1µA
- AC Current Ranges:2mA, 2A, 20A
- Max Resolution:1µA
- Resistance Ranges:400 ohm, 4K, 40K, 400K, 4M, 20M, 20 - 40M
- Max Resolution:0.1 ohm
- Frequency Ranges:10Hz-1KHz, 10KHz, 100KHz, 1MHz, 2MHz
- Max Resolution:1Hz
- Input Sensitivity:10Hz - 100Hz > 1V other ranges > 500mV
- Capacitance Ranges:100nf, 1µF, 10µF, 100µF
- Max Resolution:0.1nf

Q 1038 **\$199.00**

NEW FOR '93

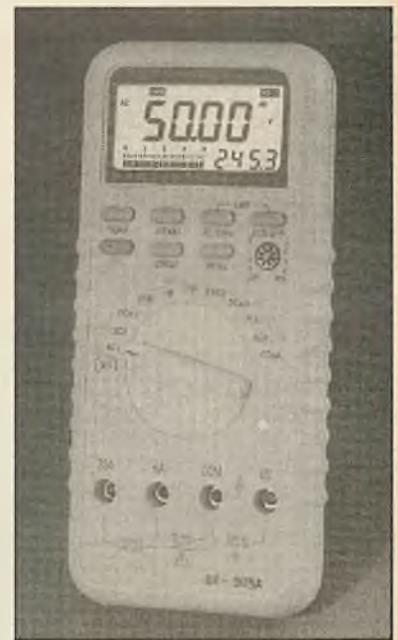
Special Functions

- Decibel reading (relative 0dbm correspondence to 0.775V RMS)
- Relative measurement. Sample, store, measure relative to stored reading
- Minimum and maximum sample and hold
- Auto power off (after 20 minutes)
- Memory and recall (5 memories)
- High and low limit setting. Displays HI, LOW and PASS

Uses Two Digital & One Analogue Displays for Measurement Comparisons!

Q 1068 Carry Case to Suit **\$12.50**

Q 1040 Protective Holster to Suit **\$15.95**



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.

Specifications:

- DC Voltage Ranges:200mV, 2V, 20V, 200V, 1000V
- Input Impedance:10M Ohm
- AC Voltage Ranges:200mV, 2V, 20V, 200V, 750V
- Input Impedance:10M Ohm
- DC Current Ranges:200µA, 2mA, 20mA, 200mA, 2A, 20A
- AC Current Ranges:200µA, 2mA, 20mA, 200mA, 2A, 20A
- Resistance Ranges:200Ohm, 2k Ohm, 20k Ohm, 200k Ohm, 2M Ohm, 20M Ohm, 200M Ohm
- Capacitance Ranges:2nF, 20nF, 200nF, 2µF, 20µF
- Inductance Ranges:2mH, 20mH, 200mH, 2H, 20H
- hFE Transistor Test Range:0-1000 hFE
- Protection:20A range unfused. All other ranges fused.

Q 1062 **\$149.00**

Q 1068 Carry Case to Suit **\$12.50**

Super Large LCD Display!



Logic Probes and Pulser

Two models available, Q 1272 20MHz Logic Probe and the Q 1280 50MHz Logic Probe with built-in Pulser.

	Q 1272	Q 1280
Maximum input signal frequency.....	20MHz	50MHz
Input Impedance:.....	1M Ohm	120k Ohm
Operating Supply Range:.....	4V DC minimum	18V DC maximum
TTL: Logic '1' (HI LED):.....	2.3 +/- 0.2V DC	3.0 +/- 0.25V
Logic '0' (LO LED):.....	0.8 +/- 0.2V DC	0.75 +/- 0.25V
CMOS: Logic '1' (HI LED):.....	70% Vcc +/- 10%	60% Vcc +/- 5%
Logic '0' (LO LED):.....	30% Vcc +/- 10%	15% Vcc +/- 5%
Minimum Detectable Pulse Width:.....	30 Nanoseconds	10 Nanoseconds
Maximum Signal Input Protection:.....	+/- 220V AC-DC (for 15 seconds)	+/- 70V AC-DC (for 15 seconds)
Power supply protection:.....	-/- 20V DC	+/- 20V DC
Pulse indicator flash time:.....	500ms	

Q 1272 20MHz Logic Probe **\$43⁹⁵**

Q 1280 50MHz Logic Probe/Pulser **\$54⁹⁵**

*A Must for Logic Prototyping
and Fault Finding*



Q 1280 Pulser Specifications

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)

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
Oscillator type:.....	Crystal Locked

Q 1350 **\$325⁰⁰**

*Ideal for Servicing Radios,
CB's, Transmitters etc.*



Labtech 1GHz Frequency Counter

This great multiple-function counter covers a range of 10Hz to 1GHz. It includes an eight digit, high brightness, seven segment, LED display, low power consumption circuit design, small size, light weight, highly stabilised crystal oscillator for accurate measurement and full input signal conditioning.

*Superbly Engineered.
Why Pay \$900 or More?*



Specifications:

Measuring Mode

Frequency measurements

CHANNEL A

Range:.....	10Hz to 10MHz direct counter 10MHz to 100MHz pre-scaled by 10
Resolution:.....	..1, 10, 100Hz switch selectable
Pre-scaled:.....	..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
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

Input Characteristics

CHANNEL A

Input sensitivity:.....	25mV RMS (10Hz - 100MHz) 50mV rms (100MHz +)
Attenuation:.....	x 1, x 20 fixed
Filter (CH. A only):.....	Low pass-100kHz, -3dB - 150kHz, 3-dB at 20dB ATT
Impedance:.....	approx 1M ohm less than 35pF
Maximum voltage:.....	250V (DC AC rms)

CHANNEL B

Input sensitivity:.....	20mV rms
Impedance:.....	approx 50 ohm
Maximum voltage:.....	3V

Q 1535 **\$499⁰⁰**

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 adjust.

Q 1540 **\$349⁰⁰**

Pocket Sized Audio Signal Generator

This pocket sized oscillator has many of 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. Requires 9V battery (not supplied). Specifications:

*Fantastic for
On-Site Audio
Service Work*

Frequency Range:.....	X 1 Range: 20Hz to 1.5kHz X 100 Range: 2kHz to 150kHz
Output Control:.....	0dB, -20dB plus 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

Q 1542 **\$99⁰⁰**

Q 1544 Carry Case To Suit \$12.50

Sensational Labtech Full 12 Months Warranty

Australia's Best Value in High Reliability, Top Performance Cathode Ray Oscilloscopes

20MHz Dual Trace Oscilloscope

This model is a dual trace 20MHz Oscilloscope using a high brightness CRT. The vertical amplifiers have a 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. 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.

• CRT Display

150mm rectangular, domed mesh and post accelerator type with a parallax-free, inner-face graticule. 8 x 10 division (1 division equals 10mm)

• 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 17.5n Sec. Overshoot: Less than 8%. Input

Impedance: 1M Ohm shunted by 20pF & -3pF (Max input: 600V p-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.

• Time Base

Type: Automatic and triggered. In automatic mode, sweep is obtained without input signal. Sweep Time: 0.2u Sec 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%

• Triggering

Sensitivity: Int 2 div or more. Ext: 1V p-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-II (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-II: 50 μsec-div to 0.2 μsec-div

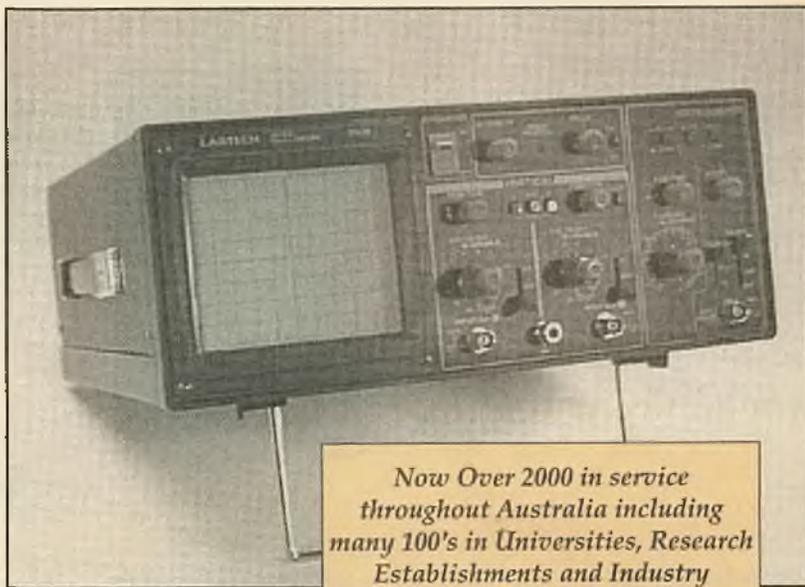
• Horizontal Deflection

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 600V p-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 (3V p-p-50V) & bright, -dark.

• Other specifications

CRT HV: 2kV Calibration Voltage: 0.5V p-p & -5%, 1kHz square wave Power Requirements AC: 240V, 50Hz, 19W Weight: 7kg approx Dimensions: 162(H) x 294(W) x 352(D) mm

Q 0156 **\$699.00**



Now Over 2000 in service throughout Australia including many 100's in Universities, Research Establishments and Industry

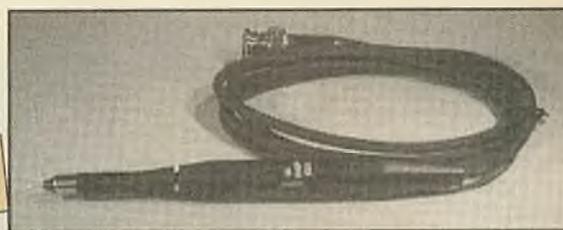
CRO Probe

Q 0175 **\$49.95** ea

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
 Lead Length:Approximately 1.5 metres

Ideally Suited to the Q 0156 CRO Above!



Multifunction Tester

Suitable for testing continuity, detecting the presence of 240V AC, or even low voltage DC this tool can virtually replace a multimeter in many instances. For simple testing, like identifying cables, testing fuses, globes, elements, transformers, even semiconductor junctions this tester will give you a yes/no answer. It can not give a precise reading but an indication only via a led, a buzzer or both, that the cable or component is good. Slips neatly into your top pocket. Ideal for electricians, technicians and enthusiasts.

Q 1250 **\$17.95**

Built-in. Audible & Visual Indication!



NEW FOR '93

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.

6.5" Midrange

30 Watts RMS 50W Max
With Sealed Frame
Rated Power Input:.....30w
Power Input:.....50w
Impedance:.....8 Ohm
Frequency Response:.....fo-6kHz
Resonant Frequency:.....350Hz
Sensitivity:.....92dB 1W, 0.5m
Voice Coil:.....28mm
Nett Weight:.....770gm
Magnet:.....283gm

C 3045 **\$27.50**



10" Woofer

60 Watts RMS 100W Max
Rated Power Input:.....60w
Power Input:.....100w
Impedance:.....8 Ohm
Frequency Response:.....fo-4kHz
Resonant Frequency:.....35Hz
Sensitivity:.....97dB 1W, 0.5m
Voice Coil:.....32mm
Nett Weight:.....2350gm
Magnet:.....848gm
QMS:.....2.26
QES:.....0.5195
QTS:.....0.4224
VAS:.....77.4L

C 3065 **\$69.00**



6.5" Woofer/Midrange

30 Watts RMS 50W Max
Rated Power Input:.....30w
Power Input:.....50w
Impedance:.....8 Ohm
Frequency Response:.....fo-4kHz
Resonant Frequency:.....50Hz
Sensitivity:.....88dB 1W, 0.5m
Voice Coil:.....28mm
Nett Weight:.....740gm
Magnet:.....283gm
QMS:.....2.5057
QES:.....0.9952
QTS:.....0.7123
VAS:.....21.7L

C 3055 **\$29.95**



12" Woofer

100 Watts RMS 150W Max
Rated Power Input:.....100w
Power Input:.....150w
Impedance:.....8 Ohm
Frequency Response:.....fo-3KHz
Resonant Frequency:.....25Hz
Sensitivity:.....90dB 1W, 0.5m
Voice Coil:.....36mm
Nett Weight:.....2500gm
Magnet:.....848gm
QMS:.....3.4132
QES:.....2.7751
QTS:.....1.5306
VAS:.....421.8L

C 3070 **\$99.00**



8" Woofer

60 Watts RMS 100W Max
Rated Power Input:.....60w
Power Input:.....100w
Impedance:.....8 Ohm
Frequency Response:.....fo-4kHz
Resonant Frequency:.....45Hz
Sensitivity:.....92dB 1W, 0.5m
Voice Coil:.....32mm
Nett Weight:.....2150gm
Magnet:.....848gm
QMS:.....5.0732
QES:.....0.3153
QTS:.....0.2969
VAS:.....52L

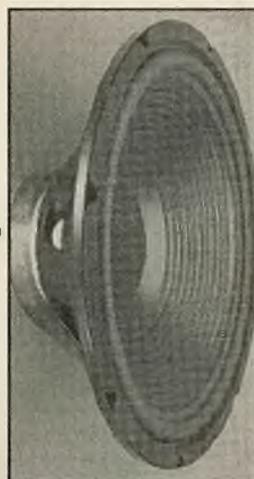
C 3060 **\$49.95**



15" Woofer

120 Watts RMS 200W Max
Rated Power Input:.....120w
Power Input:.....200w
Impedance:.....8 Ohm
Frequency Response:.....fo-2KHz
Resonant Frequency:.....30Hz
Sensitivity:.....94dB 1W, 0.5m
Voice Coil:.....56mm
Nett Weight:.....2550gm
Magnet:.....1210gm
QMS:.....3.95
QES:.....1.36
QTS:.....1.01
VAS:.....684L

C 3075 **\$129.00**



REDFORD HIGH END POLY EMULSION COATED CONE WOOFERS AT DIRECT IMPORT PRICES

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 coil excursion.

5.5" PECC Woofer

30 Watts RMS 60W Max.

Rated Input Power:	30W Max.
Input Power:	60W
Impedance (400Hz):	8 Ohm
Frequency Response:	FO-5kHz
Resonant Frequency:	50Hz (+/-14Hz)
Sensitivity:	92dB-W(0.5m)
Voice Coil:	30mm
Nett Weight:	1680gm
Magnet:	567gm
QMS:	3.5706
QES:	1.0493
QTS:	0.811
VAS:	16.2L

C 3022 \$49.⁹⁵



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)
Voice Coil:	35mm
Nett Weight:	2600gm
Magnet:	848gm-300z
QMS:	2.5436
QES:	0.7079
QTS:	0.5538
VAS:	34.7L

C 3024 \$69.⁰⁰



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:	93dB-W(0.5m)
Voice Coil:	36mm
Nett Weight:	4810gm
Magnet:	1408gm-50oz
QMS:	2.26
QES:	0.5915
QTS:	0.4688
VAS:	192.4L

C 3030 \$125.⁰⁰



HIGH PERFORMANCE CARBON FIBRE SERIES SPEAKERS

4" Carbon Fibre Woofer and Coaxial Tweeter

30 Watts RMS 60W Max

Rated Input:	30w
Input Power:	60w
Impedance:	8 Ohm
Frequency Response:	fo-15kHz
Resonant Frequency:	104Hz
Sensitivity:	87dB
Voice Coil:	19mm
Nett Weight:	580gm
Magnet:	226gm
QMS:	11.57
QES:	1.58
QTS:	1.39
VAS:	0.40L

C 0644 \$59.⁹⁵



Built from the Latest technology in magnets, voice coil and carbon fibre cone material these drivers exhibit quite outstanding reproduction from the low frequency register through to quite remarkable midrange performance. Using top quality Japanese materials they are definitely not cheap, however we guarantee any suitably designed enclosure/crossover system will offer a considerable saving over the cost of commercially available name brand speaker systems.

- 1. Carbon Fibre Cone:** This lightweight yet rigid material greatly reduces cone breakup, which is the major reason for bass response distortion at higher volume levels. Musically, carbon fibre reproduces sound with a much smoother frequency response.
- 2. Voice-Coil:** This is the hardest working part of a speaker. Not only does it have to vibrate at up to several thousand times a second, it must also withstand severely high temperatures. It is with this in mind that REDFORD woofers feature the revolutionary Kapton voice coil. This material can dissipate heat much better than conventionally used voice coil materials.
- 3. Magnets:** Each magnet size and weight has been carefully matched to the desired specification. We use heavy duty strontium ferrite or barium ferrite magnet materials and extra thick front and back plates for this woofer series to create a strong magnetic field for the high power demands of today's audio system.

6.5" Carbon Fibre Woofer

30 Watts RMS 70W Max

Rated Input:	30w
Input Power:	70w
Impedance:	8 Ohm
Frequency Response:	fo-6kHz
Resonant Frequency:	65Hz
Sensitivity:	97dB
Voice Coil:	30mm
Nett Weight:	1700gm
Magnet:	567gm
QMS:	3.99
QES:	0.43
QTS:	0.39
VAS:	6L

C 3034 \$84.⁹⁵



8" Carbon Fibre Woofer

60 Watts RMS 100W Max

Rated Input:	60w
Input Power:	100w
Impedance:	8 Ohm
Frequency Response:	fo-5kHz
Resonant Frequency:	35Hz
Sensitivity:	93dB
Nett Weight:	2600gm
Voice Coil:	35mm
Magnet:	848gm
QMS:	5.95
QES:	0.33
QTS:	0.31
VAS:	79L

C 3036 \$124.⁹⁵



QUALITY REPLACEMENT SPEAKERS

Square Micro 30mm

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



C 0606 \$3^{.20} ea, 10 up \$2^{.85} ea

Mini 57mm, 2.25"

0.5 watt. 8 ohm. Large ferrite magnet. C 0610 \$2^{.30} ea, 10 up \$1^{.75} ea



Mini 87mm, 3.25"

3 to 5 watt. 4 and 8 ohm taps. Diagonal mounting hole centres at 100mm. C 0612 \$6^{.50} ea, 5 up \$5^{.95} ea



100mm, 4"

3 to 5 watt. 4 and 8 ohm taps. Diagonal mounting hole centres at 105mm. C 0616 \$6^{.50} ea, 5 up \$5^{.95} ea



120mm, 5"

3 to 5 watt. 4 and 8 ohm taps. Diagonal mounting hole centres at 120mm. C 0618 \$7^{.95} ea, 5 up \$7^{.25} ea



Dual Cone 200mm, 8"

8". Applications include public address background music. Ideal Hi Fi extension speaker. Includes transformer holes at 51mm. Diagonal mounting hole centres at 195mm.



Input Power:.....8W nom, 15W max
Impedance:.....8 ohm
Resonant Freq.:80Hz
Freq. Response:80Hz - 18kHz
SPL:.....96dB (1w/0.5m)
C 2000 \$16^{.50}

High Performance 200mm, 8"

With a concave cone suspension enabling use with flush ceiling type grilles. Dual cone. High midrange efficiency especially suited to use in vocal PA and sound column use. Superb smooth high power speaker. Diagonal mounting hole centres at 195mm.



Input Power:.....30W nom, 50W max
Impedance:.....8 ohm
Resonant Freq.:50Hz
Freq. Response:50Hz - 20kHz
SPL:.....96dB (1w/0.5m)
C 2002 \$29^{.95} ea, or \$55^{.00} pair

NEW FOR '93

High Performance

100mm, 4"

15 watt. 8 ohm. High efficiency dual cone quality driver. Excellent midrange 'presence'. Rolled edge cone suspension.



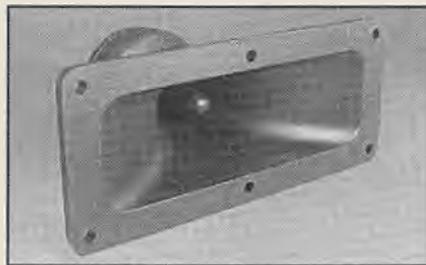
C 0626 \$17^{.50} ea, 5 up \$16^{.00} ea

TWEETERS

Motorola Piezo Ceramic KSN1141A

Piezo Horn speaker suited to Hi Fi, PA and sound reinforcement. Incorporates special audio protection circuit to enable speaker to handle 400W maximum power Virtually "Blow up Proof". 90° Dispersion Angle

Dimensions:.....177.8 x 82.6mm
Frequency Response:.....1.9K to 40KHz
SPL:.....100db 2.8V.
Rated Power Input:.....75w nom, 400w max
C 6150 \$39^{.50}



Economy Dome Tweeter

Tweeter with polymer diaphragm. Very smooth clean response from 4kHz to 20kHz. High power handling and excellent damping. Use with speaker systems to 50 Watts.



C 3010 \$15^{.00}

Motorola KSN1165A Bullet Tweeter

Piezo Horn speaker suited to Hi Fi, PA and sound reinforcement. With in-built protection.

Dimensions:.....110 x 110mm
Frequency Response:.....1.8kHz - 30kHz
SPL:.....93dB (2.83V/1m)
Rated Power Input:.....75w nom, 400w max
C 6160 \$39^{.95}

NEW FOR '93



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.



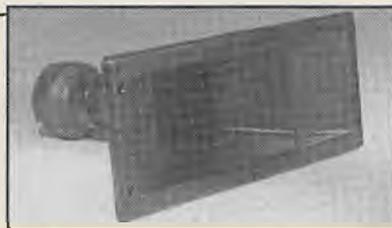
C 3016 \$39^{.50}

Motorola KSN1151A/1142A

Horn part no. KSN1151A, driver part no. KSN1142A. Piezo Horn speaker suited to Hi Fi, PA and sound reinforcement. With built-in protection.

Dimensions:.....265 x 110mm
Frequency Response:.....1.8kHz - 30kHz
SPL:.....92dB (2.83V/1m)
Rated Power Input:.....75w nom, 400w max
C 6155 \$90^{.00}

NEW FOR '93



FAMOUS ALTRONICS AVIATION HEADSETS

Aviation Headset

It was not too long ago when spending \$450.00 on an Aviation Headset was not uncommon. Altronics changed all that when we released our C 9070 Aviation Headset for under \$190.00. Since then our headset has gone from strength to strength with an enhanced microphone, improved lead shielding and headband comfort. The even better news is, our low price has not increased one cent!

Features: • Extra thick ventilated cushion headpad for maximum comfort • Corrosion proof chrome plated steel • Stirrup pivot assembly gives ear cups universal fit • High quality shielded lead • Soft foam filled polyurethane ear seals for exceptional comfort and maximum attenuation • Lock nut construction for customised fit. Set it once it fits you right every time • Earphones (300 ohms each) wired in parallel for safety and reliability • Earphones compatible with 150 - 1500 ohm systems • Volume control with memory indents, allows you to adjust to a comfortable level • Universal boom allows microphone to be placed on the left or right side of mouth • Spring tension boom assembly for precise microphone placement • High performance Noise Cancelling Microphone

C 9070 \$189.⁰⁰

1000's Now in Use
Throughout Australia,
NZ, PNG & Places as far
Afield as Ireland!



PTT Switch C 9090 \$29.⁹⁵

Push-to-talk switch. Features easy-fit velcro strap and simple push button operation.



Deluxe Headset with Flexible Mic Boom

Includes all the high grade specifications of the model C 9070 and fitted with a flexible boom which can be positioned either on the left or right hand side.

C 9073 \$225.⁰⁰



Aviation Adaptor Leads

Two versions available. From helicopter Nato socket to aeroplane plugs and from aeroplane sockets to helicopter Nato plug.



NEW FOR '93

C 9092 Plane Sockets to Nato Plug \$86.⁰⁰
C 9093 Nato Socket to Plane Plugs \$109.⁰⁰

Helicopter Model

Fitted with a 1.5 metre curly cord and Nato plug.

C 9072 \$249.⁰⁰

NEW FOR '93

Aviation Headset Carry Case

NEW FOR '93

Padded carry case with zipper. Extends the life of your Altronics headset well into the 21st century.

C 9075 \$19.⁵⁰



HEADPHONES

Stereo Headphones with Dynamic Mic

Simply brilliant Mylar stereo headsets and dynamic mic combination.

Speaker Specifications:

Frequency Response: ...20Hz-20,000Hz
Impedance:.....32 Ohm
Plug Size:.....3.5mm stereo jack, with 6.35mm adaptor

Microphone Specifications:

Type:.....Dynamic
Impedance:.....300 Ohm
Frequency Response: ...100Hz-15,000Hz
Sensitivity:.....-80dB @ 1KHz
Plug Size:.....3.5mm Mono Jack

C 9055 \$49.⁹⁵



Enclosed Ear Headphones

These comfortable, lightweight headphones are ideal for use with Hi Fi and TV systems. Enclosed ear muffs offer enhanced bass response and extra comfort.

Features:

- Very rugged
- Lightweight and comfortable
- Gold plated 6.5mm plug with 3.5mm adaptor
- Wide frequency response 20Hz-20kHz

Specifications:

Power:0.25W
Impedance:.....32 ohms

C 9015 \$39.⁵⁰



Lightweight Replacement Headphones

Incorporating samarium cobalt magnets, high quality flexible lead and gold plated 90o 3.5mm plug these headsets are fantastic for any type of portable walkman, CD player, radio etc.

Features:

- Light weight but very robust
- Gold plated 3.5mm stereo plug with 6.5mm adaptor
- Samarium cobalt magnets
- Excellent reproduction and performance

Specifications:

Power:0.25W
Impedance:.....32 ohms

NEW FOR '93

C 9010 \$15.⁰⁰



Stereo Inner Earphones

In ear type for portable CD, Walkmans, transistor Radios, Cassettes etc.

Features:

- Rugged quality • High quality lead
- 90° 3.5mm plug • Excellent performance • Includes carry case • Super bass reproduction

C 9005 \$9.⁹⁵



NEW FOR '93

Magnetic Earpiece

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¢



SPEAKER ACCESSORIES



Innabond Wadding

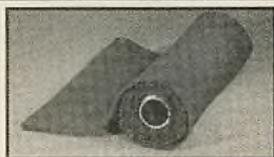
As used to line speaker box enclosures. 1.5 metres wide x 40mm thick. Sold in 1 metre lengths.

C 3510 \$10⁹⁵ per metre

Black Speaker Cloth

One way stretch allows neat and easy application to speaker box. 1.7m wide.

C 3520 \$15⁹⁵ per metre



Crossovers Made from high quality ferrite cores and bi-polar capacitors mounted on a single PCB.

2 Way 80 Watts

Crossover Point: .3.5kHz
Roll Off Rate:.....6dB/Octave
Insertion Loss:.....0.4dB @ 100Hz
C 4005 \$11⁹⁵



3 Way 80 Watts

Crossover Points:600Hz, 800Hz, & 5kHz
Roll Off Rate:.....6dB/Octave
Insertion Loss:.....0.8dB @ 100Hz
C 4006 \$20⁹⁵



2 Way 150 Watts

Crossover Point: .3.5kHz
Roll Off Rate:.....12dB/Octave
Insertion Loss:.....1.2dB @ 100Hz
C 4007 \$26⁹⁵



3 Way 150 Watts

Crossover Points:600 - 800Hz, and 5kHz
Roll Off Rate:.....12dB/Octave
Insertion Loss:.....1.8dB @ 100Hz
C 4008 \$49⁹⁵



CEILING SPEAKER KIT

Stereo Extension Ceiling Speaker Kit

Complete system ready to install in your home.

REDFORD wide range C 0626 100mm (4") 15 Watt drivers comprise of the heart of the system. The performance of these drivers is quite amazing.

Kit Contents:

- 2 x Redford C 0626 Drivers • 2 x Redford C 0810 Grilles • 1 x Redford A 2300 60 Watt stereo volume controller
- 2 x 20M rolls speaker wire • Mounting screws.

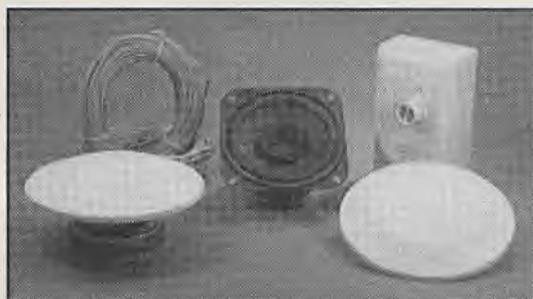
Everything Supplied to install it Yourself - Even Cable & Mounting Screws!

C 0988 \$99⁰⁰

A 2300 Stereo 60 Watt 8 Ohm Attenuator Available Separately

This stereo volume control is rated at 60 watts. Fully self contained on a single gang switch plate. Supplied with mounting block. 5 settings plus off. Complete with wiring instructions. All connections are via screw terminals mounted on the integral PCB.

A 2300 \$49⁹⁵



REDFORD AUDIO CONTROLLERS

These controllers have 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.

100 Volt Line Types for P.A.

Two wattage capacities available. Each version is also available with an Over-Ride relay facility. About the Fail Safe Over-Ride Models (A 2325 & A 2335): With fire evacuation installations it is often necessary to over-ride the volume control in the event of a fire alarm. This is achieved by using a relay to by-pass the attenuation circuitry enabling a fire announcement at full volume regardless of which position the volume control is in.

Two modes of operation are available:

- 1). **Standard Mode:** Requires power (24V DC) to energise the by-pass relay and over-ride the volume setting.
- 2). **Fail Safe Mode:** Requires power (24V DC) to allow normal operation, ie. disconnecting power activates the by-pass circuitry and over-ride the volume setting.

10 Watt 100V Line Attenuator

A 2320 Standard Model \$29⁹⁵

A 2325 With Over-ride Relay \$35⁰⁰

40 Watt 100V Line Attenuator

A 2330 Standard Model \$39⁵⁰

A 2335 With Over-ride Relay \$44⁵⁰



MISCELLANEOUS P.A.

Wall Mount Speakers

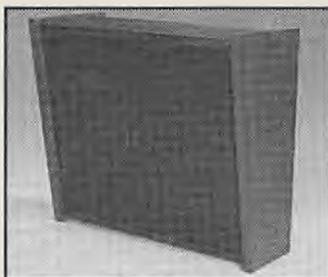
Great for PA Systems or as extension speakers for the back patio. Attractive black cloth with Jarrah look timber sides. Available in different configurations of box only, with 8 ohm C 2000 speaker (see GENERAL PURPOSE SPEAKERS for specifications) and 100 volt line transformer (see TRANSFORMER Section for specifications).

C 0890 Box Enclosure Only \$33⁹⁵

C 0892 Fitted with 8" 8 ohm Speaker \$44⁹⁵

C 0894 Fitted with Speaker and 100V Line Transformer \$52⁹⁵

C 0896 Fitted with Speaker Transformer with Volume Control \$59⁹⁵



10 Watt Megaphone

Ideal for school, sports carnivals, swimming carnivals, junior sports days etc, or wherever crowd control is required. Includes inbuilt electronic whistle.

Up to 100m in ideal conditions. Requires 8 AA batteries.

A 1980 \$147⁰⁰



SPEAKERS FOR P.A.

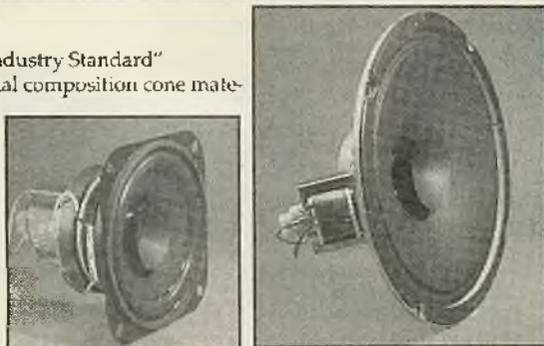
PA Speakers with 100V line Transformers

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 speaker is fitted with our M 1109 transformer. Primary taps 0.5W (20k ohm), 1W (10k ohm), 2W (5k ohm), 5W (2k ohm). A two way terminal block is provided for cable termination (normally terminated to common and 1 Watt taps).

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

Down Light Look-a-like 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.

8 Ohm

C 0980 White Rim With Light Grey Inner \$29.⁵⁰

C 0981 White Rim With Dark Grey inner \$29.⁵⁰

100V Line

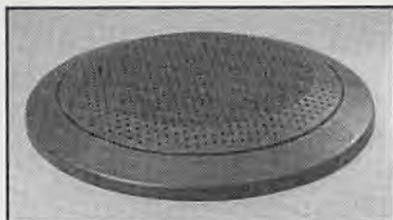
C 0982 White Rim With Light Grey Inner \$35.⁰⁰

C 0983 White Rim With Dark Grey Inner \$35.⁰⁰



CEILING SPEAKER GRILLES

100mm (4")



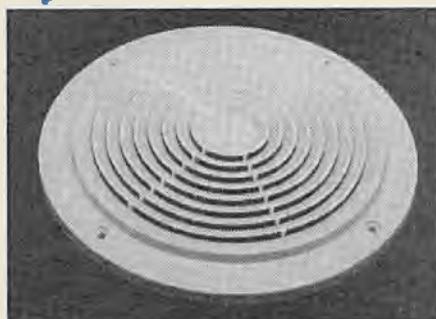
Attractive grille includes push in flush caps to hide fixing screw recesses. Ideal for architecturally sensitive applications, eg office buildings or domestic situations etc. Overall diameter 130mm.

C 0810 White Talc Filled Polypropylene \$3.⁹⁵

C 0811 Black Talc Filled Polypropylene \$3.⁹⁵

C 0812 White Flame Retardant Polystyrene \$4.⁹⁵

200mm (8") Louvered Style



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

200mm (8") Ultra Slim

New For '93



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.

Features:

- Ultra slim profile
- Attractive good looks
- Cover caps to conceal fixing screws
- Loudspeaker recesses into grille body
- Very quick to install using GYPSEE Screws

C 0805 White High Impact Polystyrene \$4.⁹⁵

C 0806 White Flame Retardant Polystyrene \$5.⁹⁵



Screw Cover Caps "Tilt up" for Easy Removal

Gyprock Gypsee Screws for Use with the C 0805 Ceiling Grille

Self drilling, self tapping screw for gypsum or plaster-board ceilings. Designed for use with-battery operated drills. Makes installation of the REDBACK Ultra Slim Speaker Grille a breeze.

C 0820 Pack 12 \$4.⁹⁵

C 0825 Pack 100 \$35.⁰⁰

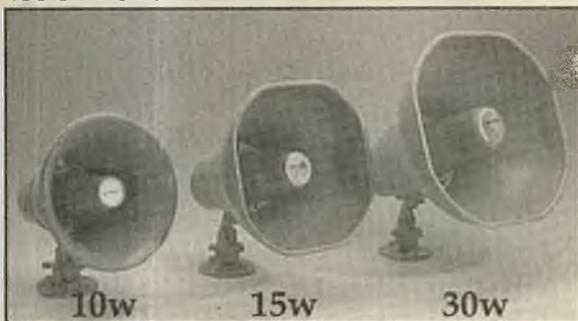


NEW FOR '93

Ideal for High Speed Installation!

REDFORD WEATHER PROOF HORN SPEAKERS

100 Volt Line Aluminium



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 multi-way 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.

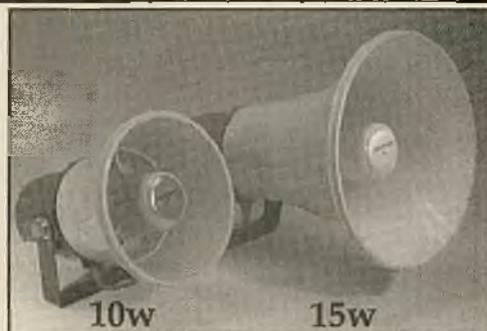
	10 Watt	15 Watt	30 Watt
Power Taps:	10, 7.5, 5, 2.5, 1.25W	15, 10, 5, 2.5W	30, 15, 10, 5W
Freq. Response:	225-14kHz	275-14kHz	300-12kHz
Dispersion:	110°	110°	110°
Sound Level:	110dB	121dB	125dB
Dimensions:	15w x 15h x 20d cm	20w x 20h x 23d cm	35w x 24h x 27d cm
	C 2027 \$69⁰⁰	C 2032 \$89⁰⁰	C 2037 \$110⁰⁰

100 Volt Line PVC

NEW FOR '93

	10 Watt	15 Watt
Power Taps:	10, 7.5, 7, 2.5, 1.25W	15, 10, 7.5, 5, 2.5W
Freq. Response:	250Hz-13kHz	270Hz-13kHz
Dispersion:	110°	110°
Sound Level:	105dB	120dB
Dimensions:	15Ø x 19d cm	21Ø x 29d cm
	C 2028 \$54⁹⁵	C 2033 \$79⁰⁰

With in-built line transformer. Constructed from UV stabilised plastic. Ideal for use in schools, plant rooms, car parks, recreation centres, airports, train stations etc. All exterior fittings are plated to prevent corrosion. Power tapings are easily adjusted via a plug and socket assembly. Colour is light grey flare, dark grey transformer housing.



8 Ohm, 10 Watt

Ideal for P.A., C.B. extension speakers, boats and alarms etc. White PVC construction. Swivel bracket included. Flare dimensions: 135mm Ø.
C 2015 **\$15⁹⁵**



8 Ohm, 15 Watt

All aluminium construction. Ideal for outdoor applications. Suitable for P.A. systems, C.B. extensions speakers, alarms etc. Colour dark grey. Max input 25 watts. Flare dimensions: 200 x 140mm.
C 2025 **\$41²⁵**

WEATHER PROOF SOUND MONITORS AND SOUND COLUMNS

Ideal for industrial, commercial or domestic use the 10 models in this range offer a solution for any application.

Features:

- Rugged extruded aluminium construction
- Superb black or white industrial grade powder coat paint finish
- Engineer designed in Australia
- Excellent reproduction
- Superior to imports - yet a fraction of the price
- All exterior fixings marine grade stainless steel
- Speaker cones treated with special formula to repel moisture

Hifi Extension Sound Monitors and Columns

16 ohm 10 Watt

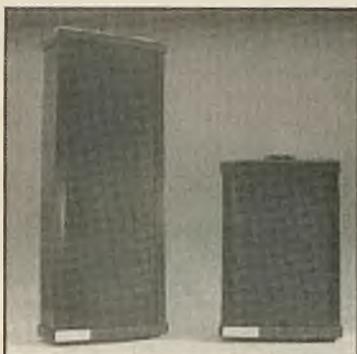
Dimensions: 250l x 165w x 115d mm

- C 0938 White **\$115⁰⁰** each
- C 0940 Black **\$220⁰⁰** per pair

8 ohm 20 Watt

Dimensions: 425l x 165w x 115d mm

- C 0944 White **\$149⁰⁰** each
- C 0943 Black **\$280⁰⁰** per pair



100 Volt Line PA Sound Monitors and Columns

10 Watt 100V Line

Dimensions: 250l x 165w x 115d mm

- C 0942 White **\$125⁰⁰** each
- C 0941 Black **\$240⁰⁰** per pair

20 Watt 100V Line

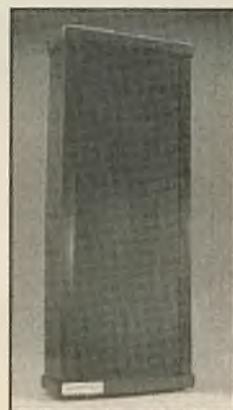
Dimensions: 425l x 165w x 115d mm

- C 0946 White **\$179⁰⁰** each
- C 0945 Black **\$330⁰⁰** per pair

40 Watt 100V Line

Dimensions: 625l x 165w x 115d mm

- C 0955 White **\$245⁰⁰** each
- C 0950 Black **\$450⁰⁰** per pair



Mic Stand Adaptor

Ideal for portable PA systems, The adaptor simply screws into the speaker and onto a standard 5/8" 27 TPI microphone thread. Suits C 0510 type mic stands.

C 0990 **\$9⁹⁵** each



REDBACK® Weatherproof Monitor and Sound Column Speakers

High performance speech and music source for home stereo and commercial sound applications

Two styles to choose from. Either rugged Aluminium housing for commercial applications or Durable UV stabilised "Luran S" for the not so demanding environment.

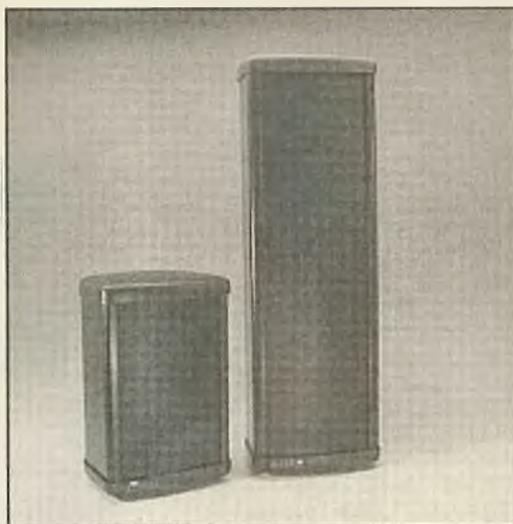
Fantastic For:

- Home stereo extension speakers for pool, patio, games room etc.
- Taverns, hotels, shopping centres, schools, halls, fairgrounds and all external music and paging applications

Features:

- Rugged extruded construction of either aluminium or "Luran S"
- Superb black or white industrial finish
- Engineer designed in Australia
- The unique drivers employ 'high tech' material such as Woven Carbon Fibre Cones, Kapton voice coils and Barium Ferrite magnets
- Enclosures sealed with UV stabilised "Luran S" end caps
- Ported and tuned enclosure for enhanced bass response
- High efficiency, SPL 84dB 30 watt models, 86dB 60 watt models (1w RMS at 1m at 1kHz)
- Frequency Response 110Hz to 15kHz

NEW FOR '93



Rugged Extruded Construction

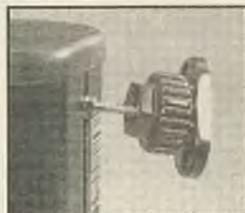
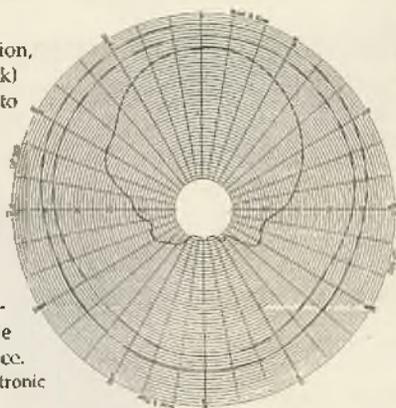
These vibration free enclosures are constructed from die extruded heavy gauge aluminium, finished with incredibly durable industrial powder coat enamel or UV stabilised "Luran S". The speaker ends are sealed via tough moulded "LURAN S" UV resistant end caps. The end result is "Good Looks" together with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

Unique Swivel Bracket Mounting System

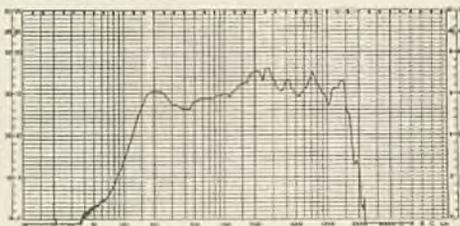
Installation and positioning are a breeze with the WACKI® Bracket provided. 60 watt versions are supplied with 2 sets of WACKI® Brackets and a various assortment of bolts to give flexibility in the amount of angle adjustment required.

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. Acoustic wadding is used to dampen Bass resonance. Redback Sound Columns are Great for Indoors Too! The directional characteristics of Redback 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 Redback sound columns can be "focused" to provide an even sound pressure level from front to rear of audience. ("Redback" and "Wacki Bracket" are registered trademarks of Altronic Distributors Perth, Australia).



Each REDBACK® Column/Monitor is Supplied with the Unique Swivel WACKI® Bracket



Typical polar Pattern and Frequency Response

Sound Monitor Hi-Fi Extension Speakers

High power handling capability make these ideal as extension speakers for home, clubs, hotels etc. Fantastic for surround sound systems.

3 Ohm 30 watt

Dimensions 230H x 155W x 115D mm

Aluminium Housing

□ 0924 White \$179.00 each, or \$340.00 per pair
 □ 0925 Black

"Luran S" Housing

□ 0904 White \$129.00 each, or \$240.00 per pair
 □ 0905 Black

1 Ohm 60 Watt

Dimensions 470H x 155W 115D mm

For higher power application such as patio extensions speakers, restaurants, bars etc

Aluminium Housing

□ 0933 White \$275.00 each, or \$535.00 per pair
 □ 0934 Black

"Luran S" Housing

□ 0913 White \$225.00 each, or \$435.00 per pair
 □ 0914 Black

100V Line Models for PA Installations

30 Watt 100V

Dimensions 230H x 155W x 115D mm

Fitted with a grain oriented silicon steel multi tapped transformer, allowing the speaker to be tapped at 20, 10 and 10 Watts

Aluminium Housing

□ 0927 White \$195.00 each, or \$385.00 per pair
 □ 0928 Black

"Luran S" Housing

□ 0907 White \$145.00 each, or \$285.00 per pair
 □ 0908 Black

60 Watt 100V

Dimensions 470H x 155W x 115D mm

Apart from the increased power handling, the big advantage is the directivity, minimising feedback making it ideal for vocal entertainment systems. Power tapings at 60, 30 and 20 Watt.

Aluminium Housing

□ 0936 White \$290.00 each, or \$565.00 per pair
 □ 0937 Black

"Luran S" Housing

□ 0916 White \$240.00 each, or \$465.00 per pair
 □ 0917 Black

Universal Swivel Wacki Bracket

Costing up to 60% less than inferior imported products. This Australian designed and manufactured bracket has a multitude of uses.

Ideal for mounting speakers, strobe lights, security lights, CCTV cameras etc, in fact the uses are as wide as one's imagination.

The unique design allows up to 50° angle variation either vertically or horizontally. Unlike most brackets on the market the Wacki Bracket is a breeze to install and adjust. After mounting the base to the wall and the mounting plate to the product, you simply screw the two parts together, adjust the product where you want it and tighten the nut, this can be done by hand or by use of an adjustable spanner.

Features

- Up to 50° angle variation
- Requires no special tools for installation
- Installs in minutes
- Speaker mounting plate hole centres at 60mm
- Payload of up to 5 kgs
- Available in White or Black
- Australian designed and manufactured.

H 8010 White

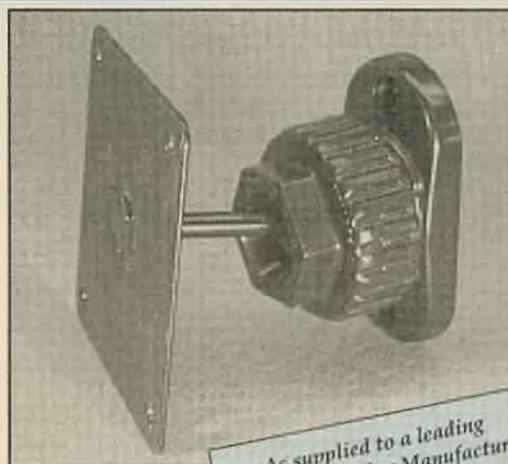
H 8012 Black **\$39.⁹⁵** per pair

*Proudly
Designed and
Made in
Australia*

NEW FOR '93



Dis-assembled View



*As supplied to a leading
American Speaker Manufacturer*



Available in
Black or White

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 fulfil 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 recorded announcement.

Facilities and Features

- Microphone inputs include Balanced line, low impedance, 5 Pin DIN socket (mates with Redford 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 play-back 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 a tuner, cassette deck, land line etc, through the recorder. The line will be interrupted with the recorded announcements as desired.
- Back-up battery retains recordings in memory in the event of mains failure for approx 24 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**

*Proudly Made in
Australia*



Redford 8 Channel PA Mixer

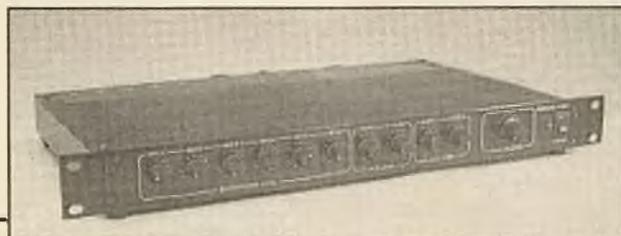
Housed in Stylish 1U 19" rack mount chassis. Fitted with 3 pin Cannon type mic sockets.

Specifications:

Inputs: 6 Microphone - balanced 200-600 Ohm 2 Auxiliary 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 0.3%
 All measurements measured in respect to 1kHz reference.
 Incorporates switchable phantom powering for all mic channels.

A 2051 **\$399.00**

*New Improved Circuitry.
 Features Reduced Noise &
 Phantom Powering on all Mics*



4 Channel Economy Mixer

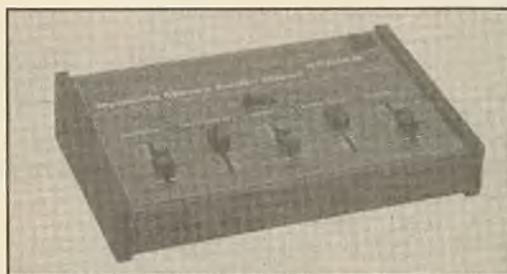
This compact mixer has inputs for microphone, phono (with magnetic or ceramic cartridge), camera audio and an auxiliary (CD, tape, tuner etc). Ideal for amateur cinematographers who would like to add their own background music and-or voice overs etc. Features headphone output and master volume control.

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 **\$119.00**

NEW FOR '93



Stereo Disco and Sound Effect Mixer

Specifications:

Output: 0.775V 0dB (at 1kHz)
 Input Sensitivity:
 Microphone: 1mV
 Phono: 3mV
 Line: 150mV

A 2530 **\$219.00**

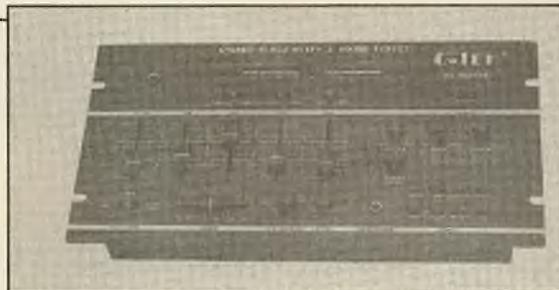
NEW FOR '93

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 (L x W x H)
 Weight: 3Kg

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
- Cross 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.



Deluxe 6 Channel Mixer with Echo and Sound Effects

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 equalisers and master controls allow 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.

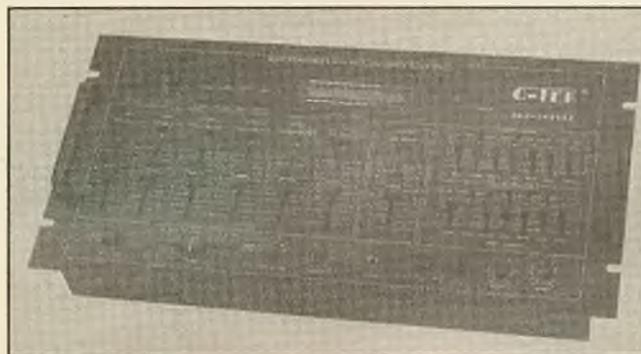
Specifications:

Output: 0.775V 0dB (at 1kHz)
 Input Sensitivity: DJ Microphone 0.5mV, Microphone 2mV,
 Phono 3mV, Line-CD 150mV
 Frequency Response:
 Microphone: 20Hz-20kHz
 Phono: 20Hz-20kHz
 Line: 20Hz-25kHz

NEW FOR '93

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 (L x W x H)
 Weight: 4.5Kg

A 2540 **\$599.00**



High Performance Stereo 90W Amp

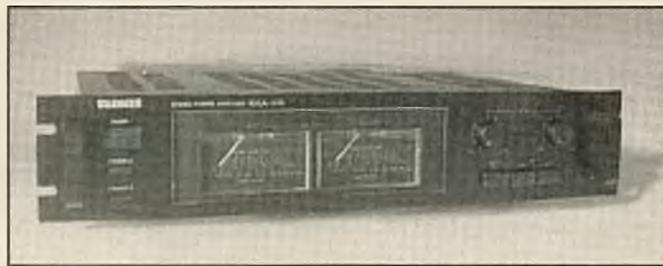
This stereo amp is ideal for background-foreground music applications. Fantastic for restaurants, shops, discos, PA sound systems and home.

Features:

- 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
- XLR sockets for speaker terminals
- Output relay to eliminate turn-on and off transients (de-thump)
- Dimensions: (W x H x D) 482 x 92 x 295mm
- Weight: 10.5kgs.
- Ideally suited to A 2210 stereo tuner

Specifications:

- Max (peak) Power Out:.....160W into 8Ω
Input Sensitivity:.....0.8V RMS - 80W
Frequency Response:.....5Hz - 80kHz
Total Harmonic Distortion:.....<0.05%
Damping Factor:.....>100
Signal to Noise Ratio:105dB (IHF A Weighted)



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.

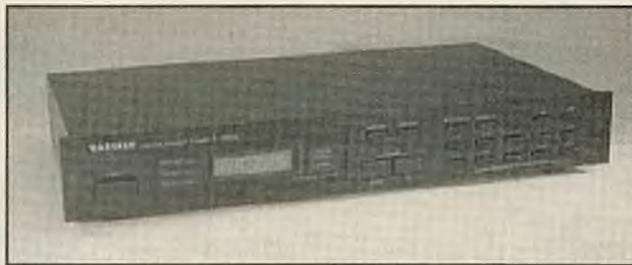
Also a great upgrade for the home Hi-Fi.

- 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

Specifications:

- AM Sensitivity:20µV
FM Sensitivity:11.2µV
Frequency Response:.....20Hz - 15kHz, +/-2dB
Total Harmonic Distortion:.....0.1% (mono)
0.4% (stereo)

*Incorporates the Latest
Digital technology!
Features 20 Programmable
Pre-Set Stations*



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 compressor 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.

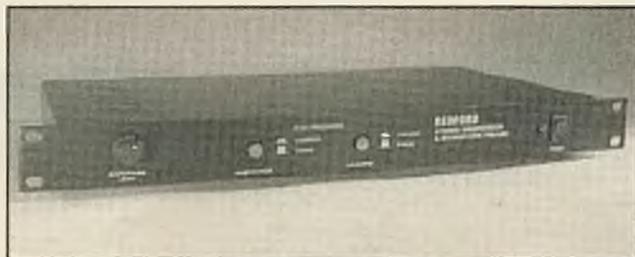
"Compression" is especially helpful in noisy situations such as supermarkets, crowded bars etc.

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

Specifications:

- Signal to Noise Ratio:
Stereo Inputs:75dB, ref 1V RMS out, Uncompressed
68dB, ref 1V RMS out, Compressed
Microphone Input: 65dB, ref 1V RMS out, Uncompressed
53dB, ref 1V RMS out, Compressed
Channel Separation:.....41dB, Compressed
46dB, Uncompressed
Compression Ratio:.....2.8 approx.



A 2060 \$399.⁰⁰

REDBACK® 40 Watt Public Address Amplifier

NEW FOR '93

The Redback A 2003 40W Amplifier has been designed to withstand the rigours of continuous everyday use. Ideally suited for paging and background music installations in offices, churches, halls, auditoriums, shopping centres, fast foods outlets, factories, etc.

The amplifier is suitable for either desk or bench top mounting or can be mounted into a standard 19" racking system.

Both Mic 1 and Mic 2 inputs are balanced suitable for use with 200 - 600 ohm microphones. Mic 1 is also provided with an unbalanced input socket. • Two times RCA sockets are provided for each auxiliary input, allowing for direct connection to a stereo source. Stereo channel separation is maintained and configured to mono operation internally, allowing for use of standard stereo leads.

Auxiliary inputs are automatically muted when either Mic 1 or Mic 2 are operated (provided they have a PTT function) and the auxiliary source re-instated once the announcement is completed. Full performance is maintained when operated from a 24V battery source. The amplifier will produce a full 40 Watts at full load at less than 0.5% distortion, making it ideal for all general and emergency paging applications.

Features:

- Latest design and technology
- Wide frequency response +/- 3dB 50Hz - 15KHz
- Very low noise and distortion, typically -70dB and 1% respectively
- 2 microphone 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)
- AC/DC operation: 240V AC and 24V DC
- Isolated 100V line output
- Individual treble and bass tone controls
- PTT muting on auxiliary inputs
- Desk or rack mountable

A 2003 **\$299.00**

Proudly Made in Australia



Includes 2 year Warranty!

Rack Mounting Professional Public Address Amplifiers

Full performance from 240V AC or 24-28V DC

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.

Specifications:

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

Input Power:240V AC or 24-28V DC

Includes 2 year Warranty!

Balanced Drive, Output and Feedback Circuit Design Ensures Unconditional Stability Under All Load Conditions

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

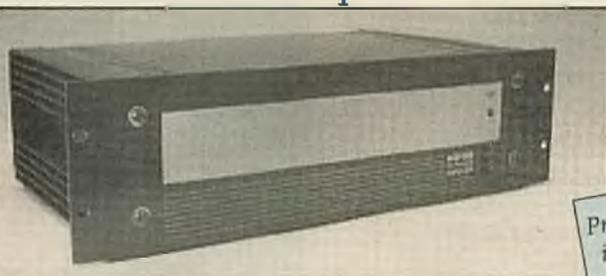
Input Sensitivity:200mV. Note: Master Level Control mounted on rear panel, set and forget

Output Terminals:Screwdriver type 100V, 4-6 Ohm

Input Power:240V AC or 24-28V DC

Booster Amplifiers

Mixer Amplifiers



Proudly Made in Australia



A 2020
Output Power:125W
Output Line:100V Line
 or 4-16 Ohm
Inputs:100K Unbalanced
 or 10K balanced
Output Level Regulation:Better than 2dB
Signal to Noise Ratio:Better than 75dB
Frequency Response:40Hz to 14KHz
Typical Distortion:(less than 1%)
at Full Power Output

\$649.00

A 2030
Output Power:250W
Output Line:100V Line
 or 4-16 Ohm
Inputs:100K Unbalanced
 or 10K balanced
Output Level Regulation:Better than 2dB
Signal to Noise Ratio:Better than 75dB
Frequency Response:40Hz to 14KHz
Typical Distortion:(less than 1%)

\$865.00

A 2022
Output Power:125W
Output Line:100V Line
 or 4-16 Ohm
Inputs:3 Mic, 2 Aux
Output Level Regulation:Better than 2dB
Signal to Noise Ratio:Better than 75dB
Frequency Response:40Hz to 12KHz
Typical Distortion:(less than 1.5%)

\$775.00

A 2032
Output Power:250W
Output Line:100V Line
 or 4-16 Ohm
Inputs:3 Mic, 2 Aux
Output Level Regulation:Better than 2dB
Signal to Noise Ratio:Better than 75dB
Frequency Response:40Hz to 12KHz
Typical Distortion:(less than 1.5%)

\$975.00

REDFORD Series II
True Diversity Wireless Microphone Systems

Stylish design combined with practical features and outstanding performance makes the **REDFORD Series II Wireless Microphone System** excellent value for money. Only by utilising the latest RF technology and careful design this system offers outstanding vocal and music reproduction. Each system is compact and fully portable making them ideal for all types of applications.

Features:

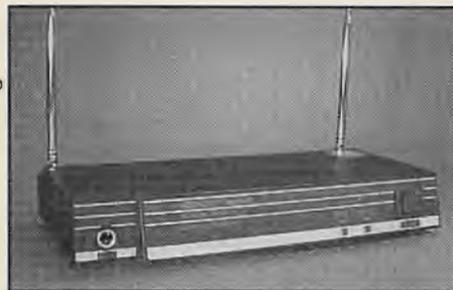
- Dual Diversity reception means two individual circuits (A & B) are actively processing the transmitted radio signals at any one time. The receiver automatically selects the strongest signal to help ensure a 'drop-out' free reception.
- Unique noise reduction system automatically compensates for high level sound input by reducing output volume and avoiding distortion which otherwise would occur. This ensures an impressive dynamic range of 120dB.
- Operating range of up to 400m in ideal conditions.
- Individual mute controls for both A & B receivers.
- Rugged metal construction of receiver and hand held microphone casings.
- Compact design with stylish good looks.
- Four frequencies available.
- Receiver can be rack mounted.
- External plug pack power supply for receiver (included).



Wireless Receiver

This compact unit provides a microphone level (adjustable) output for easy and direct connection to any amplifier with a mic input. A 6.35mm audio output socket is located on the front and rear. Radio reception is via two fold down retractable antennas on the rear. Individual mute controls for both A & B receivers for areas of high RF activity.

C 7225 Receiver (non diversity)	203.7MHz	\$335.00
C 7232 Receiver	202.4MHz	\$495.00
C 7235 Receiver	202.5MHz	\$495.00
C 7238 Receiver	202.9MHz	\$495.00
C 7242 Receiver	203.7MHz	\$495.00



Transmitters:

Three transmitter styles available. Each features: . An audio level adjustment to suit individual applications . A low battery warning indicator . All use a standard 9V alkaline battery. Battery life is approximately 8 - 10 hours although to ensure an optimum performance we recommend replacement after approximately 5 hours. Each transmitter has easy access battery compartments for quick battery change-over.

Handheld Microphone Transmitter

Conventional style microphone can be used as a handheld unit or fits into a standard microphone stand. Comfortable compact tapered design and rugged aluminium housing ensures years of use. Available with either a YD-04 dynamic element or the famous Shure SM-58 element for critical reproduction. Inbuilt antenna means no dangling wires.

C 7262 H/Held Mic	202.4MHz	\$249.00
C 7265 H/Held Mic	202.5MHz	\$249.00
C 7268 H/Held Mic	202.9MHz	\$249.00
C 7271 H/Held Mic	203.7MHz	\$249.00
C 7274 H/Held Mic Shure SM58	202.4MHz	\$395.00
C 7277 H/Held Mic Shure SM58	202.5MHz	\$395.00
C 7280 H/Held Mic Shure SM58	202.9MHz	\$395.00
C 7283 H/Held Mic Shure SM58	203.7MHz	\$395.00

*Rugged Construction Makes
These Ideal for Stage &
Studio Use*



Lavalier Microphone Transmitter

Two piece design for hands-free use. A small microphone built into a rugged and compact housing which incorporates a clip (no parts to lose) to attach to a collar or tie. The transmitter circuitry is fitted inside a belt-pack designed to fit into either a pocket (out of sight) or to clip onto a belt. The microphone cable doubles as the antenna which means no extra leads are required.

C 7286 Lavalier Mic	202.4MHz	\$230.00
C 7289 Lavalier Mic	202.5MHz	\$230.00
C 7292 Lavalier Mic	202.9MHz	\$230.00
C 7295 Lavalier Mic	203.7MHz	\$230.00



Guitar/Instrument Transmitter

Rugged and compact housing incorporating an instrument pickup lead with a high quality 6.35mm plug. High input impedance to suit most musical instruments (guitar, bass etc). Simply plugs into the instrument and transmits to the receiver and amplifier. Pickup lead acts as the antenna, with no extra leads required.

C 7301 Guitar Pick-up	202.4MHz	\$179.00
C 7303 Guitar Pick-up	202.5MHz	\$179.00
C 7305 Guitar Pick-up	202.9MHz	\$179.00
C 7309 Guitar Pick-up	203.7MHz	\$179.00



Optional Accessories

19" Rack Mount Kit



Kit includes one unit high (44mm) pre-cut rack panel and blanking plate. Can mount one or two receivers. Finished with black powdercoat.

C 7248 Rack Mount Kit \$88.⁰⁰

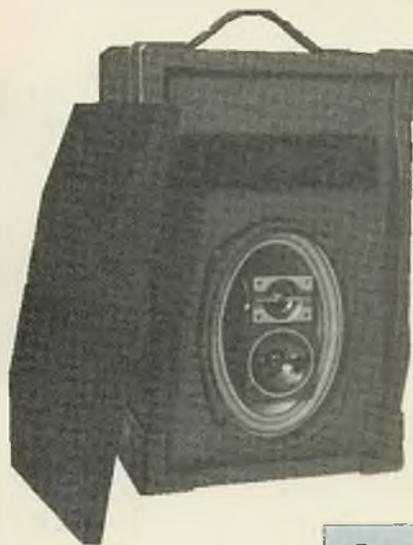
Road Carry Case

Protect your investment for years to come with this compact carry case. It will carry a complete set of wireless gear including a Guitar Transmitter, Lavalier Microphone, a Handheld Microphone, receiver, plug pack and batteries. Supplied with pre-cut foam panels designed to accommodate all REDFORD SERIES II equipment. (Equipment pictured not included).



C 7255 \$85.⁰⁰

Portable PA System With Inbuilt Dual Diversity Radio Microphone Receiver



This portable PA System combines the REDFORD SERIES II Dual Diversity receiver as well as an amplifier and speaker combination with the REDFORD SERIES II microphones and transmitters (see over for details). It can be powered from either 240V mains, batteries (requires 12 x D size batteries) or an external 12 to 24V DC power source (via a 2.5mm DC jack) making this system ideal for any application where a complex multi-speaker installation is not required. Built-in 50 Watt speaker design (20 watt using batteries or external 12V) produces exceptional sound quality making it ideal for any public speaking, aerobics, demonstrations or spruiking applications etc.

Also features provisions for a wired microphone, and an auxiliary music source (line level), both via standard 6.35mm jacks. These inputs (including the wireless microphone receiver) include an independent volume control to allow easy mixing of all audio sources. A remote 8 ohm speaker may also be added via a RCA plug. Compact size measures only 443H x 298W x 233Dmm. Weight approximately 14 kg.

Without Cassette Deck

C 7205 Wireless Portable PA	202.4MHz	\$985.00
C 7209 Wireless Portable PA	203.7MHz	\$985.00

With Cassette Deck

C 7212 Wireless Portable PA	202.4MHz	\$1395.00
C 7216 Wireless Portable PA	203.7MHz	\$1395.00

*Battery or Mains Power
Allows full Portability!*

Available Transmitters to Suit:

C 7262 H/Held Mic	202.4MHz	\$249.00
C 7271 H/Held Mic	203.7MHz	\$249.00
C 7274 H/Held Mic Shure SM58	202.4MHz	\$395.00
C 7283 H/Held Mic Shure SM58	203.7MHz	\$395.00
C 7286 Lavalier Mic	202.4MHz	\$230.00
C 7295 Lavalier Mic	203.7MHz	\$230.00
C 7301 Guitar Pick-up	202.4MHz	\$179.00
C 7309 Guitar Pick-up	203.7MHz	\$179.00

Also Available with a Fully-Featured Cassette Deck

The deluxe version includes a quality, fully-featured cassette deck with inbuilt record function. With facilities to mix the cassette, radio microphone and auxiliary music source the REDFORD SERIES II is extremely versatile making it ideal for all applications.



Specifications:

Of Wireless Microphone Equipment including Stand Alone Receiver and Portable PA System

Overall System

Frequency Response:.....25Hz - 20KHz +/- 3dB
 Dynamic Range:.....120dB (max SPL to A-weighted noise level)
 Harmonic Distortion:.....less than 0.3%
 RF Carrier Frequencies:VHF, Four channels, between 202MHz and 204MHz
 Frequency Stability:.....+/- 0.005% crystal locked
 Modulation:.....FM +/- 15KHz
 Operating Range:.....60 metres in adverse conditions, up to 450 metres line of sight

REDFORD Series II Transmitters

Audio Input Impedance:
 -Handheld Transmitter:Optimally matched to a YD-04 dynamic mic element or SM58 insert.
 -Lavalier Transmitter: 600 ohm electret mic
 -Guitar Transmitter:.....1M ohm
 Directivity:.....Lavalier; Omni-Directional, Handheld; Uni-Directional
 Controls:.....Transmitter ON/OFF, Audio ON/OFF, Input Level Adjust
 Indicators:.....Low Battery LED
 RF Power Output:.....50mW
 Harmonic & Spurious Emissions:.....less than -40dB
 Battery:.....9V alkaline
 Battery Life:.....6 - 8 hours, nominal

Redford Series II Receiver

Controls:.....Power ON/OFF, Output Volume Control, Mute Adjust
 Audio Output:.....Mic level 600 ohm unbalanced
 Connectors:.....Audio Output 1/4" mono phone jack (front & rear) DC input 2.5mm mini jack
 Indicators:.....Power "ON" LED, Diversity channel A and B LEDs
 Mute:.....Externally adjustable 1µV preset minimum, both A & B receivers
 Unwanted Signal Rejection:.....60dB image and spurious
 Power Requirements:.....12V DC @ 150mA tip positive

Entertainers Cardioid Microphone



Balanced line mic and lead, to unbalanced 6.35mm plug. Includes vinyl carry case and mic holder.

Polar Pattern:.....Cardioid
Impedance:.....600 Ohm
Frequency Response:..50Hz-15kHz
Sensitivity:.....-75 +/-3dB
C 0375 \$85.⁹⁵

Entertainers 600Ω Balanced Microphone



In Our Opinion This Outperforms the Shure SM58!

NEW FOR '93

Superbly engineered, this microphone incorporates more features than many microphones costing twice the price. Incorporating a very stylish, comfortable well weighted zinc diecast housing, with inbuilt 3 pin XLR male connector and side mount on/off switch. The housing incorporates 3 rubber shock absorbing rings to help minimise handling noise. Supplied complete with 5m twin shielded balanced lead with 3 pin XLR female to mono 6.35mm jack plug in vinyl carry case.

Polar Pattern:.....Unidirectional
Housing Material:.....Zinc Diecast
Impedance:.....600 Ohm
Sensitivity:.....-78dB +/-3dB
Frequency Response:..50Hz-18kHz
C 0388 \$129.⁰⁰

Unidirectional Low Impedance Budget Dynamic Mic



Sturdy "ABS" body, metallic appearance. Includes on-off switch, 3m lead, mic holder, and 6.35mm plug.

Frequency Response:..100Hz-10kHz
Impedance:.....600 Ohm
Sensitivity:.....-74 +/-3dB
C 0368 \$19.⁵⁰

Balanced Microphone



NEW FOR '93

Stylish, low cost hand held balanced microphone for general purpose paging. Features zinc diecast housing with inbuilt XLR 3 pin connector, side mount on/off switch and rubber mounted mic insert to minimise handling and lead noise. Supplied complete with 5m twin shielded lead with 3 pin XLR female to mono 6.35mm jack plug in vinyl carry case.

Polar Pattern:.....Unidirectional
Housing Material:.....Zinc Diecast
Impedance:.....500 Ohm
Sensitivity:.....-74dB +/-3dB
Frequency Response:..60Hz-14kHz
C 0378 \$79.⁰⁰

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
Frequency Response:..200Hz-8kHz
Sensitivity:.....-70 +/-3dB
Housing:.....Die cast zinc
Cable:.....Twin shield plus muting pair terminated in 5 pin din plug
C 0372 \$99.⁰⁰

Ideal for General Purpose Paging - Plugs Directly into the REDBACK A 2003 Amplifier!

Standard CB Type Microphone

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

Frequency Response:..300Hz-8kHz
Impedance:.....500 Ohm
Sensitivity:.....-70dB
C 0332 \$17.⁹⁵



Superior Ultra Cardioid Microphone



Extremely low feedback incidence. In-built wind filter to help eliminate "Pops". Balanced line mic and lead to unbalanced 6.35mm plug. Simply add XLR connector for complete balanced circuit. Includes vinyl carry box and mic holder.

Polar Pattern:.....Cardioid
Impedance:.....600 Ohm
Frequency Response:..50Hz-15kHz
Sensitivity:.....-77 +/-3dB
C 0385 \$149.⁰⁰

Flexible Gooseneck Microphone



No Wiring Needed - Simply Plugs into a XLR Socket!

Complete with flexible gooseneck and built in 3 pin male XLR connector, microphone head and insert, this is ideal for lecterns, custom paging consoles, church pulpits and even some mixers. The thin flexible gooseneck is quite unobtrusive but rigid enough to remain in position once it has been adjusted. Featuring a balanced 600Ω insert already connected to the 3 pin XLR connector it is simply a matter of plugging the unit in.

Impedance:.....600 Ohm balanced
Sensitivity:.....-80dB +/-3dB
Frequency Response:..150Hz-12kHz
Colour:.....Black
Length:.....480mm
Directivity:.....Unidirectional
C 0370 \$59.⁹⁵

NEW FOR '93

Microphone Curly Cord

Ideal for CB, paging mics etc. 2 core plus 2 core shielded. Max length 1.5m.

C 0330 \$12.⁹⁵



NEW FOR '93

Noise Cancelling Microphone

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



Electret Mic Insert

Great little replacement for tape recorders etc. Handy for hobby projects.

Polar Pattern:.....Omni-directional
Impedance:.....1k Ω , +/-30%
Sensitivity Reduction: -3dB @ 3V
Frequency Response: 20Hz-10kHz
Dimensions:.....10 \varnothing x 10mm
Current Drain:.....0.8mA max.
C 0170 \$2²⁰ ea, 10 up \$1⁶⁰ ea



Electret Tie Clasp Microphone

Omni-directional. Requires button cell.

Frequency Response: 50Hz-18kHz
Impedance:.....1K Ohm
Sensitivity:.....-65dB +/-3dB

C 0350 \$31⁹⁵

Clips Easily onto Collar or Tie for Hands Free Operation



Uni Directional Cardioid

Recommended for vocalist, public address and general purpose entertainment use. Includes 6m lead with phone plug and wind screen. Uses 1.5V AA battery.

Frequency Response: 20Hz-15kHz
Impedance:.....600 Ohm
C 0360 \$39⁵⁰



MICROPHONE ACCESSORIES

Super Heavy Duty Tripod

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 collapsible for easy transportation. Removable mounting plate makes this tripod ideal for amplifiers, speakers, lighting etc.
C 0520 \$129⁹⁵



Telescopic Floor Stand with Boom

Height adjustable from 96cm to 160cm. Boom extends 70cm from vertical tube. Ideal for musicians ie. singing, drummers, piano players etc.

C 0515 \$94⁹⁵



Telescopic Floor Stand

Sturdy telescopic stem and friction grip adjustment. Includes dual screw adaptor attachment (3/8" and 5/8") for microphone holder etc. Height: 96cm to 154cm. Weight: 3.4kgs.

C 0510 \$69⁰⁰



Banquet Desk Stand

Stand telescopes in both vertically and horizontally. Swivel adjustment on horizontal arm. Dual 3/8" and 5/8" thread adaptor supplied. Heavy cast base.
C 0505 \$49⁹⁵



Desk Stand

Die cast base, telescopic height adjustment from 220mm to 380mm. Weight 1kg. Dual purpose 3/8" and 5/8" mic holder threaded adaptor included.
C 0500 \$29⁵⁰



Mic Holders

Two models available, with spring loaded jaws or standard type. Both use standard 5/8" thread to enable direct fitting to most mic stands and goosenecks.

C 0401 Standard Type \$4⁵⁰

C 0405 Spring Loaded \$5⁹⁵

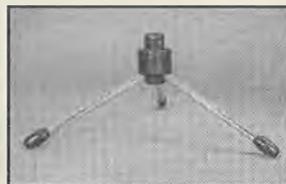
N.B. C 0405 is ideal for use with the REDFORD series wireless mic equipment



Mini Microphone Stand

Mic stand has fold in legs and stands 86mm high when extended. With standard 5/8" thread.

C 0490 \$7⁹⁵



Gooseneck Extension Arms

Incorporates a 5/8" male thread one end and 5/8" female thread other end.

C 0410 300mm Length \$9⁵⁰

C 0412 450mm Length \$12⁵⁰



Gooseneck Bench Mount

Suits goosenecks opposite. Base screws direct to desk or bench top. Mounting screws included.

C 0420 \$2⁹⁵



Mic Stand Reducer

Reduces from 5/8" to 8mm. Designed for use with REDFORD series sound columns to mount them onto floor mic stands to be used as extension speakers.

C 0990 \$9⁹⁵



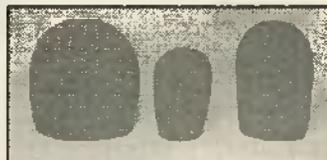
Microphone Foam Windsocks

Used to negate breath noise and eliminate wind or breath "pop".

C 0340 20mm \varnothing \$1⁹⁵

C 0342 27mm \varnothing \$1⁹⁵

C 0344 40mm \varnothing \$2²⁰



XLR Microphone Extension Lead

3 pin male to 3 pin female XLR Cannon type plugs. 10 metres long
P 0735 \$29⁰⁰

NEW FOR '93



Car Security High Power Car Alarm

With Wireless Remote Control

Cheap Insurance for the Safety of Your Car!



Siren horn and alarm circuitry contained in a very compact housing. The small amount of wiring required to get the system operational makes it perfect for those who wish to install it themselves. Full instructions supplied.

Features: • 125 dB siren • Visible warning by flashing headlights when the alarm system is triggered • Wireless remote control allows keyless and trouble-free arming and dis-arming • 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 • Battery backup

£ 5220 **\$99.⁰⁰**

£ 5221 Additional Remote Control **\$24.⁹⁵**

Micro-Processor Controlled Car Alarm

With Wireless Multi-function Remote

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



Offering more features than many car alarms twice the price, this alarm utilises state-of-the-art technology to protect your car.

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 one transmitter 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.

£ 5230 **\$249.⁰⁰**

£ 5231 Additional Remote Control **\$39.⁹⁵**

Car Alarm Long Distance Pager

Compatible with virtually all alarm systems on the market, this device simply connects to the output of your alarm. If it sounds it automatically transmits a signal to the pocket pager which alerts you that your car is being tampered with. It has a range of over 1 km in ideal conditions. Gives extra peace of mind when your away from your car. Ideally suits Altronic alarms S 5220 and S 5230.

Features:

- Compatible with most alarms
- Complete with transmitter and receiver (pocket pager)
- Easy to install
- 1000 security codes

£ 5233 **\$174.⁰⁰**

NEW FOR '93



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
- Easily interfaces with house or car alarm
- Could be configured as a stand alone simple alarm
- Easy key switch operation
- Dimensions: 160l x 70h x 70d mm

£ 5235 **\$69.⁹⁵**



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

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

Part 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 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, ie door, windows and 2 perimeter.
- AWAY: Control panel responds to all sectors.
- PANIC: Alarm sounds immediately. Can be triggered by the personal remote 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 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.

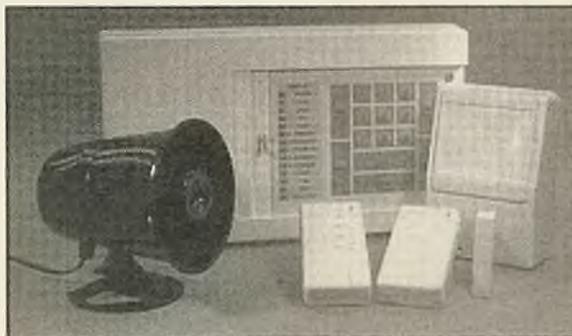
240 volt operated with back-up battery supply.

Optional wireless remote keypad - ideal if both front and back doors are used for entry-exit.

Operates on 303.875MHz, approved by the Department of 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



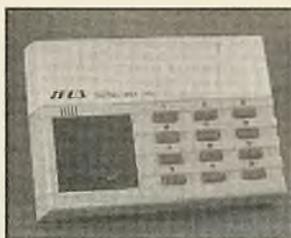
S 5240 Complete System Price Only \$679⁰⁰

OPTIONAL WIRELESS ALARM ACCESSORIES

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 \$135⁰⁰

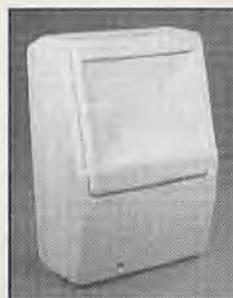


Passive Infra Red Movement Detector

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. Instant or pulse count selectable.

S 5245 \$155⁰⁰

S 5249 Long Range Lens for Corridor Applications Coverage 30 x 3m \$7.95



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 modes), and also includes PANIC.

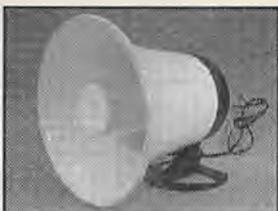
S 5250 \$62⁹⁵



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 \$72⁹⁵



External Horn Speaker

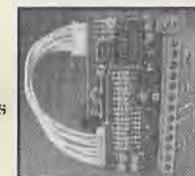
8 Ohm, 10 watt type.

C 2015 \$15⁹⁵

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 \$57⁵⁰



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 today's 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

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)

Ideal For Homes and Small Commercial Premises!

S 5480 **\$159.00**

HA-863



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 on 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 - Hand-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 (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**

HA-871



ALARM SYSTEM ACCESSORIES

Mini Strobe Signal Lamps

NEW FOR '93



New weather-proof design ideally suited to outdoor applications

Blue lens. 1 watt output. Uses Xenon tube for high energy flash. Flash rate approx 75 per minute. 12V DC 150mA. Dimensions: 70Ø x 53h mm.

S 5445 Blue **\$17.50** ea,
4 up **\$15.50** ea

Strobe Signal Lamps



10 watt output. Uses Xenon tube for high energy flash. Flash rate approx 75 per minute.

12V DC 320mA. Dimensions: 100Ø x 88h mm.

S 5455 Blue **\$27.95** ea,
S 5450 Red **\$25.00** ea

Weatherproof Horn Speaker

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



C 2015 **\$15.95** ea, 4 up **\$14.90** ea

Siren Cover

Suitable for protection of C 2105 (left) and similar sirens and horns,

this cover comes complete with a tamper switch mounting bracket and a unique slide in fixing bracket for mounting the siren. Pre-punched for strobe mounting if required.



S 5460 Siren Cover **\$28.95**
S 5160 Tamper Switch to Suit **\$1.85**

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
- Adjustable Beam Height Angle, 0 - 12°
- User selectable Walk Test LED On-Off

5302 \$62.50

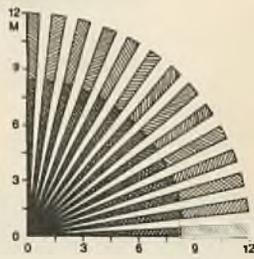
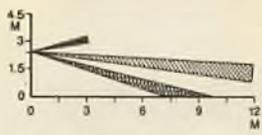


Incredibly Small! Only 55 x 31 x 73mm

New Low Price for '93

Ideally Suited to the Alarm Panels in this Section!

Coverage Diagram



Digital Access Keypad

For Security and Door Strike Applications.

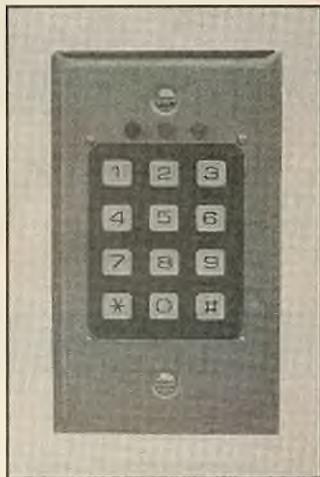
This digital access keypad is a 12-button electronic lock. It provides two sets of secret codes. One code is a 4 digit PIN to enable an alarm panel etc. to be remotely armed and dis-armed. The second code is a 2 digit PIN (which is pressed simultaneously) designed for panic function. Both codes can be 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 (selectable) 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

5390 \$69.95

Ideally Suited to the Alarm Panels in this Section!



Passive Infra-Red Lite Aide Floodlight Control

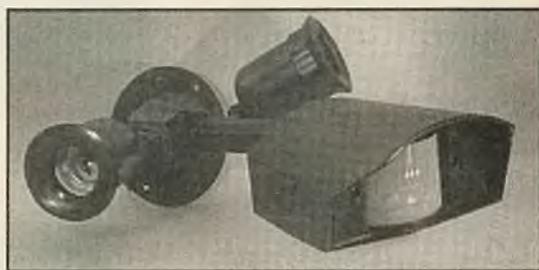
5350 \$49.95

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 seconds 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 door-ground level (B) Protection from direct weather by roof eaves or overhanging is preferred (C) Even though 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 licensed electrician. Globes not supplied.



Specifications:

- Detector: Dual element pyroelectric PIR sensor
- Rain-tight outdoor all weather operation
- Photocell to deactivate sensor during daylight
- Operating Voltage: 240V AC 50Hz
- Operation Time: Adjustable 10 seconds 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.

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
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
S 2501 SPDT \$9.95
S 2512 Blank Key to Suit \$1.20



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 49mm from rear of front shroud 58mm overall.

S 2510 \$12.95
S 2512 Blank Key to Suit \$1.20



Tubular Style Two Position

Two sizes available. Radial type tumbler mechanism. Silver plated contacts and terminals.

S 2515 250V-3 Amps. S 2520 250V-0.5 Amps. Key removable in both positions. Supplied with two keys. S 2515 Dimensions: 19.2Ø, overall length 37mm. S 2520 Dimensions: 15Ø, overall length 23mm.

S 2515 2 Pos, 2 Terminals \$9.95
S 2518 Blank Key to Suit \$2.95
S 2520 2 Pos, 4 Terminals \$6.95
S 2522 Blank Key to Suit \$2.95



MULTI-PURPOSE KEY OPERATED SWITCHES

Connection Details

2 Position Type

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

3 Position 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

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
S 2513 Blank Key to Suit \$1.20

DPDT Two Position

Key Removable in Either Position

S 2504 \$10.95
S 2513 Blank Key To Suit \$1.20

Two Pole Three Position

Key removable in centre position only.

S 2506 \$10.95
S 2513 Blank Key To Suit \$1.20

Two Pole Three Position

Key removable in all positions. S 2508 \$10.95
S 2513 Blank Key To Suit \$1.20

ALARM SYSTEM SENSORS

Concealed Reed Switch



Contacts close with magnet. Includes matching magnet and mounting screws. S 5152 \$6.95 ea, 10up \$6.45 ea

Reed Coil



Suits S 5150 reed switch. 12V DC. S 5151 \$1.15 ea, 10up \$1.05 ea

Mini Reed Switch



Contacts close with magnetism. Fits inside S 5151 coil. Gold plated contacts. Overall length 45mm. S 5150 \$1.30 ea, 10up \$1.20 ea

SPDT Standard Type Reed Switch



Surface mount. SPDT for N.O. and N.C. applications. Includes matching magnet. Dimensions:53 x 12 x 12mm
Mounting Hole Centres:45mm
Max. Working Distance:15mm
S 5153 \$7.95 ea, 10up \$7.50 ea

Pressure Mat



Ultra thin mat for under carpet or mat etc. SPST. 530 x 780mm, 6mm thick. With 50cm flylead. N.O. S 5184 \$29.95

Tamper Switch

SPST. As used in alarm system panels, siren covers etc.

Contacts close when plunger is pressed in. Requires 19mm mounting hole. Pin length approx 19mm. Press and snap in fit. Suits S 5460 siren cover. S 5160 \$1.85 ea, 10 up \$1.65 ea



Pin Switches



Similar to car courtesy light switches. Suits car alarms (for boot and bonnet) etc. Two sizes available. Mounting hole 7.5mm. S 5145 50mm \$1.05 ea, 10up .95c ea
S 5147 65mm \$1.10 ea, 10up .95c ea

Mercury Switch

SPST. As used with many car boot lights, tilt alarms etc. Switch body approx. 20 x 5mm. Lead length approx 30mm. 125V 3A. S 3070 \$1.95 ea, 10 up \$1.80 ea



PIEZO ALARMS, SIRENS & BUZZERS

Miniature PCB Piezo



Fully sealed PCB Piezo. Small 13D
7H mm. 8mm pin spacing. 6mA
at 12V DC. Ideal for high density
PCB's. Voltage range 3-16V DC.
S 6105 \$3⁵⁵

PCB Mount Buzzer



23mm diameter. 15H mm. Pin
spacing 10mm. 10mA at 12V DC.
Voltage range 6-15V DC.
S 6107 \$3⁵⁵

Mini Buzzer



Available in PCB Mount or Panel
Mount Configuration.
Handy little solid state buzzer.
Ideal for audible signalling, alarm
panels etc. 5-15V DC. 100mm fly
lead with S 6100. 25mA at 12V DC.
Dimensions 23L x 17H x 15W mm
S 6100 Chassis Mount \$2⁹⁵
S 6102 PCB Mount \$2⁹⁵

Piezo Alarm



Available in Pulsating or
Continuous Models.
Ideally suited to commercial-
industrial applications. 16mA at
12V DC. 100mm lead. Dimensions
25H x 44Ø mm.
S 6115 Continuous Tone \$7⁹⁵
S 6117 Pulsating Tone \$8⁹⁵

Panel Mount Piezo Buzzer



Available in Pulsating or
Continuous Models.
Voltage 5-15V DC 10mA.
Dimensions: 24.5 H x 29.5 D, 18mm
panel hole for mounting. 100mm
lead.

S 6110 Continuous Tone \$4⁹⁵
S 6112 Pulsating Tone \$5⁶⁰

Panel Mount Piezo

This piezo
is panel
mounting
and can be
configured
to operate
with a
continu-
ous or pul-
sating tone.



Ideal for all sorts of
warning or signalling systems.
Input voltage 6 - 28V DC. 6mA at
12V DC. Dimensions 35H x 32D.
Panel mounting hole 27.5mm
S 6119 \$10⁹⁵

Two Tone Piezo Siren



Commercial/Industrial type. High
efficiency SPL 100dB. 7.5 - 15V DC
operation. 180mA at 12V DC. Two
tone pulsating signal. Mounting
flange allows wall or chassis mount-
ing. 230mm lead.
Dimensions: 85 Diam. 50mm H.
S 6125 \$24⁵⁰

Indoor Wall Mount Piezo



Loud 2 tone warble signal. Un-
obtrusive wall mount design.
Suitable for all types of warning
systems. DC input 6-15V. 120mA at
12V DC. Dimensions 105 x 105 x
45mm. 100mm lead.
S 6135 \$23⁵⁰



Piezo Siren

Massive 110dB operates from 6-12V DC
100mA. 280mm lead.
Dimensions: 39 x 43 x 50mm
S 6120 \$18⁸⁵



High Power Siren

Strong durable construction makes
this unit ideal for car or boat installa-
tion. SPL 120dB min. Includes handy
bracket for wall mounting etc. 12V
DC. 300mA. 300mm lead.
Dimensions: 100mm Diam 125mm L
S 6130 \$29⁹⁵

SECURITY CABLE

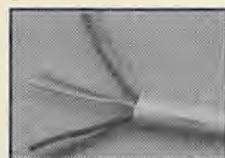
4 Core

4 inner con-
ductors of
14 strands
of 0.20mm
copper wire - yellow, green, red,
blue. Three outer sheath colours to
suit any installation - grey, black,
and white.
W 0354 Grey
W 0355 Black
W 0356 White
80¢ metre,
or \$140⁰⁰ per 200m roll



Telephone Cable

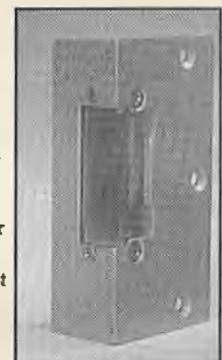
W 0302 2 Pair 60¢ metre,
or \$90⁰⁰ per 200m roll
W 0303 3 Pair 90¢ metre,
or \$130⁰⁰ per 200m roll



OTHER ALARM ACCESSORIES

Door Strike

Very Sturdy Steel Construction.
Ideal for security access areas, this high
quality lock is supplied with two types
of mounting plates to fit most door
frames. Operates from either 12V AC or
DC making it ideal for most alarms,
intercoms, and keypads. 300mA current
draw.
S 4390 \$ 39⁹⁵

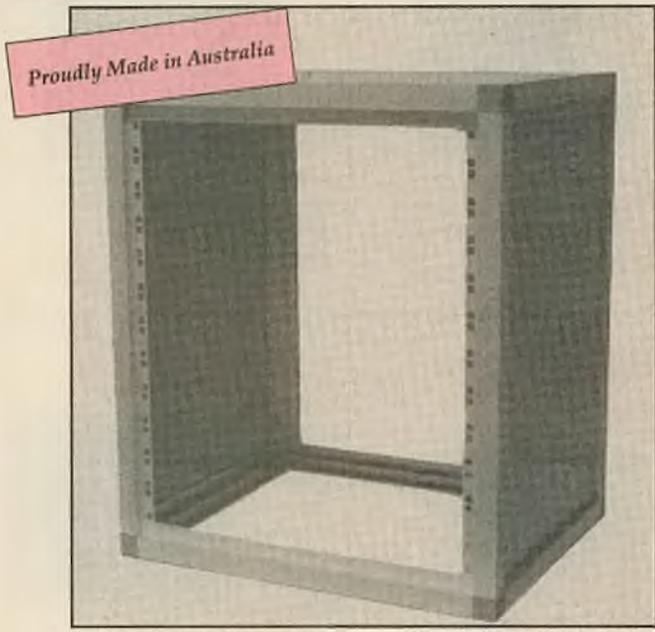


**AUSTRALIAN DESIGNED AND MANUFACTURED PROFESSIONAL SERIES
MODULAR RACK FRAMES**

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 (nat) anodised aluminium or Black Powder Coat aluminium and the side panels are either Horizon 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 rack frame 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 rivetting the various overlapping extruded sections if desired.



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

Rack Frame Data

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

	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.

Save Hundreds of Dollars on Similar Custom Made Rackframes. Supplied in Kit Form, Assembles in Minutes!

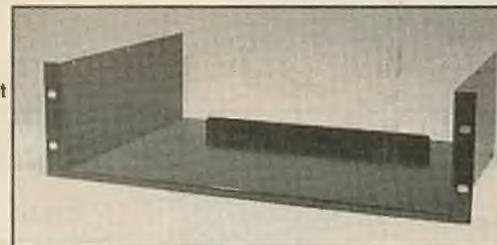
Rack Nuts, Bolts & Washers



	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 black	12 \$3.55
H 5391	Rack screw M6 black	100 \$14.30
H 5392	Rack screw M6 black	1000 \$105.50
H 5395	Captive nuts M6	12 \$5.95
H 5396	Captive nuts M6	100 \$45.50
H 5394	Captive nuts M6	1000 \$399.00
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

Rack 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 rack frame. Also suitable for equipment that does not rack mount, e.g. C.D. players, tuners, videos etc. Overall depth 255mm. 3 sizes to choose from. Black only.



H 5352 2 Unit \$49⁹⁵ H 5353 3 Unit \$49⁹⁵ H 5354 4 Unit \$55⁹⁵

Vent Panels

Ideal for any 19" rack system which requires additional airflow to help keep equipment cool.

H 5360 Natural Anodised Aluminium \$19⁹⁵

H 5362 Black Anodised Aluminium \$19⁹⁵

NEW FOR '93

19" RACK MOUNT CASES & PANELS

Rack Cases

Available with Raw Aluminium, Natural or Black Anodised. Each finish is available in 44mm, 88mm or 132mm high. Mounting hole centres conform exactly to International Racking Specifications both vertically and horizontally.

Features:

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



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

Revolutionary new extruded design eliminates the need for visible bolt heads through the front panel.
Proudly Made in Australia

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.

Features:

- Uses Altronics H 0590 Heatsinks
- Full Size 3 Unit Front Panel (480mm x 132mm x 3mm)
- 1.0mm Steel Base, with Ventilation Slots
- 1.0mm Steel Top Cover, with Ventilation Slots
- Internal Dimensions: 125mm x 370mm x 250mm
- External Dimensions: 130mm x 440mm x 252mm (plus standard front panel)

Massive Heatsink Sides. Allows up to 100 Watts of Dissipation per Side

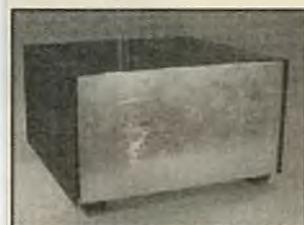


I 0417 Natural Anodised Aluminium Front Panel
I 0418 Black Anodised Aluminium Front Panel **\$129.95**

Proudly Made in Australia

GENERAL PURPOSE ENCLOSURES

Universal Metal Box



Constructed from 1mm aluminium on the base and 1mm mild steel for the lid, this chassis is ideal for power supplies. It has an enormous amount of ventilation, making it ideal for high current power supplies etc. Even the base is ventilated to allow for natural cooling. The lid is black powder coated, whilst the base is natural aluminium. Dimension: 180w x 100h x 30d mm

0430 **\$29.95**

NEW FOR '93

Plastic Project Box with Mounting Flanges

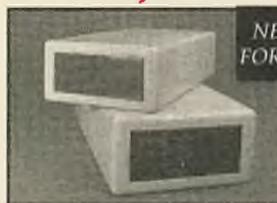


Compact plastic housing with mounting flanges. Ideal for small projects which need to be mounted in a car engine bay, wall or ceiling mounted etc. Includes cable entry hole. Size 85dx 66w x 31h mm. Overall length including mounting flanges 109mm.

H 0210 **\$4.95**

NEW FOR '93

Deluxe Project Box



NEW FOR '93

Featuring tongue and groove construction to endure a perfect fit these two part high impact ABS cases feature moulded brass inserts for securing PCB's etc. The lid and base are secured via bolts which also screw into brass inserts. Finished in grey with black front and rear panels, these boxes add a real professional look to any project. Three sizes available.

H 0440 131 x 67 x 34 **\$16.90**

H 0443 160 x 80 x 44 **\$21.55**

H 0446 197 x 110 x 56 **\$24.70**

Snap Together Utility Box



Cleverly designed, this box uses two identical pieces which just snap together to make the box, i.e. does not require any screws for fixing. Includes generous ventilation slots and posts for mounting PCB's etc. Incorporates speaker recess. Includes front and rear panels. 135 x 93 x 47mm

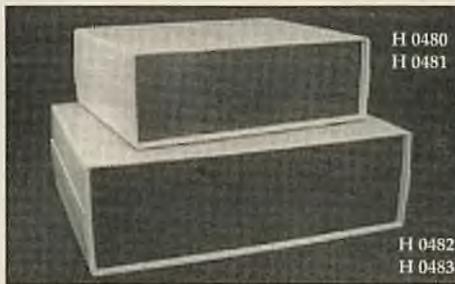
H 0470 **\$6.95**

NEW FOR '93

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 on 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. Generous ventilation slots provided.

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. Al. Panel for H 0480/1	\$3.95
H 0485 "ABS" PVC Panel for H 0480/1	\$1.65
H 0486 Black Al. Panel for H 0480/1	\$7.95
H 0487 "ABS" PVC Panel for H 0482/3	\$2.20
H 0488 Blk Al. Panel for H 0482/3	\$9.95
H 0489 Nat. Al. 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 "chassis bash", light weight, stylish appearance, fully insulated and low cost

Dimensions:

H 0480-H 0481:	Overall size: 200w x 155d x 65h mm
H 0482-H 0483:	Overall size: 250w x 190d x 80h 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.

- Classy grey case with grey front and back panels
- Designed to house amplifiers, inverters, power supplies, micro-processor equipment, etc
- Vented for efficient air-flow cooling.
- Extra tough, super finish front and rear panels.
- Dimensions: 355w x 250d x 122h mm

H 0490 Case	\$29. ⁹⁵
H 0494 Steel Internal Base Plate To Suit	\$11.50
H 0495 Blank Black Front/Rear Panel	\$3.95



Battery for size comparison only

Proudly Made in Australia

Jiffy Boxes

Manufactured from sturdy ABS these boxes have a moulded PCB mounting design. It allows PCB's to be installed vertically, or snapped in horizontally without the use of PCB stand-offs.

As Used by Many Manufacturers and in EA and SC projects they are inexpensive and give your product a 1st class finish every time!

Proudly Made in Australia



Box	Colour	Dimensions w x d x h mm	PCB Trim Size			ea
			Vert.	Horiz.		
H 0201	Black	158 x 95 x 53	UB1	90	87	\$3.95
H 0202	Black	198 x 113 x 62	UB2	106	103	\$6.95
H 0203	Black	130 x 67 x 42	UB3	62	60	\$3.50
H 0205	Black	83 x 54 x 30	UB5	50	47	\$2.50
H 0151	Grey	158 x 95 x 53	UB1	90	87	\$3.95
H 0152	Grey	198 x 113 x 62	UB2	106	103	\$6.95
H 0153	Grey	130 x 67 x 42	UB3	62	60	\$3.50
H 0155	Grey	83 x 54 x 30	UB5	50	47	\$2.50

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.

Incorporates internal raised lip for the lid to seal against. Three sizes to choose from:

H 0451 100w x 50d x 25h mm	\$7.95
H 0453 121w x 61d x 39h mm	\$9.95
H 0455 192w x 112d x 60h mm	\$24.50



Horwood Utility Cases

Made from industrial grade extruded aluminium these boxes are extremely robust. Ideal for power supplies etc.

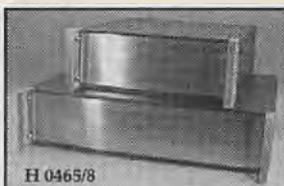
	Dimensions	Horwood Part No.	
H 0456	101w x 76d x 26h mm	34/1D	\$13.35
H 0457	101w x 76d x 51h mm	34/2D	\$13.50
H 0458	101w x 76d x 102h mm	34/4D	\$16.95
H 0459	101w x 76d x 151h mm	34/6D	\$19.50



Horwood Cases

Assembled in minutes, this range of boxes is supplied in kit form, making it a breeze to metal bash and assemble. The top, bottom and sides are finished in attractive black "Marvi Plate". The front and rear are natural aluminium. All models come complete with front carry handles.

	Dimensions	
H 0461	153w x 204d x 100h mm	\$44.95
H 0463	254w x 204d x 100h mm	\$55.85



H 0465/8

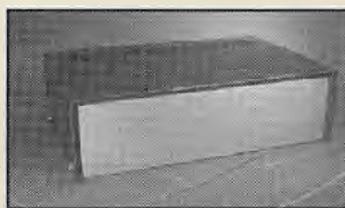


H 0461/3

	Dimensions	
H 0465	203w x 74h x 227d mm	\$44.
H 0468	305w x 74h x 230d mm	\$53.

K & W 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.



	K & W Part No.	Dimensions	
H 0496	C 1066	255w x 158d x 154h mm	\$25. ⁹⁵
H 0498	C 1284	305w x 90d x 204h mm	\$25. ⁹⁵

Hardware

ALTRONICS
PHONEORDER 008 999 007

Metric Bolts, Nuts, Washers

All Quality
Plated!



	Pack	
H 3110	Bolt 3 x 6mm	25 \$2.45
H 3115	Bolt 3 x 6mm	200 \$4.65
H 3116	Bolt 3 x 6mm	1000 \$7.95
H 3120	Bolt 3 x 10mm	25 \$2.50
H 3125	Bolt 3 x 10mm	200 \$4.95
H 3126	Bolt 3 x 10mm	1000 \$9.80
H 3130	Bolt 3 x 15mm	25 \$2.60
H 3135	Bolt 3 x 15mm	200 \$5.60
H 3136	Bolt 3 x 15mm	1000 \$12.35
H 3140	Bolt 3 x 20mm	25 \$2.65
H 3145	Bolt 3 x 20mm	200 \$6.25
H 3146	Bolt 3 x 20mm	1000 \$15.95
H 3150	Bolt 3 x 25mm	25 \$2.80
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 \$3.60
H 3165	Bolt 3 x 32mm	200 \$10.50
H 3166	Bolt 3 x 32mm	1000 \$26.20
H 3175	Nut 3mm Hex	25 \$2.55
H 3177	Nut 3mm Hex	200 \$5.35
H 3178	Nut 3mm Hex	1000 \$10.95
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 \$2.70
H 3187	Washer 3mm S/Proof	200 \$6.65
H 3188	Washer 3mm S/Proof	1000 \$17.00
H 3310	Bolt 4 x 10mm	25 \$2.75
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 \$2.90
H 3325	Bolt 4 x 15mm	200 \$7.80
H 3326	Bolt 4 x 15mm	1000 \$23.20
H 3380	Nut 4mm Hex	25 \$2.95
H 3382	Nut 4mm Hex	200 \$6.20
H 3383	Nut 4mm Hex	1000 \$14.90
H 3385	Washer 4mm Flat	25 \$1.70
H 3387	Washer 4mm Flat	200 \$5.35
H 3388	Washer 4mm Flat	1000 \$12.25
H 3389	Washer 4mm S/Proof	25 \$2.95
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	1000	\$14.90
H 1139	No. 4 x 9mm Universaal head	25	\$2.10
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	\$7.85
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



Chrome-Plated Brass Spacers UNTAPPED 3MM CLEARANCE

	Length	Pack	
H 1355	6mm	8	\$2.45
H 1359	6mm	100	\$9.90
H 1360	6mm	1000	\$69.95
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



Nylon Spacers 3mm Clearance

Product	Description	Pkt	
H 1320	5mm Dia x 12mm	10	\$3.00
H 1321	5mm Dia x 12mm	100	\$9.60
H 1322	5mm Dia x 12mm	1000	\$46.25
H 1323	5mm Dia x 15mm	10	\$3.20
H 1324	5mm Dia x 15mm	100	\$10.50
H 1325	5mm Dia x 15mm	1000	\$52.00
H 1326	5mm Dia x 20mm	10	\$3.25
H 1327	5mm Dia x 20mm	100	\$11.25
H 1328	5mm Dia x 20mm	1000	\$57.95



NEW FOR '93

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 black	12 \$3.55
H 5391	Rack screw M6 black	100 \$14.30
H 5392	Rack screw M6 black	1000 \$105.50
H 5395	Captive nuts M6	12 \$5.95
H 5396	Captive nuts M6	100 \$45.50
H 5394	Captive nuts M6	1000 \$399.00
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

Cordgrip Grommets



To suit cables 6.2 - 7.4mm. Up to 2.5mm chassis thickness. Hole size 12.7 x 11.5mm. Nylon type.

- H 4250 Pk 10 \$2.70
- H 4252 Pk 100 \$11.45
- H 4253 Pk 1000 \$76.95

To suit cables 7.4 - 8.2mm. Up to 1.6mm chassis thickness. Hole size 15.9 x 14mm. Nylon type.

- H 4270 Pk 10 \$3.15
- H 4272 Pk 100 \$15.95
- H 4273 Pk 1000 \$114.95

To suit cables 7.4mm - 8.2mm. Up to 3.2mm chassis thickness. Hole size 15.9 x 14mm. Nylon type.

- H 4280 Pk 10 \$3.15
- H 4282 Pk 100 \$15.95
- H 4283 Pk 1000 \$114.95

Rubber Grommets

For chassis to 16 gauge (1.5mm)



	Chassis Hole	Cable Hole	Pack Qty	
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

Push-on Rubber Feet

Excellent for all types of chassis. Simply drill the correct size hole, push the foot in and insert the built in plastic pin and the foot is secured.

Dimensions in mm.

	Diameter & Type	Height	Mounting Hole Ø	Pack Qty	
H 0960	23 push on	5	8	4	\$1.95
H 0962	23 push on	5	8	100	\$19.95
H 0964	23 push on	5	8	1000	\$163.50
H 0970	20 rivet type	10	8	4	\$1.70
H 0972	20 rivet type	10	8	100	\$15.95
H 0974	20 rivet type	10	8	1000	\$129.00
H 0980	30 rivet type	13	8	4	\$2.00
H 0982	30 rivet type	13	8	100	\$20.95
H 0984	30 rivet type	13	8	1000	\$151.50

Rubber Feet

Dimensions in mm.

	Diameter & Type	Height	Mounting Hole Ø	Pack Qty	
H 0914	15 bolt on	6	3	4	\$1.95
H 0913	15 bolt on	6	3	100	\$21.95
H 0912	15 bolt on	6	3	1000	\$170.00
H 0917	20 bolt on	9	3	4	\$2.20
H 0916	20 bolt on	9	3	100	\$23.75
H 0915	20 bolt on	9	3	1000	\$170.00
H 0930	15 stick on ball	8	-	4	\$1.95
H 0932	15 stick on ball	8	-	100	\$20.95
H 0934	15 stick on ball	8	-	1000	\$169.00
H 0940	12 stick on square	6	-	4	\$2.00
H 0942	12 stick on square	6	-	100	\$20.15
H 0944	12 stick on square	6	-	1000	\$174.50
H 0950	20 stick on square	8	-	4	\$2.20
H 0952	20 stick on square	8	-	100	\$33.00
H 0954	20 stick on square	8	-	1000	\$294.50

Nylon Cable Clamps



- 6.7mm**
- H 4211 Pk 10 \$2.30
- H 4212 Pk 100 \$7.50
- H 4214 Pk 1000 \$43.85
- 9.5mm**
- H 4221 Pk 10 \$2.40
- H 4222 Pk 100 \$8.50
- H 4223 Pk 1000 \$52.25

LED Bezel/Holder



For 5mm LEDs. With leg insulation. 9.5mm mounting hole required. LED not included.

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

Led Mounts

One piece type. For 5mm LEDs. Quick to install. LED not included.



- H 1553 Pk 10 \$3.60
- H 1554 Pk 100 \$14.95
- H 1555 Pk 1000 \$99.95

Cable Clips



	Suits Cable Type	Pack Qty	
H 1701	Fig 8 Cable	10	\$2.00
H 1703	Fig 8 Cable	100	\$4.55
H 1704	Fig 8 Cable	1000	\$19.00
H 1711	Tele Cable	10	\$2.00
H 1713	Tele Cable	100	\$4.55
H 1714	Tele Cable	1000	\$18.95
H 1721	Coax Cable	10	\$2.35
H 1723	Coax Cable	100	\$5.30
H 1724	Coax Cable	1000	\$19.95
H 1731	7-9mm Cable	10	\$2.10
H 1733	7-9mm Cable	100	\$5.55
H 1734	7-9mm Cable	1000	\$28.95
H 1741	10-12mm Cable	10	\$2.20
H 1743	10-12mm Cable	100	\$6.80
H 1744	10-12mm Cable	1000	\$37.90

PCB Supports

Flash Mount

4mm PCB hole required. 4.8mm chassis hole required. Gives PCB 9.6mm clearance above chassis. Nylon 66.

	Height	Pack Qty	
H 1420	9.6mm	10	\$2.75
H 1422	9.6mm	100	\$17.25
H 1424	9.6mm	1000	\$130.00



Standard

4mm PCB hole and 4.8mm chassis hole required. Nylon 66.

H 1431	6.4mm	10	\$2.45
H 1433	6.4mm	100	\$17.40
H 1436	6.4mm	1000	\$74.00
H 1440	12.7mm	10	\$2.70
H 1445	12.7mm	100	\$11.50
H 1447	12.7mm	1000	\$72.95



Secures to chassis with self taper screw. Requires 40mm hole for PCB.

H 1400	12.7mm	10	\$3.90
H 1401	12.7mm	100	\$17.85
H 1402	12.7mm	1000	\$104.00
H 1403	19mm	10	\$3.95
H 1404	19mm	100	\$18.65
H 1405	19mm	1000	\$109.80



Self adhesive base sticks direct to chassis. Requires 40mm hole for PCB.

Stick-on

H 1406	6.4mm	10	\$6.85
H 1407	6.4mm	100	\$45.85
H 1408	6.4mm	1000	\$300.00
H 1409	12.7mm	10	\$6.85
H 1410	12.7mm	100	\$45.85
H 1411	12.7mm	1000	\$300.00

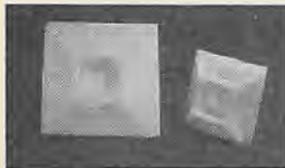


Self Adhesive Cable Tie Mounts

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

21mm x 21mm

H 4110	Pk 25	\$6.70
H 4112	Pk 100	\$19.55
H 4114	Pk 1000	\$155.20



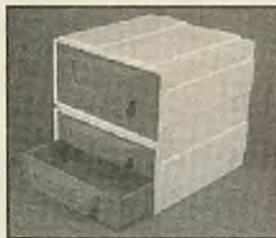
28mm x 28mm

H 4120	Pk 25	\$11.50
H 4122	Pk 100	\$37.70
H 4124	Pk 1000	\$315.75

Interlocking Parts Drawers

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

H 0235	Single	\$4. ⁹⁵ ea,	10 up	\$4. ⁵⁰ ea
H 0236	Double	\$5. ⁵⁰ ea,	10 up	\$4. ⁹⁵ ea



Utility Parts Case

Featuring a clear plastic lid. With simple slide lock devices. 48 moveable partition combinations. Very sturdy ABS plastic.

H 0249 \$28.⁹⁵



Toroidal Cores

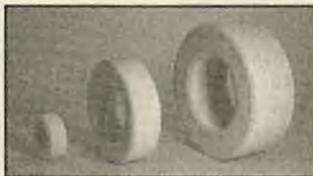
Our Toroidals are "Powdered Iron" type for excellent durability.

Small

Size OD:	14.8
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

Medium

Size OD:	33
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



Large

Size OD:	44
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

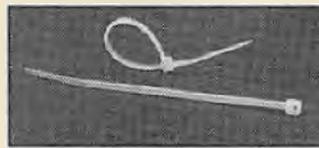
Sub Miniature Former with Core, Can and Base

5mm type 722-1 - use with 4mm F16 slug or as open air type. Supplied as complete kit.

L 5210 \$2.⁶⁵



Nylon Cable Ties



100mm

H 4010	Pk 25	\$2.70
H 4012	Pk 100	\$4.95
H 4014	Pk 1000	\$17.95

200mm

H 4020	Pk 25	\$4.30
H 4022	Pk 100	\$10.55
H 4024	Pk 1000	\$71.75

Up to 50% Cheaper than Competitor's Pricing, These Nylon Cable Ties are Very Strong and Long Lasting!

Economy Parts Case

Made from clear see through plastic these parts cases are ideal for storing nuts, bolts, washers, components like transistors capacitors etc. Ideal for service technicians or organising your work bench. 3 handy sizes available.

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



Ferrite Aerial Rod

Material:F 14 Ferrite
Wavelength:up to 12MHz
Part No.:9.5 x 200-F14
Dimensions:9.5mm Ø. 200mm length.
L 5240 \$6.³⁰



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 Meg ohm Meter kit.
L 5305 Bobbin .95¢ ea
L 5300 2 Core Halves \$5.⁹⁵ per pair



Large Balun Core

7.4mm x 13.2mm x 13.5mm
Part No.:1050-1-F14
Operating Frequency: ..40-220MHz
Material:F14 Ferrite
L 5230 .75¢ ea



Small Balun Core

7.4mm x 13.2mm x 6.6mm
Part No.:1050-2-F14
Operating Frequency: ..40 - 220MHz
Material:F 14 Ferrite
L 5235 .85¢ ea



Ferrite Suppression Beads

Size OD:4.0
ID:2.0 x L 5.0mm
Material:F8 Ferrite
Part No.:35-032-28
Frequency Range:50KHz - 500KHz
L 5250 .20¢ ea, 10 up .16¢ ea



Breadboards

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



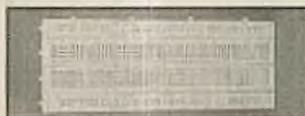
P 1000 100 Holes \$3⁹⁵



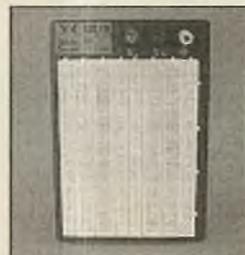
P 1005 640 Holes \$12⁹⁵



P 1007 740 Holes (100 + 640) \$16⁹⁵



P 1009 840 Holes (640 + 200) \$18⁵⁰



Mounted on Aluminium base with rubber feet. Accepts up to 16 x 16 pin DIL IC's. Includes binding post terminals for power supply connections.

P 1012 1680 Holes (1280 + 400) \$49⁹⁵



Mounted on Aluminium base with rubber feet. Accepts up to 24 x 16 pin DIL IC's. Includes binding post terminals for power supply connections.

P 1015 2420 Holes (1280 + 500) \$65⁰⁰

Strap Handle



7" long all plastic matt black. Very strong, suitable for instruments, amplifiers, cabinets etc.

H 1020 \$4⁹⁵

Pocket Handle



For heavy amp enclosures and speaker boxes, Cutout 48mm x 102mm.

H 1010 \$2⁹⁵

Velostat

Antistatic sheeting for storing CMOS IC's LSI's etc. 3M type. 225mm x 150mm sheet.

H 0600 \$6³⁵



Manufactures, OEM's and bulk users, please ring our parent company to see how you qualify for bulk rates.

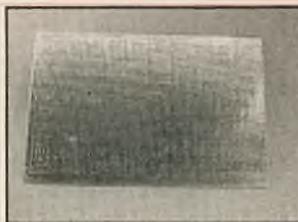
Vero Type Strip Board

Alpha numeric grid. Pre-drilled. .9mm holes 2.54mm spacing (0.1").

H 0711 100 x 250mm \$6⁵⁰

H 0712 100 x 150mm \$4⁵⁰

H 0714 100 x 100mm \$2⁹⁵



Blank Fibreglass PC Board

Single-sided, copper clad. 300 x 300mm.

H 0755 \$19⁵⁰

Ideal for Prototyping & One Off PCB's



Dalo Pen



Etch Resistant Ink. T 0033 \$5⁹⁵

Matrix Pins

Require 1mm hole.

H 0802 Pk 10 \$1⁰⁰

H 0804 Pk 100 \$5⁵⁰

H 0806 Pk 1000 \$45⁹⁵



Ferric Chloride Beads

200g bag. Dilute with 1 Litre of water. Best results are achieved by moving the board within the solution.

H 0800 \$4⁹⁵

Make Your Own PCB's & Save!



Silicon Rubber Transistor Insulation Kits

Each kit includes mounting bushes.

	To Suit	Pkt	
H 1570	TO-3	4	\$2.95
H 1571	TO-3	100	\$36.50
H 1573	TOP-3	4	\$2.95
H 1574	TOP-3	100	\$27.75
H 1576	TO-220	4	\$1.95
H 1577	TO-220	100	\$11.70
H 1578	TO-126	4	\$1.95
H 1579	TO-126	100	\$11.70

NEW FOR '93

No Need to Use Messy Heatsink Compound!



Mica Transistor Insulation Kits

Each kit includes mounting bushes.

	To Suit	Pkt	
H 1580	TO-3	4	\$2.50
H 1582	TO-3	100	\$21.95
H 1583	TOP-3	4	\$2.50
H 1584	TOP-3	100	\$19.95
H 1585	TO-220	4	\$1.95
H 1587	TO-220	100	\$9.95



TO-3 Transistor Cap



H 1590 .65¢ ea

TO-3 Transistor Socket



NEW FOR '93

P 2301 \$1.65 ea, 10up \$1.50 ea

Female Quick Connect

	Wire Color	Wire Size	Stud Size	Pk.	Price
H 2001	Fem Red.	A	6.3	10	\$2.95
H 2002	Fem Red.	A	6.3	100	\$14.10
H 2003	Fem Red.	A	6.3	1000	\$96.55
H 2006	Fem Blue.	B	6.3	10	\$2.95
H 2007	Fem Blue.	B	6.3	100	\$14.10
H 2008	Fem Blue.	B	6.3	1000	\$96.55

WIRE SIZE LEGEND
 A = 0.75 - 1.0mm
 B = 1.5 - 2.5mm
 C = 4 - 6mm



Cable Joiner-Splicer

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



Male Quick Connect

	Wire Color	Wire Size	Stud Size	Pk.	Price
H 2021	Male Red.	A	6.3	10	\$2.80
H 2022	Male Red.	A	6.3	100	\$12.60
H 2023	Male Red.	A	6.3	1000	\$84.35
H 2026	Male Blue.	B	6.3	10	\$2.80
H 2027	Male Blue.	B	6.3	100	\$10.40
H 2028	Male Blue.	B	6.3	1000	\$84.35



Solder Lugs

	Wire Color	Wire Size	Stud Size	Pk.	Price
H 1503			3	10	\$2.75
H 1504			3	100	\$7.50
H 1505			3	1000	\$38.95



Double Adaptor

Connects 2 Females to 1 Male Quick Connector

	Wire Color	Wire Size	Stud Size	Pk.	Price
H 2101			6.3	10	\$1.40
H 2102			6.3	100	\$13.25
H 2103			6.3	1000	\$96.50



Fork Type

	Wire Color	Wire Size	Stud Size	Pk.	Price
H 2071	Red	A	4	10	\$2.40
H 2072	Red	A	4	100	\$10.40
H 2073	Red	A	4	1000	\$51.85
H 2076	Red	A	5	10	\$2.40
H 2077	Red	A	5	100	\$10.75
H 2078	Red	A	5	1000	\$51.85
H 2081	Blue	B	4	10	\$2.45
H 2082	Blue	B	4	100	\$11.75
H 2083	Blue	B	4	1000	\$56.60
H 2086	Blue	B	5	10	\$2.45
H 2087	Blue	B	5	100	\$13.75
H 2088	Blue	B	5	1000	\$56.60



Piggyback

Connects Wire to One Female and One Male Quick Connector

	Wire Color	Wire Size	Stud Size	Pk.	Price
H 2011	Red	A	6.3	10	\$3.50
H 2013	Red	A	6.3	100	\$19.70
H 2014	Red	A	6.3	1000	\$141.95
H 2016	Blue	B	6.3	10	\$3.50
H 2018	Blue	B	6.3	100	\$19.70
H 2019	Blue	B	6.3	1000	\$141.95



Ring Type

	Wire Color	Wire Size	Stud Size	Pk.	Price
H 2031	Red	A	3.5	10	\$2.40
H 2032	Red	A	3.5	100	\$8.65
H 2033	Red	A	3.5	1000	\$51.85
H 2036	Red	A	4	10	\$2.40
H 2037	Red	A	4	100	\$8.65
H 2038	Red	A	4	1000	\$51.85
H 2041	Red	A	5	10	\$2.40
H 2042	Red	A	5	100	\$10.40
H 2043	Red	A	5	1000	\$51.85
H 2046	Blue	B	4	10	\$2.45
H 2047	Blue	B	4	100	\$9.20
H 2048	Blue	B	4	1000	\$56.50
H 2051	Blue	B	5	10	\$2.45
H 2052	Blue	B	5	100	\$9.20
H 2053	Blue	B	5	1000	\$56.60
H 2056	Blue	B	6	10	\$2.70
H 2057	Blue	B	6	100	\$11.80
H 2058	Blue	B	6	1000	\$77.85
H 2061	Yellow	C	5	10	\$3.00
H 2063	Yellow	C	5	100	\$14.40
H 2064	Yellow	C	5	1000	\$99.00
H 2066	Yellow	C	6	10	\$3.35
H 2068	Yellow	C	6	100	\$17.90
H 2069	Yellow	C	6	1000	\$127.30



PCB Male Quick Connect

	Wire Color	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 Color	Wire Size	Stud Size	Pk.	Price
H 2121	Red	A	3.9	10	\$3.20
H 2122	Red	A	3.9	100	\$12.95
H 2123	Red	A	3.9	1000	\$117.80
H 2126	Blue	B	3.9	10	\$3.25
H 2127	Blue	B	3.9	100	\$12.95
H 2128	Blue	B	3.9	1000	\$120.95



Male Bullet

	Wire Color	Wire Size	Stud Size	Pk.	Price
H 2151	Red	A	4	10	\$2.95
H 2152	Red	A	4	100	\$10.40
H 2153	Red	A	4	1000	\$96.55
H 2156	Blue	B	4	10	\$2.95
H 2157	Blue	B	4	100	\$10.40
H 2159	Blue	B	4	1000	\$96.55



Heavy Duty Crimping Tool

Ideal for automotive terminals and connectors. Crimping range 0.25mm - 6.0mm.

T 1552 \$54.95



NEW
FOR '93

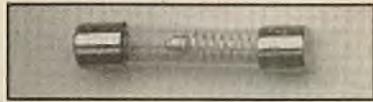
Suits all Red, Blue & Yellow Terminals!

3AG Fuses



Value	Ea	Pk. 10	Pk. 100	Pk. 1000
100mA	\$ 5769	\$ 5770	\$ 5771	\$ 5772
150mA	\$ 5774	\$ 5775	\$ 5776	\$ 5777
250mA	\$ 5779	\$ 5780	\$ 5781	\$ 5782
500mA	\$ 5784	\$ 5785	\$ 5786	\$ 5787
800mA	\$ 5789	\$ 5790	\$ 5791	\$ 5792
1A	\$ 5794	\$ 5795	\$ 5796	\$ 5797
1.5A	\$ 5799	\$ 5800	\$ 5801	\$ 5802
2A	\$ 5804	\$ 5805	\$ 5806	\$ 5807
3A	\$ 5809	\$ 5810	\$ 5811	\$ 5812
5A	\$ 5814	\$ 5815	\$ 5816	\$ 5817
7.5A	\$ 5819	\$ 5820	\$ 5821	\$ 5822
10A	\$ 5824	\$ 5825	\$ 5826	\$ 5827
15A	\$ 5829	\$ 5830	\$ 5831	\$ 5832
20A	\$ 5834	\$ 5835	\$ 5836	\$ 5837
25A	\$ 5839	\$ 5840	\$ 5841	\$ 5842
30A	\$ 5844	\$ 5845	\$ 5846	\$ 5847
Price	.35¢	\$3^{.00}	\$25^{.00}	\$195

3AG Slow Blow Fuses



Value	Ea	Pk. 10	Pk. 100
500mA	\$ 5860	\$ 5861	\$ 5863
1A	\$ 5865	\$ 5866	\$ 5868
1.5A	\$ 5870	\$ 5871	\$ 5873
2A	\$ 5875	\$ 5876	\$ 5878
3A	\$ 5880	\$ 5881	\$ 5883
5A	\$ 5885	\$ 5886	\$ 5888
7.5A	\$ 5890	\$ 5891	\$ 5893
10A	\$ 5895	\$ 5896	\$ 5898
Price	\$1^{.65}	\$13^{.30}	\$55^{.90}

5AG Fuses

Value	Ea
20A	\$ 5975
25A	\$ 5976
30A	\$ 5977
Price	\$1^{.75} ea



Fuses M 205



Value	Ea	Pk. 10	Pk. 100	Pk. 1000
100mA	\$ 5699	\$ 5700	\$ 5701	\$ 5702
150mA	\$ 5704	\$ 5705	\$ 5706	\$ 5707
250mA	\$ 5709	\$ 5710	\$ 5711	\$ 5712
500mA	\$ 5714	\$ 5715	\$ 5716	\$ 5717
800mA	\$ 5719	\$ 5720	\$ 5721	\$ 5722
1A	\$ 5724	\$ 5725	\$ 5726	\$ 5727
1.5A	\$ 5729	\$ 5730	\$ 5731	\$ 5732
2A	\$ 5734	\$ 5735	\$ 5736	\$ 5737
3A	\$ 5739	\$ 5740	\$ 5741	\$ 5742
5A	\$ 5744	\$ 5745	\$ 5746	\$ 5747
7.5A	\$ 5749	\$ 5750	\$ 5751	\$ 5752
10A	\$ 5754	\$ 5755	\$ 5756	\$ 5757
Price	.35¢	\$3^{.00}	\$25^{.00}	\$195

Fuse Dimensions

3AG: 32 x 6 Ø mm
M205: 19 x 5 Ø mm
5AG: 37 x 10 Ø mm

3AG FUSE HOLDERS

Standard 3AG



Panel mount. Mounting Ø 15mm.
10 amps at 250V AC.
\$ 6000 \$1^{.20}

Safety 3AG



Panel mount. Mounting Ø 15mm.
10 amps at 250V AC. Screwdriver
required to open cap.
\$ 5997 'A' Type Screw Off Cap \$1^{.90}
\$ 5995 'B' Type Pop Off Cap \$1^{.90}

Inline 3AG



In line type with leads (approx
140mm each). 3 amps at 12V DC.
\$ 6001 \$1^{.10}

Chassis Mount 3AG



Heavy duty 30 amps at 250V AC.
Simple single hole mounting and
quick connect terminals.
\$ 6010 \$1^{.45}

NEW FOR '93

M205 FUSE HOLDERS

Standard M205



Panel Mount. Mounting Ø 13mm.
10 amps at 250V AC.
\$ 5990 \$1^{.25}

Safety M205



Panel mount. Mounting Ø 12.5mm.
10 amps at 250V AC. Safety type.
Cap is unscrewed by screwdriver.
\$ 5992 \$1^{.00}

PCB Mount M205



PCB mount with protective cover.
10 amps at 250V AC. Pin spacing
22mm.
\$ 5985 .60¢

PCB MOUNT FUSE CLIPS

3AG

\$ 5980 Pk 8 \$1^{.60}
\$ 5981 Pk 100 \$15^{.95}



M205

\$ 5983 Pk 8 \$1^{.55}
\$ 5984 Pk 100 \$14^{.95}

Pin Spacing
M205: 5mm
3AG: 7mm

5AG FUSE HOLDER

Panel Mount 5AG Fuse Holder

Panel mount.
Mounting Ø
22mm. 30
amps at 250V
AC. Uses
10mm x
37mm fuses.
\$ 6030 \$4^{.45}



Thermal Circuit Breaker

Self resetting. Breaks
at 80° C. 10
amps 250V
AC. Mounting hole centres
23.5mm. Contact surface Ø 16mm.
\$ 5610 \$3^{.55}



CIRCUIT BREAKERS

Circuit Breakers

- 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 seconds at 150% rated load
- Max. voltage 250V AC or 50V DC
- Mounting Ø 12mm panel mount
- 35H x 30D x 14W mm

\$ 5503 3 Amp
\$ 5505 5 Amp
\$ 5510 10 Amp
\$ 5515 15 Amp
\$ 5520 20 Amp
\$ 5525 25 Amp
\$ 5530 30 Amp
\$ 5535 35 Amp



All \$6^{.40} ea

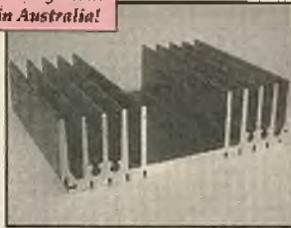
High Efficiency, Extra Heavy Duty

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.

Proudly Made in Australia!

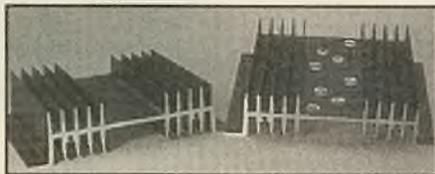
All 125mm wide by 36mm high.

Cat No	Length	Thermal Res.	ea
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}



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}

Proudly Made in Australia!

High Efficiency Fan Type

Black Anodised. Undrilled All 105mm wide.

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}



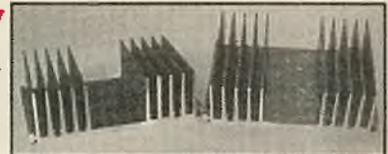
Proudly Made in Australia!

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}



Proudly Made in Australia!

TO-3 Mini-Fin



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

H 0500 \$2^{.90}

Thermalloy TO-3



Includes threaded studs (easily removable) to secure transistors. Thermal resistance 7°C/W.

H 0503 \$1^{.20}
H 0508 Pk100 Nuts to Suit \$7.50

Universal U



Use with flat pack or TO-3 package. Ideal for PC mounting. Thermal resistance 6°C/W.

H 0501 \$1^{.50}

Micro U



Ideal for T 0126 or T 0220 flat pack semis. Thermal resistance 28°C/W.

Dimensions: 18W x 19L x 10H mm

H 0504 .75¢

Mini U

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

H 0502 .95¢



PCB Mount TO-220

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.

Thermal resistance 30.2°C/W.

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

H 0507 .75¢



PCB Mount TO-220

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.

Thermal resistance 18°C/W.

Dimensions: 16W x 16L x 20H mm

H 0506 .85¢



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.

Thermal resistance 9°C/W.

Dimensions: 34W x 12L x 50H

H 0509 \$1^{.65}



"Clip On" Type TO-220

Multi-Fin efficient design, simply push on over TO-220. Thermal Resistance 25°C/W.

H 0505 .75¢



Silicon Rubber Insulation Kits

NEW FOR '93

Each kit includes mounting bushes.



To Suit	Pkt	ea
H 1570 TO-3	4	\$2.95
H 1571 TO-3	100	\$36.50
H 1573 TOP-3	4	\$2.95
H 1574 TOP-3	100	\$27.75
H 1576 TO-220	4	\$1.95
H 1577 TO-220	100	\$11.70
H 1578 TO-126	4	\$1.95
H 1579 TO-126	100	\$11.70

Mica Insulation Kits

Each kit includes mounting bushes.



To Suit	Pkt	ea
H 1580 TO-3	4	\$2.50
H 1582 TO-3	100	\$21.95
H 1583 TOP-3	4	\$2.50
H 1584 TOP-3	100	\$19.95
H 1585 TO-220	4	\$1.95
H 1587 TO-220	100	\$9.95

Heatsink Compound

Unick silicone heat transfer compound is a grease-like silicon material, heavily filled with heat conductive metal oxides. This combination of base and fillers produces a material with higher thermal conductivity. The low bleed properties of this improved compound assure lasting protection for heatsink coupling. Maximum temperature 200°C

H 1600 10g Tube	\$3 ^{.20}
H 1610 150g Tube	\$22 ^{.50}
H 1615 50g Syringe	\$9 ^{.95}



Colour Cap Series



15mm diameter. 1/4" shaft with grub-screw.

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

Push-On 'D' Type

18mm diameter overall. 'D' type to suit 1/4" shaft with flattened edge. Removable coloured caps for precise pointer alignment.



NEW FOR '93

	ea	ea
H 6020 Red	.60¢	.55¢
H 6022 Blue	.60¢	.55¢
H 6024 Grey	.60¢	.55¢
H 6026 Purple	.60¢	.55¢
H 6028 Green	.60¢	.55¢

Black PVC Fluted



Available with grub-screw to suit 1/4" shaft or 18 tooth spline shaft.

	ea	ea
H 6040 15mm Grubscrew	.95¢	.85¢
H 6042 20mm Grubscrew	\$1.10	\$1.00
H 6540 15mm Spline	.85¢	.80¢
H 6542 20mm Spline	.95¢	.90¢

Mini Black PVC

13mm diameter. 1/4" shaft with grub-screw.

NEW FOR '93



	ea	ea
H 6015	.75¢	.70¢



Black PVC

23mm diameter. 1/4" shaft with grub-screw.

	ea	ea
H 6050	.80¢	.75¢

Black PVC

WITH ALUMINIUM CAP 1/4" shaft with grub-screw.



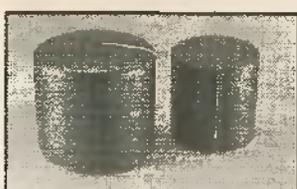
NEW FOR '93

	ea	ea
H 6061 24mm	\$1.00	.90¢
H 6067 32mm	\$1.35	\$1.25

Brushed Black Aluminium

1/4" shaft with grub-screw. Coloured pointer.

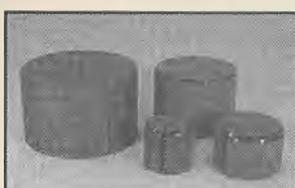
NEW FOR '93



	ea	ea
H 6350 15mm Red	\$2.60	\$2.35
H 6352 15mm Blue	\$2.60	\$2.35
H 6354 15mm Yellow	\$2.60	\$2.35
H 6356 15mm Green	\$2.60	\$2.35
H 6360 22mm Red	\$3.45	\$3.10
H 6362 22mm Blue	\$3.45	\$3.10
H 6364 22mm Yellow	\$3.45	\$3.10
H 6366 22mm Green	\$3.45	\$3.10

Brushed Black Aluminium

1/4" shaft with grub-screw.



	ea	ea
H 6211 16mm	\$2.00	\$1.85
H 6213 22mm	\$2.20	\$2.00
H 6224 30mm	\$2.85	\$2.60
H 6228 40mm	\$3.95	\$3.60

Brushed Silver Aluminium

1/4" shaft with grub-screw.



	ea	ea
H 6331 16mm	\$1.95	\$1.85
H 6333 22mm	\$2.50	\$2.25
H 6335 28mm	\$2.55	\$2.35

Polished Aluminium

18mm diameter. 1/4" shaft with grub-screw



	ea	ea
H 6305	\$1.80	\$1.60

Calibrated Line

WITH ALUMINIUM CAP AND SKIRT

30mm diameter. 1/4" shaft with grub-screw.



	ea	ea
H 6092	\$1.55	\$1.40

Natural Aluminium

1/4" shaft with grub-screw.



Black PVC

WITH ALUMINIUM CAP 20mm diameter. With larger grooves for easy grip. 1/4" shaft with grub-screw.



	ea	ea
H 6080	\$1.40	\$1.30

Calibrated 1-10

WITH ALUMINIUM CAP AND SKIRT

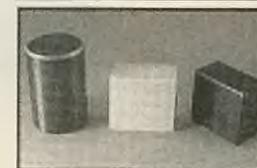
240° 1 to 10 calibrated scale. 30mm diameter. 1/4" shaft with grub-screw.



	ea	ea
H 6090	\$1.55	\$1.40

Caps For Push Button Switches

Two types available.



Rectangular type suits S 1410 and S 1430 (see SWITCH section) switches with 3.3 x 3.33mm shafts. 12.5mm pitch. 12(w) x 7(l) x 10(h) mm. Round type to suit push button switches with 3.3 x 3.3mm shaft. Brushed black aluminium. 10mm overall diameter.

	ea	ea
H 6610 Rectangular White	.35¢	.30¢
H 6620 Rectangular Grey	.35¢	.30¢
H 6630 Rectangular Black	.35¢	.30¢
H 6640 Rectangular Red	.35¢	.30¢
H 6650 Round Type	.50¢	.45¢

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.



Cat. No.	Output Voltage(s)	Max. Current	Energy Auth. Approval No.	Price
M 9000	3, 4.5, 6, 7.5, 9, 12 DC	300mA	W/2115	\$19.95
M 9002	12 DC	300mA	W/2115	\$15.95
M 9004	9 DC	300mA	W/2115	\$15.95
M 9005	6, 9, 12 DC	500mA	W/2115	\$22.50
M 9020	12V AC	500mA	Pending	\$16.95
M 9022	12V DC	1A	W/2289	\$22.50
M 9025	16V AC	1 Amp	Pending	\$19.95
M 9027	16V AC	1.5 Amp	N/10698	\$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



500mA Regulated Power Supply

Voltage selector switch is located behind the unit to avoid accidental adjustment.

Input Voltage:.....240V AC
 Output Voltages:.....3, 4.5, 6, 7.5, 9, 12V DC
 Output Current:500mA
 Energy Authority
 Approval No.W/2289

M 9040 **\$32.50**



1 Amp Power Supply

Input Voltage:.....240V AC
 Output Voltages:.....6, 7.5, 9, 12V, DC
 Output Current:1 Amp
 Energy Authority
 Approval No.W/2115

M 9030 **\$44.00**



2 Amp Regulated Power Supply

Input Voltage:.....240V AC
 Output Voltage:12V DC
 Output Current:2 Amp
 Energy Authority
 Approval No.W/2115

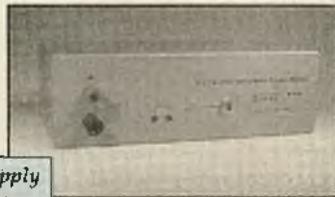
M 9050 **\$69.95**



13.8V 1A UPS

Designed for critical applications where it is important that products remain operational during mains failure, this UPS (Uninterruptible 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** *Ideal Power Supply for Alarm Systems*



Gell Cell Charger

Charging current 300mA at 12V. Includes red and black colour coded spade terminals for easy connection to most gel cell batteries. Energy authority approval W/2289.

M 8020 **\$12.50**



Solar Charger

Charges up to 4 AA Nicads by simply placing in the sunlight. Will charge from dead flat to fully charged in 8 - 10 hours with full sunlight.

A 0230 **\$14.95**

Charge Your Batteries Free from the Sun!



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 and universal star adaptor to suit most appliances.

Output Voltages:.....3, 4.5, 6, 7.5, 9, 12V
 Output Current:800mA

M 8150 **\$16.95**



Ideal for Portable Radios, Cassettes, CD Players etc.

300 Watt Inverter

12V DC to 240V AC

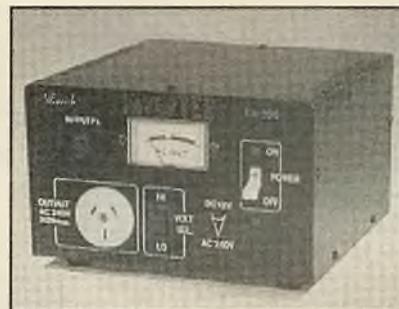
This great value model will power lights, TV, electric shaver and a whole host of other appliances.

Great for camping, out in the bush and any other 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**



GENERAL PURPOSE MAINS TRANSFORMERS

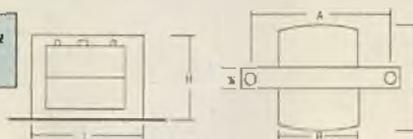
Wound on special nylon 66 flame retardant bobbin, all these mains transformers are made to the Australian Standard AS3108. Models M 2851, M 2852, M 2853, M 2854 and M 2855 are all fitted with primary thermal fuses. All work well within their specifications even under full load conditions. All models are fitted with flying leads on the primaries. Selected models have flying leads on the secondary while others have solder tags.

Abbreviation Legend: FL = Flying Leads

ST = Solder Tags

CT = Centre Tapped

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

All Mains Transformer Primaries 240V

Specifications listed refer to secondary windings

Energy Authority Approval CS 341/W

M 2851	12.6V CT	150mA	FL	\$7.30
M 2852	12.6V CT	300mA	FL	\$7.80
M 2853	12.6V CT	500mA	FL	\$8.20
M 2854	24V CT	150mA	FL	\$7.65
M 2855	30V CT	150mA	FL	\$7.65
M 2154	12V, 15V, 18V	1 Amp	ST	\$11.00
M 2155	6V3, 7V5, 8V5, 9V5, 12V6, 15V	1 Amp	ST	\$10.95
M 2156	6, 9, 12, 15V	2 Amps	ST	\$17.95
M 6672	15, 17V5, 20, 24, 27V5, 30V	1 Amp	ST	\$16.50



MULTI-PURPOSE, HIGH CURRENT TRANSFORMERS

60VA M 2165 \$26^{.50}

Secondary A: 0, 9, 12V ST

Secondary B: 0, 9, 12V ST

100 VA M 2170 \$29^{.95}

Secondary A: 0, 12, 15V ST

Secondary B: 0, 12, 15V ST

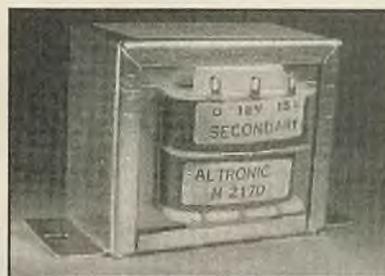
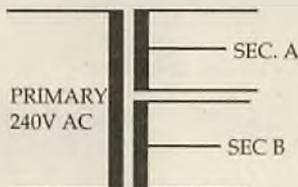
120VA M 2175 \$39^{.95}

Secondary A: 0, 12, 15V ST

Secondary B: 0, 12, 15V ST

See Above Chart for Dimensions

All 3 Models Have Flying Primary Leads 175mm Long and all Secondary Taps are Solder Tags.



Approved to Australian Standard AS 3108
Energy Authority Approval CS 341/W

Selection Table

These transformers have been designed to give a multitude of outputs by either connecting the secondary windings in series or parallel.

Using the table: Select the voltage required in the left hand column and then simply follow the line over to the right until a suitable current rating is found. At the top of the column is the transformer model you require.

Here are some of the configurations available.

	M 2165	M 2170	M 2175
9V	6.6A		
12V	5A	8.3A	10A
15V	4A	6.6A	8A
18V	3.3A		
21V	2.9A		
24V	2.5A	4.1A	5A
27V		3.7A	4.4A
30V		3.3A	4A

PCB MOUNT MAINS TRANSFORMERS

Made to the latest Australian Standard AS3108 these PCB mount transformers are rated modestly for their size. They are wound on flame retardant nylon 66 bobbins. 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 primary 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.

5VA Type All \$10^{.95} ea

Energy Authority Approval Pending

Model SEC.

M 7212 6+6

M 7215 7.5+7.5

M 7218 9+9

M 7224 12+12

M 7230 15+15

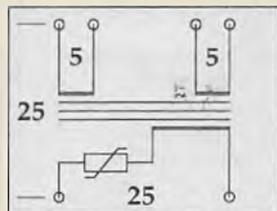
Fuse Type:.....Thermal @ 115°C

Height:.....30mm

Length:.....41mm

Width:.....33mm

Weight:.....160g



7VA Type All \$12^{.95} ea

Energy Authority Approval CS 339/W

Model SEC.

M 7112 6+6

M 7115 7.5+7.5

M 7118 9+9

M 7124 12+12

M 7130 15+15

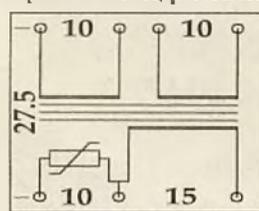
Fuse Type:.....Thermal @ 115°C

Height:.....37mm

Length:.....48mm

Width:.....40mm

Weight:.....265g



TOROIDAL TRANSFORMERS

Why a Toroidal?

- 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

	Diameter	Height	Weight
80VA Models	90mm	35mm	0.9Kgs
160VA Models	100mm	40mm	1.5Kgs
300VA Models	110mm	55mm	2.4Kgs
400VA Models	110mm	73mm	3Kgs
500VA Models	135mm	60mm	3.9Kgs
300VA Inverter Model	110mm	55mm	2.4Kgs
600VA Inverter Model	140mm	60mm	4Kgs
1200VA Inverter Model	160mm	85mm	8.5Kgs

Approved to Australian Standard AS 3108
Certificates of Suitability are Available upon Request



Toroidal Transformers are fast becoming the Industry Standard for Amps, Inverters Power Supplies etc.

NOTE:

Secondary (SEC) Current A - current available where secondaries are connected in parallel.

Secondary (SEC) Current B - current available where secondaries are connected in series.

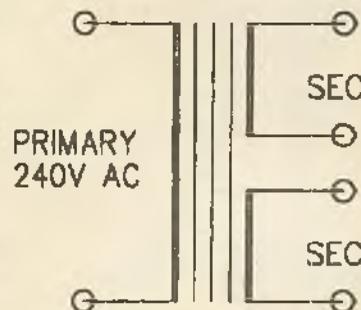
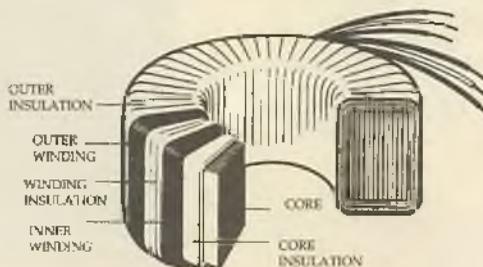
Supplied Hardware

Each transformer is supplied with the following mounting hardware: 2 x Neoprene Washers, 1 x Steel Dished Washer, 1 x Mounting Bolt, 1 x Nut

Energy Authority Approval CS 348/W.

80VA Rating All \$49⁹⁵

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 \$65⁰⁰

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
M 3071	35 + 35 & 15 + 15	4.6	2.3

\$79.95

1 Amp Auxiliary

400VA Rating \$125⁹⁵

Cat. No.	Sec. V	SEC Current A	SEC Current B
M 3115	55 + 55	7.27	3.63

500VA Rating All \$129⁰⁰

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

300VA Rating All \$89⁹⁵

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

Inverter Transformers

M 3200	Inverter	300VA	\$129.00
M 3205	Inverter	600VA	\$180.00
M 3210	Inverter	1200VA	\$355.00

SPEAKER TRANSFORMERS

5W Speaker Transformer

5 Watt 100V Line Speaker Transformer with 4 Tapped Primaries for 8 Ohm speakers.

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 Tap	Power
2K	5W
5K	2W
10K	1W
20K	0.5W

M1109 \$8⁵⁰



15W Speaker Transformer

15 Watt 100V line Speaker Transformer with 5 tapped primaries for 8 Ohm speakers.

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 constant voltage 100V and 70V line PA systems.

(Note power is halved on 70V line)

Primary Tap	Power
666Ω	15W
1K	10W
2K	5W
4K	2.5W
8K	1.25W

M 1115 \$11⁰⁰



HIGH POWER SPEAKER TRANSFORMERS

Ideal for use on high power speakers, sound columns or can be used as amplifier output transformers. All feature grain orientated silicon steel cores for extended frequency response. Typically 30Hz to 20kHz

20 Watt (100 Volt)

Primary Tap	Power
500Ω	20W
666Ω	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 \$19⁵⁰

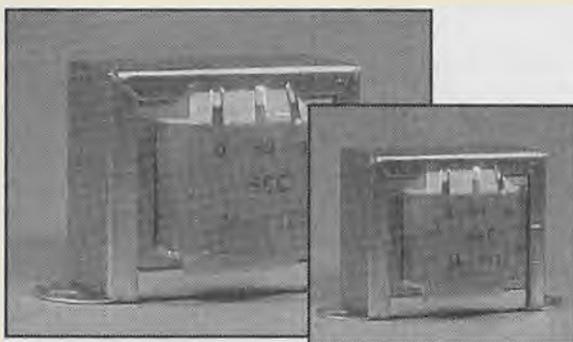
30 Watt (100 Volt)

Primary Tap	Power
320	30W
500	20W
1K	10W

(Half power out for 70V line)

Secondary Taps: 4 & 8 Ohm

M 1125 \$24⁵⁰



40 Watt (100 Volt)

Primary Tap	Power
250	40W
500	20W
1K	10W
2K	5W

(Half power out for 70V line)

Secondary Taps 4 & 8 Ohm

M 1130 \$27⁵⁰

60 Watt (100 Volt)

Primary Tap	Power
160	60W
320	30W
500	20W

(Half power out for 70V line)

Secondary Taps 4 & 8 Ohm

M 1135 \$39⁵⁰

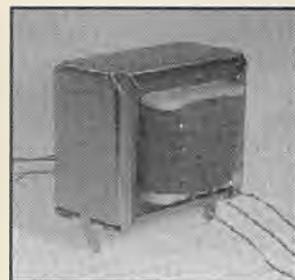
40 Watt Attenuator

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 \$18⁰⁰



High Power 150 Watt

Fantastic For:

High Power Speaker Systems, sound columns or as an amplifier output line transformer.

Superb Quality Transformer wound on low loss Toroidal Core. Input and Output windings can be reversed. Input and Output windings can be configured differently i.e. Input windings series connected for 100V and Output windings paralleled for 4 Ohm.

Max Power.....150 Watt
Frequency Response.....20Hz to 20KHz
Dimensions:125 Diam., 45mm H, 2.5Kg's Leads 200mm

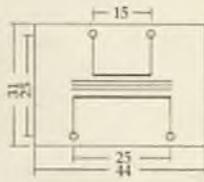
	Connected In Series	Connected In Parallel
Input Windings	100V	50V
Output Windings	16 Ohm	4 Ohm

M 1124 \$110⁰⁰



TELECOM TYPE LINE ISOLATING TRANSFORMERS

600Ω-600Ω Isolation Transformer

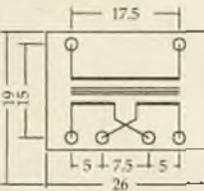


Impedance:600Ω line, 600Ω equip
 Turns Ratio:1:1
 Max Level:0dBm @ 300Hz
 Insertion Loss:1dB max @ 0dBm,
 300Hz - 5kHz
 Frequency Response:300Hz - 10kHz
 +/-1dB, 0dBm, 0DC

Austel Approved

Return Loss:<15dB, 300Hz - 5kHz
 Max Unbalanced DC:60mA
 Proof Test:4kV RMS
 Height:30 mm
 Length:41 mm
 Width:33 mm
 Weight:153 gms
M 1000 \$13⁹⁵

600Ω-600Ω/150Ω Isolation



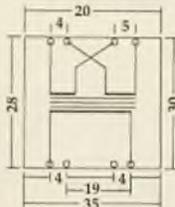
Impedance:600Ω line
 600Ω or 150Ω equip.
 Turns Ratio:1:1
 Max Level:+20dBm @ 200Hz
 Insertion Loss:1dBm max @ 0dBm
 Frequency Response:200Hz - 3KHz
 +/-1dB, 0dBm, 0DC

NEW FOR '93

Austel Approved

Return Loss:<15dB, 200Hz - 3kHz
 Max Unbalanced DC:5mA
 Proof Test:3.5kV RMS
 Height:21 mm
 Length:26 mm
 Width:19 mm
 Weight:25 gms
M 1005 \$13⁹⁵

600Ω-600Ω/150Ω Isolation



Impedance:600Ω line
 600Ω or 150Ω equip.
 Turns Ratio:1:1
 Max Level:+20dBm @ 200Hz
 Insertion Loss:1.8dBm max @ 0dBm
 Frequency Response:300Hz - 3kHz
 +/-1dB, 0dBm, 0DC

NEW FOR '93

Austel Approved

Return Loss:<15dB, 300Hz - 3kHz
 Max Unbalanced DC:80mA
 Proof Test:3.5kV RMS
 Height:17 mm
 Length:35 mm
 Width:29 mm
 Weight:50 gms
M 1010 \$13⁹⁵

AUDIO ISOLATION TRANSFORMERS

Microphone Type

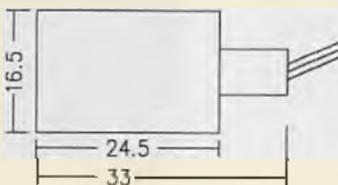
Specifications:
 Impedance:200Ω/50K
 Frequency Response: 45Hz-20kHz
 Insertion Loss:4.5dB
 Diameter:16mm
 Height:32mm
 Weight:25g
M 0701 \$34⁹⁵

Used for coupling audio modules.
 Prevents earth loops, hum etc.
 Essential coupling device where
 DC isolating is required.



Bridging Type

Specifications:
 Impedance:10K/10K
 Frequency Response: 45Hz-20kHz
 Insertion Loss:4.5dB
 Max Level:6dBm
 Diameter:16mm
 Height:32mm
 Weight:25g
M 0702 \$34⁹⁵



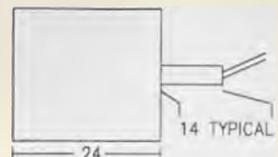
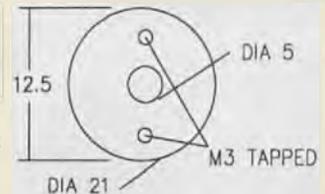
Microphone Type

Specifications:
 Impedance:600Ω/10K
 Frequency Response:45Hz - 20kHz
 Insertion Loss:1dB
 Diameter:21 mm
 Height:24 mm
 Weight:26g
M 0705 \$18⁵⁰



Bridging Type

Specifications:
 Impedance:10K/10K
 Frequency Response:45Hz - 20kHz
 Insertion Loss:1dB
 Max Level:+3dBm
 Diameter:21 mm
 Height:24 mm
 Weight:26g
M 0706 \$18⁵⁰



Low Cost Miniature Transformers

Ideal for Hobbyist Projects. Intercoms, Transistor
 replacements - 450mW rated.

Coupling Type
M 0212 10K-2K CT
M 0216 1K CT-8Ω Both \$2⁹⁵ ea

Output Type
M 0222 3K CT-3K
M 0226 500Ω CT-8Ω Both \$2⁹⁵ ea



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 \$8⁵⁰



HIGH GRADE TOGGLE & PUSH BUTTON SWITCHES

General Specifications:

Contact Rating:5A with resistive load @ 120V AC or 28V DC
 Electrical Life:50,000 make-and-break cycles at full load
 Contact Resistance:10mΩ max. initial @ 2-4V DC
 Insulation Resistance:1,000 MΩ min.
 Dielectric Strength:1,000V RMS @ sea level
 Operating Temperature:-30°C to 85°C

Standard Solder Tail Type

6mm Mounting Hole

	ea	10up
S 1310 SPDT	\$1.95	\$1.75
S 1330 SPDT Centre off	\$2.10	\$1.90
S 1340 SPDT Centre Off. Mom & Lock	\$2.40	\$2.20
S 1345 DPDT	\$2.50	\$2.25
S 1365 DPDT Centre Off	\$3.00	\$2.70
S 1375 DPDT Centre Off, Mom & Lock	\$3.05	\$2.80
S 1385 4PDT	\$7.10	\$6.40
S 1390 4PDT Centre Off	\$7.70	\$6.90
S 1391 SPDT Mom. Push Button	\$4.45	\$4.00
S 1392 DPDT Mom. Push Button	\$5.90	\$5.15



Horizontal Lever Action Type

	ea	10up
S 1325 SPDT	\$2.50	\$2.25
S 1360 DPDT	\$3.10	\$2.75



Materials:

Case:Melamine or diallyl phthalate (DAP)
 Toggle Handle:Chrome plated brass
 Bushing:Nickel plated brass
 Housing:Stainless steel
 Contacts (Toggle Type):Silver plated brass
 Contacts (Push Button Type):Gold plated brass

Straight Terminal PCB Mount Type

6mm Mounting Hole

	ea	10up
S 1315 SPDT	\$1.85	\$1.70
S 1350 DPDT	\$2.60	\$2.35
S 1393 SPDT Mom. Push Button	\$4.45	\$4.00
S 1394 DPDT Mom. Push Button	\$5.75	\$5.15



Right Angle Terminal PCB Mount Type

	ea	10up
S 1320 SPDT	\$2.70	\$2.45
S 1335 SPDT Centre Off	\$2.90	\$2.60
S 1336 SPDT Centre Off, Mom & Lock	\$3.05	\$2.75
S 1355 DPDT	\$3.40	\$3.05
S 1370 DPDT Centre Off	\$3.55	\$3.20
S 1371 DPDT Centre Off, Mom & Lock	\$3.95	\$3.55
S 1395 SPDT Mom. Push Button	\$5.00	\$4.55
S 1396 DPDT Mom. Push Button	\$7.20	\$6.45



ROCKER & TOGGLE SWITCHES

Miniature Rocker

With indicator dot. 6A at 250V AC contact rating. Panel cutout required 19 x 13mm.



S 3210 SPST \$1.05 ea, 10up .95 ea
 S 3212 DPST \$2.25 ea, 10 up \$2.00 ea
 S 3215 SPDT \$2.20 ea, 10up \$1.95 ea

Miniature Illuminated Rocker

Two illumination colours available. 250V AC Neon. DPST. 6A at 250V AC contact rating. Panel Cutout 19 x 13mm.



S 3216 Green \$2.40 ea, 10up \$2.15 ea
 S 3217 Red \$2.40 ea, 10up \$2.15 ea

Miniature Rocker with LED Indicator

SPST. Black finish. Red LED. 19 x 13mm panel cutout. Snap in mounting. Contact rating 6A at 250V AC.



S 3220 \$2.40 ea, 10 up \$2.30 ea

Heavy Duty Illuminated Rocker

DPDT. Illuminated red. 250V AC neon. Contact rating 15A at 250V AC. Panel cutout 27 x 22mm.



S 3240 \$5.50 ea, 10 up \$4.95

Heavy Duty Rocker

DPDT. Black finish. Snap in fit. Panel cutout 30 x 22mm. Contact rating 15A at 250V AC.



S 3245 \$2.80 ea, 10 up \$2.50 ea

Heavy Duty Illuminated Rocker

DPDT. Illuminated red 250V AC Neon lamp. Snap in fit. Panel cutout 30 x 22mm



Contact rating 15A at 250V AC.
 S 3242 \$3.05 ea, 10 up \$2.75 ea

SPST Toggle with On/Off Plate

3A at 125V AC. With On-Off plate. 12mm mounting hole.



S 1040 \$1.75 ea, 10 up \$1.50 ea

DPDT Toggle with On/Off Plate

3A at 125V AC. With On-Off plate. 12mm mounting hole.



S 1050 \$2.30 ea, 10 up \$2.10 ea

Toggle Switch

SPDT. 15A at 250V AC. 12mm mounting hole.



S 1057 \$3.15 ea, 10 up 2.85 ea

Toggle Switch

DPDT. 15A at 250V AC. 12mm mounting hole.



S 1058 \$7.50 ea, 10 up \$6.75 ea

Heavy Duty Toggle Centre Off

DPDT. 5A at 250V AC. With On-Off-On plate. Locks on in both directions. 12mm mounting hole.



S 1055 \$3.55 ea, 10 up \$2.95 ea

Keyboard Switches

SPDT. PCB mount. Available with a red LED (easily replaced) and without.



S 1110 Without LED \$2.75ea, 10up \$2.50ea
 S 1115 With LED \$3.45ea, 10up \$3.00ea

PUSH BUTTON SWITCHES

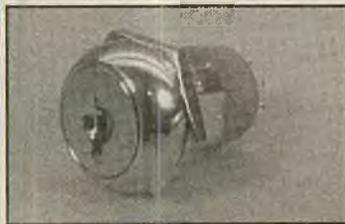
<p>Membrane PCB Mount. SPST. 6mm diameter.</p>  <p>S 1120 .55¢ ea, 10 up 50¢ ea</p>	<p>Membrane PCB Mount. SPST. 12mm diameter</p>  <p>S 1125 .75¢ ea, 10 up 70¢ ea</p>	<p>Lamp Switches 2.5 Amps at 250V AC contact ratings. 10mm mounting hole.</p>  <p>S 1075 SPST \$1.20 ea, 10up \$1.10 ea S 1076 DPDT \$1.75 ea, 10up \$1.60 ea</p>	<p>Miniature Push Button 3A at 125V AC rating. Momentary. SPST. 6mm Mounting Hole.</p>  <p>S 1060 N.O. .85¢ ea, 10 up .75¢ ea S 1070 N.C. \$1.00 ea, 10 up .95¢ ea</p>
<p>DPDT Push Button 1.5A at 250V AC. DPDT. 6mm mounting hole.</p>  <p>S 1091 Alternate Action \$5.90 ea, 10 up \$5.30 ea S 1092 Momentary \$5.95 ea, 10 up \$5.45ea</p>	<p>Snap Action Switches Ultra Long Life Design. SPST. 5mm pin spacing.</p>  <p>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</p>	<p>PCB Mount Push Buttons DPDT. Alternate action.</p>  <p>S 1410 Single .75¢ ea, 10 up .70¢ ea S 1430 6 Way Interlatching \$6.95 ea, 10 up \$6.45</p>	<p>KNOBES TO SUIT H 6610 White H 6620 Grey H 6630 Black H 6640 Red ALL .35¢ ea, 10 up .30¢ ea</p> 
<p>Micro Switch 6A at 250V AC contact rating. SPDT.</p>  <p>S 3250 \$2.55 ea, 10up \$2.30 ea</p>	<p>Micro Switch with Lever Includes 27mm lever actuator. 6A at 250V AC. SPDT.</p>  <p>S 3260 \$2.95 ea, 10 up \$2.75 ea</p> <p style="text-align: center;">NEW FOR '93</p>	<p>Micro Switch SPDT. With push button actuator. 6A at 250V AC. 12mm mounting hole.</p>  <p>S 3255 \$5.50 ea, 10up \$5.00 ea</p>	<p>Square Push Button 3A at 250V AC. SPST. 12.5mm mounting hole.</p>  <p>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</p>

SLIDE SWITCHES

<p>BCD 0-9 Thumbwheel Switch Panel mount BCD coded units that simply slot together to produce a bank of switches to the required size. Each unit is engraved (white on black). Output is coded in BCD with 8- 4-2-1 weighting. Gold plated PCB tracks and connections. 1A at maximum rating. Panel cutout one unit 16 x 30mm. Allow further 8mm per extra unit. Switching Capacity:100mA max 28V DC Carry Current:.....1 Amp max S 3300 Switch \$6.95 ea, 10 up \$6.50 ea S 3305 End Caps to Suit \$1.75 pair, 10 up \$1.60 pair</p> 	<p>DIL Switches Gold plated contacts and pins. Durable self wiping contacts.</p>  <p>S 3045 2 Way \$1.20 ea, 10 up \$1.10 ea S 3050 4 Way \$1.65 ea, 10 up \$1.50 ea S 3055 6 Way \$2.00 ea, 10 up \$1.80 ea S 3060 8 Way \$2.15 ea, 10 up \$1.95 ea S 3065 10 Way \$2.35 ea, 10 up \$2.10 ea S 3068 12 Way \$2.80 ea, 10 up \$2.55 ea</p> <p>Specifications: Rating:.....50V DC 100mA continuous 24V DC 25mA switching Contact Resistance:.....30mΩ max. initially @ 100mA 100mΩ max. after life test Insulation Resistance:.....1000MΩ min. between adjacent terminals @ 500V DC Operation Life:.....Average 10,000 min. Capacitance:.....5pF max. between adjacent terminals Dielectric Breakdown Voltage:.....500V DC min. between adjacent terminals Operation Force:.....500g max Case:.....UL94-VO, PBT plus glass fibre black. Cover:.....UL94-VO, PBT plus glass fibre, red Actuators:.....UL 94-VO, PBT plus glass fibre white Terminals:.....Gold plated phosphor bronze</p>
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<p>Sub Miniature Slide DPDT. With Aluminium handle. Mounting hole centres 19mm.</p>  <p>S 2020 .60¢ ea, 10up .55¢ ea</p>	<p>Miniature DP3T Slide With Aluminium handle.</p>  <p>S 2030 .90¢ ea, 10up .80¢ ea</p>	<p>Miniature DPDT Slide With plastic handle.</p>  <p>S 2035 .80¢ ea, 10up .75¢ ea</p>	<p>Sub Miniature Slide DPDT. With plastic handle. Hole centres 19mm.</p>  <p>S 2010 .45¢ ea, 10up .40¢ ea</p>
<p>Miniature DP4T Slide With plastic handle. 4 position. Hole centres 23mm.</p>  <p>S 2040 \$1.10 ea, 10up \$1.00 ea</p>	<p>PCB DPDT Slide Pitch between pins 4.25mm. Pitch between pin rows 3mm.</p>  <p>S 2060 .45¢ ea, 10up .40¢ ea</p>	<p>Ultra Miniature DPDT PCB Slide Pitch between pins 3mm. Pitch between pin rows 5mm.</p>  <p>S 2063 \$1.10 ea, 10up .95¢ ea</p>	<p>Mounting Screws To Suit S 2015 Pk 100 \$1.95</p>

KEY OPERATED SWITCHES



Connection Details			
2 Position Type		3 Position Type	
	Pole 1	Pole 2	
	Makes to:	Makes to:	
Pos. 1	8, 1	4, 5	Pos. 1 3, 4
Pos. 2	1, 3	5, 7	Pos. 2 4, 5
			Pos. 3 5, 6
			Pole 2 7, 8
			Makes to: 8, 1
			Makes to: 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

- \$ 2502 \$10.95
- \$ 2513 Blank Key to Suit \$1.20

DPDT Two Position

Key Removable in Either Position

- \$ 2504 \$10.95
- \$ 2513 Blank Key To Suit \$1.20

Two Pole Three Position

Key removable in centre position only.

- \$ 2506 \$10.95
- \$ 2513 Blank Key To Suit \$1.20

Two Pole Three Position

Key removable in all positions.

- \$ 2508 \$10.95
- \$ 2513 Blank Key To Suit \$1.20

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.

- \$ 2550 \$4.95
- \$ 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.

- \$ 2500 SPST \$8.95
- \$ 2501 SPDT \$9.95
- \$ 2512 Blank Key to Suit \$1.20



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 49mm from rear of front shroud 58mm overall.

- \$ 2510 \$12.95
- \$ 2512 Blank Key to Suit \$1.20



Tubular Style Two Position

Two sizes available. Radial type tumbler mechanism. Silver plated contacts and terminals.

\$ 2515 250V-3 Amps. \$ 2520 250V-0.5 Amps. Key removable in both positions. Supplied with two keys.

\$ 2515 **Dimensions:** 19.2Ø, overall length 37mm. \$ 2520 **Dimensions:** 15Ø, overall length 23mm.

- \$ 2515 2 Pos, 2 Terminals \$9.95
- \$ 2518 Blank Key to Suit \$2.95
- \$ 2520 2 Pos, 4 Terminals \$6.95
- \$ 2522 Blank Key to Suit \$2.95



ALARM SWITCHES

SPDT Standard Type Reed Switch



Surface mount. SPDT for N.O. and N.C. applications. Includes matching magnet.

Dimensions:53 x 12 x 12mm
Mounting Hole Centres:45mm
Max. Working Distance:15mm

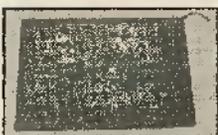
- \$ 5153 \$7.95 ea, 10up \$7.50 ea

Pressure Mat

Ultra thin mat for under carpet or mat etc.

SPST. 530 x 780mm, 6mm thick. With 50cm flylead.

- \$ 5184 \$29.95



Concealed Reed Switch

Contacts close with magnet. Includes matching magnet and mounting screws.

- \$ 5152 \$6.95 ea, 10up \$6.45 ea



Tamper Switch

SPST. As used in alarm system panels, siren covers etc. Contacts close when plunger is pressed in. Requires 19mm mounting hole. Pin length approx 19mm. Press and snap in fit. Suits the s 5460 siren cover.

- \$ 5160 \$1.85 ea, 10 up \$1.65 ea



Mini Reed Switch



Contacts close with magnetism. Fits inside S 5151 coil. Gold plated contacts. Overall length 45mm.

- \$ 5150 \$1.30 ea, 10up \$1.20 ea

Pin Switches

Similar to car courtesy light switches.

Suits car alarms (for boot and bonnet) etc. Two sizes available. Mounting hole 7.5mm.

- \$ 5145 50mm \$1.05 ea, 10up .95¢ ea
- \$ 5147 65mm \$1.10 ea, 10up .95¢ ea



Reed Coil

Suits S 5150 reed switch.

- 12V DC.
- \$ 5151 \$1.15 ea, 10up \$1.05 ea



Mercury Switch

SPST. As used with many car boot lights, tilt alarms etc.

Switch body approx. 20 x 5mm. Lead length approx 30mm. 125V/3A.

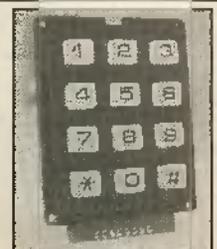
- \$ 3070 \$1.95 ea, 10 up \$1.80 ea



Telephone Type Keypad

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
Key face Dimensions:46 x 52mm
\$ 5380 \$7.45 ea, 10 up \$7.15 ea

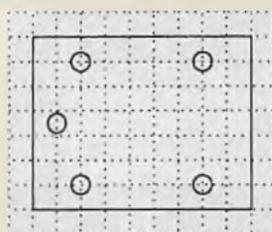


Manufactures, OEM's and bulk users, please ring our parent company to see how you qualify for bulk rates.

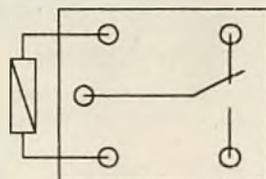
Economy High Current PCB Relay

SPDT. 14mm(H) x 20mm(W) x 12mm(D).
12V DC coil. 5 Amp Contact rating. Coil
resistance 400Ω.

S 4160 \$2.²⁵ ea, 10 up \$2.⁰⁵ ea



GRID 2.54mm

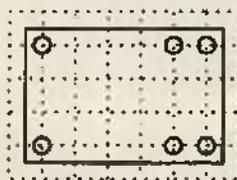


TOP VIEW

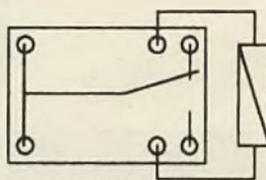
Micro PCB Relay

11.2mm(H) x 15.7mm(W) x
10.2mm(D). SPDT. 12V DC coil. 1A
contact rating. Coil resistance 385Ω.

S 4140 \$2.⁵⁰ ea, 10 up \$2.²⁵ ea



GRID 2.54mm



TOP VIEW

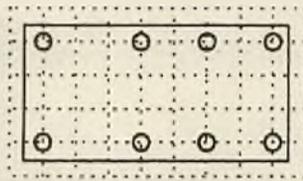
Micro PCB Relay

Pinout compatible with Siemens, NEC, Fujitsu.
High grade sealed construction. 11mm(H) x
20.3mm(W) x 10mm(D). DPDT. 1A contact
rating

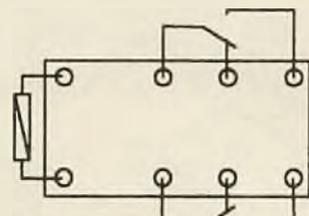
S 4150 12V DC Coil 280Ω

S 4152 24V DC Coil 1kΩ

All \$4.⁹⁵ ea, 10 up \$4.⁶⁵ ea



GRID 2.54mm



TOP VIEW

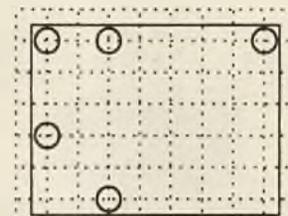
Miniature Power Relays

High quality. Strong sealed construction.
10A contact rating at 120V AC. SPDT.

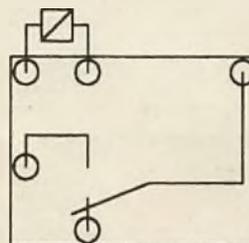
S 4202 12V DC Coil 300Ω

S 4204 24V DC Coil 1.1kΩ

All \$4.⁹⁵ ea, 10 up \$4.⁵⁰ ea



GRID 2.54mm



TOP VIEW

PCB Relays

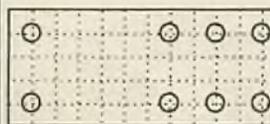
PCB mount. All 25mm high.

SPDT 10A

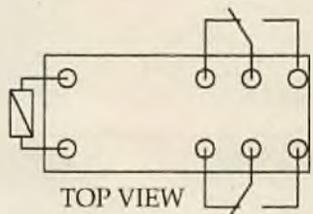
S 4170 12V DC Coil 280Ω

S 4175 24V DC Coil 1.1kΩ

All \$7.⁹⁵ ea, 10 up \$7.⁰⁰ ea



GRID 2.54mm



TOP VIEW



GRID 2.54mm



TOP VIEW

DPDT 5A

S 4185 6V DC Coil 70Ω

S 4190 12V DC Coil 275Ω

S 4195 24V DC Coil 1.1kΩ

All \$9.⁹⁵ ea, 10 up \$9.⁰⁰ ea

Connectors

ALTRONICS
PHONEORDER 008 999 007

2.5, & 3.5 Inline Plugs

	ea	ea
		10up
P 0020 2.5mm Plug Black 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¢



5.35mm Inline Plugs

	ea	ea
		10up
P 0040 6.35mm Plug Black Mono	.90¢	.85¢
P 0044 6.35mm Plug Black Stereo	\$1.20	\$1.10
P 0050 6.35mm Plug Metal Mono	\$1.40	\$1.30
P 0055 6.35mm Plug Metal Stereo	\$1.80	\$1.65



5.35mm 90° Inline Plugs

	ea	ea
		10up
P 0042 6.35mm Plug 90° Mono	\$1.60	\$1.40
P 0046 6.35mm Plug 90° Stereo	\$1.90	\$1.70



3.5 & 6.35mm Inline Sockets

	ea	ea
		10up
P 0082 3.5mm Socket Line Mono	.90¢	.80¢
P 0084 3.5mm Socket Line Stereo	.95¢	.85¢
P 0078 6.35mm Socket Line Mono	\$1.15	\$1.00
P 0080 6.35mm Socket Line Stereo	\$1.35	\$1.25



2.5 & 3.5mm Chassis & PCB Sockets

	ea	ea
		10up
P 0088 2.5mm Socket Chassis Mount Mono SPST Switched	.55¢	.50¢
P 0090 3.5mm Socket Chassis Mount Mono SPST Switched	.55¢	.50¢
P 0092 3.5mm Socket Chassis Mount Stereo DPDT Switched	.85¢	.75¢



5.35mm Chassis Sockets

	ea	ea
		10up
P 0065 6.35mm Socket Chassis Mount Mono SPST Switched	\$1.90	\$1.70
P 0068 6.35mm Socket Chassis Mount Stereo	\$1.90	\$1.70
P 0072 6.35mm Socket Chassis Mount Stereo DPDT Switched	\$1.95	\$1.75
P 0074 6.35mm Socket Chassis Mount Stereo DPDT Switched Insulated from chassis	\$2.50	\$2.25
P 0075 6.35mm Socket Chassis Mount Stereo 3PST Switched Insulated from chassis	\$1.95	\$1.75
P 0076 6.35mm Socket PCB Mount Stereo DPDT Switched Insulated from chassis	\$2.30	\$2.10



GENUINE CANNON PLUGS & SOCKETS

3 Pin Cannon

	Cannon Part No.	ea	ea
			10up
P 0900 Line Female	AXR-3-11	\$5.95	\$5.50
P 0902 Line Male	AXR-3-12	\$5.50	\$5.00
P 0904 Chassis Female	AXR-3-31	\$6.95	\$6.50
P 0906 Chassis Male	AXR-3-32	\$4.50	\$4.00



5 Pin Cannon

		ea	ea
			NEW FOR '93
P 0920 Line Female	AXR-5-11	\$14.25	\$13.75
P 0922 Line Male	AXR-5-12	\$9.25	\$8.75
P 0924 Chassis Female	AXR-5-31	\$13.95	\$13.45
P 0926 Chassis Male	AXR-5-32	\$7.95	\$7.25



240V Mains Rated Cannon

		ea	ea
			NEW FOR '93
P 0930 Line Female	AXR-LNE-11	\$12.95	\$12.45
P 0932 Line Male	AXR-LNE-12	\$13.35	\$12.75
P 0934 Chassis Female	AXR-LNE-31	\$9.95	\$9.45
P 0936 Chassis Male	AXR-LNE-31	\$9.25	\$8.75



PDN Speaker Series 3 Pin Cannon

		ea	ea
P 0940 Line Female	AXR-PDN-11	\$12.40	\$11.90
P 0942 Line Male	AXR-PDN-12	\$12.75	\$12.25
P 0944 Chassis Female	AXR-PDN-31	\$8.95	\$8.45
P 0946 Chassis Male	AXR-PDN-32	\$8.65	\$8.15



DIN PLUGS & SOCKETS

Din Line Plugs

	ea	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 1154 5 Pin 180° Right Angle	\$1.60	\$1.45
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



Din Line Sockets

	ea	ea
		10up
P 1190 2 Pin	.60¢	.55¢
P 1192 5 Pin 180°	\$1.20	\$1.10
P 1194 6 Pin 240°	\$1.10	\$1.00
P 1196 7 Pin 270°	\$1.10	\$1.00



Din Chassis Mount Sockets

	ea	ea
		10up
P 1168 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	ea
		10up
P 1188 5 Pin 180°	\$1.50	\$1.35



Universal 5 Pin

	ea	ea
		10up
P 0186 Plug 240°	\$1.00	.90¢
P 0190 Socket 240°	\$1.00	.90¢



AUDIO PLUGS & SOCKETS

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 0195 Plug Aluminium Red
P 0196 Plug Aluminium Black
NEW FOR '93
.95¢ ea, 10up .90¢ ea



P 0197 Socket Aluminium Red
P 0198 Socket Aluminium Black
NEW FOR '93
.95¢ ea, 10up .90¢



P 0203 Socket Chassis Mount
.85¢ ea, 10up .75¢



P 0208 Socket PCB Mount
.95¢ ea, 10up .90¢ ea



P 0209 Socket PCB Mount
.65¢ ea, 10up .60¢ ea

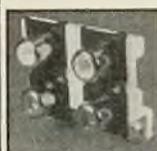


Panel Mount RCA Sockets



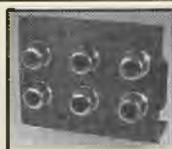
P 0205 2 Way .75¢ ea
P 0206 4 Way \$1.30 ea

P 0210 1 x 2 Way PCB Mount
.75¢ ea, 10up .65¢ ea



P 0211 2 x 2 Way PCB Mount
\$1.50 ea, 10up \$1.30 ea

P 0213 3 x 2 Way PCB Mount
\$3.50 ea, 10up \$3.35 ea



Panel Mount Screw Terminals



P 2020 2 Way .80¢ ea
P 2022 4 Way \$1.30 ea

4 Pin Mic Plugs and Sockets

P 0950 Plug 4 Pin \$2.30 \$2.05
P 0955 Socket 4 Pin \$2.30 \$2.05



NEW FOR '93

Spring Lever Speaker Terminals

P 2010 2 Way Rectangular. Mounting Hole Centres 44mm

\$1.65 ea,
10up \$1.55 ea

P 2012 4 Way Rectangular Mounting Hole Centres 61mm

\$2.45 ea,
10up \$2.15 ea



P 2011 2 Way Round 75mm Ø
\$2.95 ea,
10up \$2.75 ea



P 2015 2 Way Square \$1.55 ea,
10up \$1.40 ea



NEW FOR '93

Plug Adaptors

	From	To	ea	
			ea	10up
P 0300	6.35mm Stereo Male	3.5mm Stereo Female	\$1.50	\$1.25
P 0310	6.35mm Stereo Male	3.5mm Mono	\$1.50	\$1.25
P 0320	3.5mm Stereo Male	6.35mm Stereo	\$1.50	\$1.25
P 0330	6.35mm Mono Male	3.5mm Mono	\$1.50	\$1.25
P 0340	3.5mm Stereo Male	3.5mm Mono	\$1.50	\$1.25
P 0350	3.5mm Mono Male	3.5mm Stereo	\$1.50	\$1.25
P 0352	3.5mm Female	3.5mm Female	\$1.25	\$1.10
P 0355	RCA Female	3.5mm Mono Female	\$1.35	\$1.25

	From	To	ea	
			ea	10up
P 0358	RCA Female	RCA Female	\$1.35	\$1.25
P 0360	3.5mm Mono Male	6.35mm Mono Female	\$1.50	\$1.25
P 0370	3.5mm Mono Male	6.35mm Stereo Female	\$1.50	\$1.25
P 0372	1 x 3.5 Stereo Male	2 x RCA Female	\$2.45	\$2.20
P 0373	1 x RCA Male	2 x RCA Female	\$1.95	\$1.80
P 0374	1 x 6.35mm Stereo Male	2 x RCA Female	\$2.75	\$2.50
P 0375	1 x 3.5 Stereo Male	2 x 3.5 Mono Female	\$3.50	\$3.15
P 0972	3 Pin XLR Male	3 Pin XLR Male	\$9.95	\$8.95
P 0980	3 Pin XLR Female	3 Pin XLR Female	\$19.95	\$17.95



LOW VOLTAGE POWER CONNECTORS

Car Cigarette Lighter Plugs & Socket



P 0155 Socket Line \$2.20 ea
P 0158 Plug with Fuse Line \$1.95 ea
P 0160 Plug Line .95¢ ea

DC Jacks

	ea	10up
P 0120 Socket 2.1mm Pin PCB Mount	.60¢	.55¢
P 0121 Socket 2.5mm Pin PCB Mount	.70¢	.65¢
P 0122 Socket 2.1mm Pin Chassis Mount	\$2.35	\$2.15
P 0123 Socket 2.5mm Pin Chassis Mount	\$2.25	\$2.00
P 0124 Socket 2.1mm Pin Chassis Mount	.75¢	.70¢
P 0125 Socket 2.5mm Pin Chassis Mount	.75¢	.70¢
P 0136 Plug 1.1mm Pin Line	.70¢	.65¢
P 0137 Plug 1.3mm Pin Line	.70¢	.65¢
P 0134 Plug 2.1mm Pin Line	.75¢	.70¢
P 0135 Plug 2.5mm Pin Line	.75¢	.70¢



P 0124 & P 0125



P 0122 & P 0123



P 0120 & P 0121



P 0134 P 0135,
P 0136 & P 0137

Water-Proof Plugs

This great new plug and socket arrangement is perfect for automotive, boating, outdoor applications etc. 4 conductor with approx 260mm of cable extending from each plug.

NEW FOR '93

P 0290 \$6.⁹⁵ pair, 10 pair up \$6.²⁵ pair



D SERIES COMPUTER CONNECTORS

Standard Solder Pins

	ea	10up
P 3000 9 Pin Male	\$1.50	\$1.35
P 3010 9 Pin Female	\$1.50	\$1.35
P 3100 15 Pin Male	\$1.75	\$1.60
P 3110 15 Pin Female	\$1.75	\$1.60
P 3200 25 Pin Male	\$1.95	\$1.75
P 3210 25 Pin Female	\$1.95	\$1.75
P 3070 15 Pin D9 Male	\$4.35	\$3.95
P 3080 15 Pin D9 Female	\$4.35	\$3.95



NEW FOR '93

All Connectors Gold Plated

Right Angle PCB Mount

	ea	10up
P 3020 9 Pin Male	\$2.25	\$2.00
P 3030 9 Pin Female	\$2.25	\$2.00
P 3120 15 Pin Male	\$2.50	\$2.25
P 3130 15 Pin Female	\$2.50	\$2.25
P 3220 25 Pin Male	\$2.95	\$2.65
P 3230 25 Pin Female	\$2.95	\$2.65



Straight Pins PCB Mount

	ea	10up
P 3040 9 Pin Male	\$1.95	\$1.75
P 3050 9 Pin Female	\$1.95	\$1.75
P 3140 15 Pin Male	\$2.10	\$1.90
P 3150 15 Pin Female	\$2.10	\$1.90
P 3240 25 Pin Male	\$2.50	\$2.25
P 3250 25 Pin Female	\$2.50	\$2.25

See Computer Accessories for D Series Leads & Adaptors



Back Shell Covers to Suit

	ea	10up
P 3090 9 Pin	\$1.95	\$1.80
P 3190 15 Pin	\$2.20	\$1.95
P 3290 25 Pin	\$2.50	\$2.20

Spacer Screw Packs

	ea	10up
P 3310 Pack 10 Sets	\$4.95	\$4.15
P 3312 Pack 100 Sets	\$39.95	\$34.95

MULTI-PURPOSE CONNECTORS

PCB Mount Boxed Headers with Locking Levers



Straight Type

	ea	10up
P 5110 10 Pin	.70c	.60c
P 5116 16 Pin	\$1.05	.95c
P 5120 20 Pin	\$1.20	\$1.05
P 5126 26 Pin	\$1.45	\$1.30
P 5134 34 Pin	\$1.75	\$1.60
P 5150 50 Pin	\$2.50	\$2.30

90 Degree Type

	ea	10up
P 5210 10 Pin	.80c	.75c
P 5216 16 Pin	\$1.10	\$1.00
P 5220 20 Pin	\$1.15	\$1.05
P 5226 26 Pin	\$1.55	\$1.40
P 5234 34 Pin	\$1.95	\$1.75
P 5250 50 Pin	\$2.65	\$2.40

Cable Mounting Socket

With Strain Relief



	ea	10up
P 5310 10 Pin	\$1.30	\$1.20
P 5316 16 Pin	\$1.50	\$1.35
P 5320 20 Pin	\$1.70	\$1.55
P 5326 26 Pin	\$1.85	\$1.70
P 5334 34 Pin	\$2.00	\$1.80
P 5350 50 Pin	\$3.85	\$3.50

IDC 'D' Range Connectors

	ea	10up
P 4140 25 Pin Male	\$3.50	\$3.15
P 4150 25 Pin Female	\$3.50	\$3.15



Edge Connectors

NEW FOR '93

	ea	10up
P 5370 10 Way	\$1.05	.95c
P 5375 34 Way	.70c	.60c



PCB Mount Boxed Headers



	ea	10up
P 5010 10 Pin	.45c	.40c
P 5016 16 Pin	.75c	.70c
P 5020 20 Pin	.80c	.75c
P 5026 26 Pin	\$1.00	.90c
P 5034 34 Pin	\$1.25	\$1.15
P 5050 50 Pin	\$1.70	\$1.55

Din 41612 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 inch pitch between rows, allowing horizontal mounting on Eurocards whilst the mating sockets have flow solder (4mm) spills. 64-way A and C 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:

Proof Voltage:	1000V DC min
Max. Current Per Contact:	1.5A
Contact Resistance:	15M Ohm max
Insulation Resistance:	10 ¹² Ohm min
Temperature Range:	-55° C to 125° C
Insertion Force per way:	.95gm
Extraction Force per way:	.95gm

Save up to 50% on Similar Models. As used by Many Manufacturers!



	ea	10up
P 4832 32 Way - Rows A & C	\$3.00	\$2.70
P 4864 64 Way - Rows A & C	\$3.00	\$2.70
P 4896 96 Way - Rows A, B & C	\$3.70	\$3.35

Right Angle PCB Mount



	ea	10up
P 4932 32 Way - Rows A & C	\$3.30	\$3.00
P 4964 64 Way - Rows A & C	\$3.95	\$3.55
P 4996 96 Way - Rows A, B & C	\$4.95	\$4.45

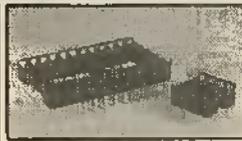
Straight PCB Mount

IC & TRANSISTOR SOCKETS



Machined Pin & 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	\$1.55	\$1.45
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¢	.70¢
P 0575 40 Pin	.95¢	.80¢



PLCC Sockets

	ea	10up
P 5528 28 Pin	\$1.80	\$1.65
P 5532 32 Pin	\$1.90	\$1.70
P 5544 44 Pin	\$1.95	\$1.80
P 5552 52 Pin	\$2.05	\$1.85
P 5568 68 Pin	\$2.40	\$2.20
P 5584 84 Pin	\$2.60	\$2.35

T03 Transistor Socket

P 2301	\$1.65 ea, 10up \$1.50 ea
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TERMINAL STRIPS & CONNECTORS ETC.

Pluggable Terminal Blocks

Screw Terminal Plug
With Wire Protect
Clamp
5.08mm (0.2") Pin
Spacing
10A at 300V



NEW FOR '93

	ea	10up
P 2170 2 way	\$1.85	\$1.70
P 2171 3 way	\$2.80	\$2.50
P 2172 6 way	\$5.55	\$5.00
P 2173 8 way	\$7.40	\$6.70
P 2174 10 way	\$9.30	\$8.30
P 2175 12 way	\$11.00	\$10.00

PCB Mount Sockets

Specifications as above

NEW FOR '93

	Vertical Mount	Horizontal Mount	ea	10up
2 way	P 2180	P 2190	.65¢	.60¢
3 way	P 2181	P 2191	\$1.00	.90¢
6 way	P 2182	P 2192	\$1.90	\$1.75
8 way	P 2183	P 2193	\$2.60	\$2.30
10 way	P 2184	P 2194	\$3.20	\$2.85
12 way	P 2185	P 2195	\$3.85	\$3.45

12 Way Terminals Blocks



250V
Rated

	ea	10up
P 2100	\$2.45	\$2.00
P 2110 Wire Protect Type	\$4.05	\$3.65

PCB Mount Screw Terminals

Centred Pin Type

	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 2096 10 way	\$4.20	\$3.80
P 2098 12 way	\$4.95	\$4.50

Pin Spacing:.....8.25mm

Current Rating:.....15A at 300V

Solder Pins:.....Tin Plated Brass

Screw:.....Nickel Plated Steel

Housing:.....Polyamide

UL94V-O, Black



Centre Pin Type



Off-Centre Pin Type

Off-Centre Pin Type

	ea	10up
P 2091 4 way	\$2.25	\$1.95
P 2093 6 way	\$2.95	\$2.45
P 2095 8 way	\$3.50	\$3.20
P 2097 10 way	\$4.20	\$3.80
P 2099 12 way	\$4.95	\$4.50

PCB Mount Wafer Strip



3.96mm Spacing

NEW FOR '93

	ea	10up
P 5602 2 pin	.15¢	.14¢
P 5603 3 pin	.20¢	.19¢
P 5604 4 pin	.30¢	.25¢
P 5606 6 pin	.45¢	.40¢
P 5608 8 pin	.55¢	.50¢
P 5610 10 pin	.70¢	.65¢
P 5612 12 pin	.85¢	.75¢
P 5616 16 pin	\$1.10	\$1.00
P 5620 20 pin	\$1.40	\$1.25

Crimp Housing



3.96mm Spacing

NEW FOR '93

	ea	10up
P 5642 2 pin	.25¢	.20¢
P 5643 3 pin	.35¢	.30¢
P 5644 4 pin	.35¢	.25¢
P 5646 6 pin	.60¢	.55¢
P 5648 8 pin	.75¢	.70¢
P 5650 10 pin	.90¢	.80¢
P 5652 12 pin	\$1.10	.95¢
P 5656 16 pin	\$1.40	\$1.25
P 5660 20 pin	\$1.75	\$1.55

Tag Strips



	ea	10up
P 2203 3 way	.35¢	.30¢
P 2205 5 way	.40¢	.35¢
P 2209 9 way	.80¢	.75¢

Pin Headers & Shunts

Gold Plated Contacts



	ea	10up
2.54mm Spacing		
P 5410 Straight 40 Pin Dual	.90¢	.80¢
P 5420 90° 40 Pin Dual	\$1.75	\$1.60
P 5430 Straight 40 Pin Single	.50¢	.45¢
P 5440 90° 40 Pin Single	\$1.00	.90¢
P 5450 Pk10 Open Cover Shunt	\$1.60	\$1.45
P 5455 Pk100 Open Cover Shunt	\$14.95	\$13.45
P 5460 Pk1000 Open Cover Shunt	\$129.95	\$115.95

Pin Header Plugs

2.54mm Spacing

NEW FOR '93

	ea	10up
P 5472 2 Way	.10¢	.09¢
P 5474 4 Way	.20¢	.18¢
P 5476 6 Way	.30¢	.27¢
P 5480 10 Way	.50¢	.45¢
P 5470 Pack 10 Crimp Pins to Suit	.50¢	.45¢



PCB Terminal Blocks

5mm Pin Pitch

	ea	10up
P 2034 2 way	.60¢	.55¢
P 2035 3 way	.85¢	.80¢
P 2044 45° 2 way	.60¢	.55¢
P 2045 45° 3 way	.85¢	.80¢
P 2064 90° 2 way	.60¢	.55¢
P 2065 90° 3 way	.90¢	.80¢



Panel Barrier Screw Terminals

	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

Connectors

ALTRONICS
PHONEORDER 008 999 007

75 Ohm Pal TV Connectors



	ea	10up
P 0227 Metal Plug	\$1.80	\$1.60
P 0228 Plastic Plug	.95¢	.85¢
P 0230 Metal Line Socket	\$1.65	\$1.45

P 0233 Female To Female Adaptor
\$1.00 ea, 10up .90¢ ea
NEW FOR '93



P 0229 Chassis Mount Socket
.95¢ ea, 10up .85¢ ea



P 0235 Chassis Mount Socket
\$1.05 ea, 10up .95¢ ea
NEW FOR '93



Car Antenna Plug & Socket



	ea	10up
P 0185 Plug	.80¢	.75¢
P 0236 Socket	.85¢	.80¢

Scart Plug

P 0522 21 Pin
\$3.95 ea,
10up \$3.60 ea



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 \$1.95 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)
\$2.25 ea, 10up \$2.00 ea



P 0517 Inline Socket (Clamp type)
\$1.70 ea, 10up \$1.55 ea
NEW FOR '93



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



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
\$2.50 ea, 10up \$2.35 ea



P 0390 Female BNC To Female BNC
\$5.25 ea, 10up \$4.75 ea



P 0358 Female RCA To Female RCA
\$1.35 ea, 10up \$1.25 ea
NEW FOR '93



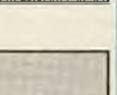
P 0391 2 x Binding Posts To Male BNC
\$6.50 ea, 10up \$5.85 ea
NEW FOR '93



P 0392 3 Way 'T' All BNC Females
\$4.50 ea, 10up \$4.25 ea



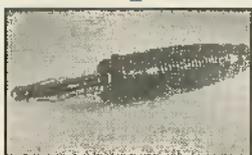
P 0394 3 Way 'T' One Male BNC To Two Female BNC
\$6.95 ea, 10up \$6.50 ea



MISCELLANEOUS PLUGS & SOCKETS

Cross Hole Banana Plug

With screw connection for wire termination. Will accept another banana plug into crosshole.



	ea	10up
0274 Red	\$1.45	\$1.30
0276 Black	\$1.45	\$1.30

Stackable Banana Plug

With screw connection for wire termination. Plugs can be stacked end on end.



	ea	10up
0282 Red	\$1.60	\$1.50
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



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¢

Binding Posts

With 4mm Banana Socket.

	ea	10up
P 0238 Red	.80¢	.75¢
P 0240 Black	.80¢	.75¢

Captive Head Binding Posts

With 4mm Banana Socket and 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



Stereo Binding Posts

NEW FOR '93

	ea	10up
P 0257	\$4.60	\$4.15

IC Test Clips



57mm overall length. With solder 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 multimeter leads. (Not suitable for banana type multimeter plugs).

P 0182 Red	\$1.20	\$1.00
P 0183 Black	\$1.20	\$1.00

Crocodile Clips

Small

P 0100 Red	.50¢	.45¢
P 0101 Black	.50¢	.45¢



Medium

P 0110 Red	.55¢	.50¢
P 0111 Black	.55¢	.50¢

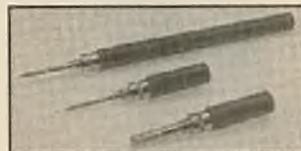


Large

30A 12V DC		
P 0012 Red	\$1.65	\$1.40
P 0013 Black	\$1.65	\$1.40



Multimeter Plugs & Test Probes



	ea	10up
P 0165 Plug Red	.70¢	.65¢
P 0166 Plug Black	.70¢	.65¢
P 0268 Banana Plug Red	.95¢	.85¢
P 0270 Banana Plug Black	.95¢	.85¢
P 0167 Probe Red	.95¢	.85¢
P 0168 Probe Black	.95¢	.85¢

240V AC MAINS PLUGS & SOCKETS

Extension Lead Socket

P 8230 \$5.95 ea, 10up \$5.45



Mains Plug Clear

P 8215 \$2.70 ea, 10up \$2.50



Mains Plug

P 8210 \$2.70 ea, 10Up \$2.50



IEC Chassis Mount Male Socket With Fuse Holder



Holds M205 type fuse, and a spare.
P 8324 \$4.50 ea, 10 up \$4.10ea

IEC Chassis Mount Male Socket



P 8320 \$2.95 ea, 10 up \$2.65 ea

IEC Chassis Mount Female Socket

NEW FOR '93



P 8326 \$3.95 ea, 10 up \$3.80 ea

IEC Female Line Plug



P 8310 \$1.95 ea, 10 up \$1.75 ea

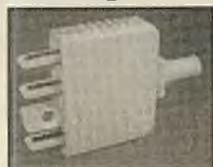
IEC Male Line Socket



P 8328 \$3.90 ea, 10 up \$3.50 ea

TELEPHONE PLUGS & SOCKETS

Telephone Plug (605A)



P 0985 \$3.75 ea, 10up \$3.35 ea

Telephone Line Socket (610T)



P 0987 \$4.35 ea, 10up \$3.95 ea

Telephone Wall Socket (610W)



P 0988 \$5.50 ea, 10up \$4.95 ea

For Our Full Range of Telephone Accessories and Equipment see CONSUMER PRODUCTS Section

Modular Telephone Plugs and Sockets

PCB Mount Sockets Gold Plated Contacts



	ea	10up
P 1402 4 Way-4 Wire	\$1.15	\$1.05
P 1405 6 Way-6 Wire	\$1.50	\$1.35
P 1408 8 Way-8 Wire	\$3.85	\$3.75

Crimp Type Plugs Gold Plated Contacts



	ea	10up
P 1412 4 Way-4 Wire	.25¢	.20¢
P 1414 6 Way-4 Wire	.25¢	.20¢
P 1415 6 Way-6 Wire	.30¢	.25¢
P 1418 8 Way-8 Wire	.50	.45

Low Profile Modular Sockets Gold Plated Contacts



	ea	10up
P 1422 4 Way-4 Wire	\$1.15	\$1.05
P 1425 6 Way-6 Wire	\$1.50	\$1.35
P 1428 8 Way-8 Wire	\$3.85	\$3.75

See WIRE & CABLES Section for Cable to Suit. Also TOOLS Section for Crimping Tool.

GENERAL PURPOSE CABLE

Light Duty Hookup



Single conductor. Tinned. 7 strands of 0.16mm.

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 **.20¢** per metre,
or **\$10.00** per 100m roll

Medium Duty Hookup



Single Conductor. Tinned. 14 strands of 0.20mm.

W 0260 Red W 0263 Green
W 0261 Black W 0265 Blue
W 0262 Brown W 0268 White

All **.25¢** per metre,
or **\$18.00** per 100m roll

Heavy Duty Hookup



Single conductor. 24 strands of 0.20mm.

W 0270 Red W 0273 Brown
W 0271 White W 0274 Green
W 0272 Black W 0275 Blue

All **.30¢** per metre,
or **\$22.00** per 100m roll

Extra Heavy Duty Hookup



Single conductor. 32 strands of 0.20mm.

W 0280 Brown W 0283 Red
W 0281 White W 0284 Black
W 0282 Blue W 0285 Green

All **.40¢** per metre,
or **\$25.00** per 100m roll

Figure '8' Cable

All Multi Strand Cable



Cat. No.	Conductor	Colour	Trace Colour	Reel Length	Per Metre	Per Roll
W 0100	2 x 14/.14	Grey	Black	100m	.35¢	\$25.00
W 0105	2 x 14/.19	Grey	Black	100m	.45¢	\$30.00
W 0110	2 x 19/.19	White	Red	200m	.50¢	\$70.00
W 0112	2 x 19/.19	White	Black	200m	.50¢	\$70.00
W 0114	2 x 19/.19	White	Green	200m	.50¢	\$70.00
W 0116	2 x 19/.19	White	Blue	200m	.50¢	\$70.00
W 0122	2 x 24/.20	Red	Black	200m	.75¢	\$100.00
W 0124	2 x 24/.20	White	Red	500m	.75¢	\$225.00
W 0125	2 x 24/.20	White	Black	500m	.75¢	\$225.00
W 0126	2 x 24/.20	White	Green	500m	.75¢	\$225.00
W 0127	2 x 24/.20	White	Blue	500m	.75¢	\$225.00

Telephone Type Cable



Each Conductor Single Strand

	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

Flat Modular Telephone Cable



As used on most modern phones. Suits our range of crimp style modular plugs (See Telephone Accessories section). Multi-stranded.

	Per Metre	Per 200m Roll
W 0312 4 Core	.60¢	\$55.00
W 0313 6 Core	.80¢	\$75.00
W 0314 8 Core	\$1.15	\$105.00

Whopper Speaker Cable

Low loss. 2 x 90 strands of 0.18mm.

W 0130 **\$2.95** per metre, 50m roll **\$125.00**



Mains Cable

3 Core, 7.5 Amp 250V.

W 0570 **\$2.10** per metre, or **\$190.00** per 100m roll



4 Core Security Cable

Quality 14 strands of 0.20mm (each conductor) for professional security-alarm systems. Inner conductor colours; yellow, green, red, blue. Three outer sheath colours available.

W 0354 Grey W 0355 Black W 0356 White

.80¢ per metre, or **\$140.00** per 200m roll



SCREENED RF, AUDIO & COMPUTER CABLE

Special Audio-Data Cable

2 x 2 pairs.

Individually shielded and drain wire.

W 1032 **\$1.95** per metre,
or **\$150.00** per 100m roll



Extra Heavy Twin Mic Cable

20 x .12mm by 2.

Suit entertainment work

W 1030 **\$2.20** per metre,
or **\$150.00** per 100m roll



25 Core Computer Interface Cable

25 x 7/.16mm. Tinned copper with drain. Foil shielded.

W 0720 **\$4.95** per metre, or **\$410.00** per 100m roll



100% Screened Computer Cable



7 strands of 0.2mm. Tinned Aluminium 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 Cables

Supplied on 100m reels. Eminently suitable for microphone cable, chassis wiring, building wiring. Multi-stranded Core.

	Per Metre	Per 100m Roll
W 1010 1 Core	.55¢	\$35.00
W 1020 2 Core	.70¢	\$55.00
W 1022 2 Core fig 8	.75¢	\$57.00
W 1040 4 Core	\$1.25	\$90.00



TV Ribbon and Coax Cables



	Reel Length	Per Metre	Per Roll
W 0220	300 Ohm Clear Ribbon	100m	.30¢ \$25.00
W 0221	300 Ohm Black Ribbon	100m	.35¢ \$30.00
W 0222	75 Ohm Coax (Standard)	100m	.80¢ \$70.00
W 0224	75 Ohm Coax (Low Loss)	100m	\$1.05 \$95.00
W 0226	52 Ohm Coax (RG 58AU)	100m	.85¢ \$70.00
W 0230	92 Ohm Coax (RG62)	200m	\$1.50 \$240.00



MISCELLANEOUS CABLE, HEATSHRINK ETC.

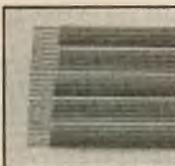
IDC Cable

Grey insulation.
1.27mm pitch.



Rainbow Cable

1.27mm Pitch



	Per Metre	Per 30m Roll
W 0616 16 Way	\$1.75	\$48.00
W 0626 26 Way	\$2.95	\$73.50
W 0634 34 Way	\$3.75	\$102.00
W 0650 50 Way	\$4.95	\$135.00

	Per Metre	Per 100m Coil
W 0510 10 Core	\$2.25	\$205.00
W 0516 16 Core	\$3.95	\$350.00
W 0524 24 Core	\$5.50	\$505.00



Enamelled Winding Wire

See **HARDWARE** Section for our Range of Baluns!

	Metric	B+S	Pack	Approx. Length	Per Roll	10up Per Roll
W 0402	0.2mm	32	25g	170m	\$5.95	\$5.45
W 0403	0.25mm	30	25g	50m	\$5.95	\$5.45
W 0404	0.4mm	26	25g	20m	\$5.95	\$5.45
W 0405	0.5mm	24	100g	36m	\$8.65	\$8.15
W 0406	0.63mm	22	100g	24m	\$8.65	\$8.15
W 0407	0.8mm	20	100g	18m	\$8.65	\$8.15
W 0408	1mm	18	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 10 x 1 metre lengths. Black only.

	Per Metre	10m Pack
W 0550 1.58mm Diam. (1/16")	\$2.95	\$27.00
W 0552 3.17mm Diam. (1/8")	\$3.45	\$31.50
W 0554 6.35mm Diam. (1/4")	\$5.10	\$45.50
W 0556 9.52mm Diam. (3/8")	\$5.75	\$51.50
W 0558 12.7mm Diam. (1/2")	\$6.45	\$58.00
W 0560 19.05mm Diam. (3/4")	\$8.85	\$79.50



Tinned Copper Wire

	Metric	B+S	Pack	Approx. Length	Per Roll	10 up Per Roll
W 0420	.71mm	22	100g	20m	\$9.95	\$9.50

Manufacturers, OEM's and bulk users, please ring our parent company to see how you qualify for bulk rates.

AUDIO, VIDEO & TEST LEADS

XLR Microphone Extension Lead

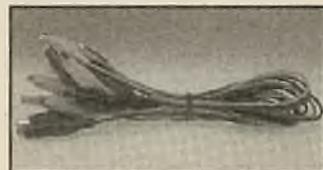
3 pin male to 3 pin female XLR Cannon type plugs. 10 metres long
P 0735 \$29⁰⁰

NEW FOR '93



Bench Test Leads

Croc clip to croc clip. Heavy duty. Assorted colours. Pack of 10 leads.
P 0415 \$8³⁵ per pack



Din and RCA Audio Leads

P 0420 5 Pin Din Male To 5 Pin Din Male 1.2m	\$3.25
(Reversed Connections for Video)	
P 0421 5 Pin Din Male To 5 Pin Din Male 1.2m	\$4.65
P 0423 5 Pin Din Male To 4 RCA Male 1.2m	\$7.95
P 0427 4 RCA Male To 4 RCA Male 1.2m	\$6.95
P 0430 5 Pin Din Male To 2 RCA Male 1.5m	\$4.50
P 0435 2 RCA Male To 2 RCA Male 1.2m	\$3.45
P 0436 2 RCA Male To 2 RCA Female 1.2m	\$2.35
P 0437 1 RCA Male To 1 RCA Female 1.2m	\$1.65



Multimeter Test Leads

P 0402 Pin Plugs To Probes	\$5 ¹⁵
P 0403 Banana Plugs To Probes	\$4 ¹⁵
P 0405 Banana Plugs To Croc Clips	\$2 ⁹⁵
P 0411 Banana Plugs To IC Test Clips	\$4 ⁹⁵
P 0412 Pin Plugs To IC Test Clips	\$3 ⁷⁵



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



TV Antenna Fly Leads

All 1.8m Long.	
P 0755 Male-Male	\$3.70
P 0757 Male-Female	\$3.70



Universal Testlead Set

This great set includes just about everything you would need. Supplied with 2 leads which are ready to accept a range of screw-on fittings.

Screw-on Fittings Include:

- 4 x Croc Clips
- 2 x Fork Connectors
- 2 x Pin Plugs
- 2 x Hand Probes
- 4 x Banana Plugs

P 0413 \$6⁴⁵

NEW FOR '93



Micron Soldering Station

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

Temperature Readout:Dual Colour LED bargraph

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.

Grounded Tip:

The soldering tip is grounded through the power unit to ensure the tip leakage is less than 0.4mV.

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.

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 **\$169.⁹⁵**

**Full 12 Month
Warranty!**



MARK I Replacement Tips

When ordering replacement tips for **MICRON T 2440** (mark I) soldering stations purchased prior to 1990, please order as follows:

T 2423 1mm Micro Chisel	All
T 2424 1.5mm Mini Chisel	
T 2425 3mm Standard Chisel	\$7. ⁵⁰ each

MARK II Replacement Tips

T 2427 1mm Micro Chisel	All
T 2428 1.5mm Mini Chisel	
T 2429 3mm Standard Chisel	\$9. ¹⁰ each

Micron Soldering Station Series 2

The **MICRON Series 2** soldering station employs electronic switch mode circuitry in lieu of a mains transformer. Excellent for all general purpose and production soldering. (For ultra-sensitive voltage leakage applications, we recommend the T 2440).

Features:

- High insulation ceramic heating element in both rapid heat-up and instant recovery
- Heater insulation of over 100MΩ
- A zero voltage circuit ensures no high voltage spikes or magnetic field are present at the tip to damage sensitive components
- Continuous temperature adjustable from 250° to 430° C (480° to 800° F)
- Grounded power cord

Selecting the desired operating temperature is as simple as turning a knob. Simply choose the operating temperature required for the job and adjust the control to the appropriate setting.

With its huge temperature range from 250° to 430° C this iron is suitable for most applications, from delicate double sided PCB's through to typical day to day jobs.

Specifications:

Input Power:240V AC

Temperature Range:250° to 430° C
(480° to 800° F)

Tip Leakage:Less than 2mV

Tip to Ground Resistance: less than 0.4Ω

Stability at Idle:5° C (9° F)

Heater Insulation:Over 100 MΩ

T 2443 **\$129.⁹⁵**

*Ideal for Students, Hobbyists,
Kit Builders, Professionals etc.*

Replacement Tips

T 2427 1mm Micro Chisel	All
T 2428 1.5mm Mini Chisel	
T 2429 3mm Standard Chisel	\$9. ¹⁰ each

NEW FOR '93

**Full 12 Month
Warranty!**



Temperature Adjustable 250°C to 450°C

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. Energy authority approved. Now uses state of the art ceramic heating element. See Replacement Guide for Tips to Suit



T 2446 **\$49.95**

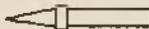
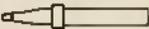
Micron 25 Watt Soldering Iron

• Light-weight • Efficient thermal transfer from element to tip • Tip temperature is maintained within the limits suitable for electronic work and also small household jobs. Energy authority approved. See Replacement Guide for Tips to Suit



T 2415 **\$22.50**

Replacement Tip Guide

Tip Cat No.	To Suit Soldering Iron	Tip Size	Price Each	Tip Image
T 2416	T 2415	3mm	\$2.95	
T 2423	T 2420 & T 2446	1mm	\$7.50	
T 2424	T 2420 & T 2446	1.5mm	\$7.50	
T 2425	T 2420 & T 2446	3mm	\$7.50	
T 2430	T 2446	1mm	\$9.95	
T 2431	T 2446	1.5mm	\$9.95	
T 2432	T 2446	3mm	\$9.95	

Fixed Temperature Soldering Iron

• 370° C. • 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. Energy authority approved. See Replacement Guide for Tips to Suit



T 2420 **\$29.95**

Micron Professional Gas Soldering Iron

A Gas Soldering Iron For Life. Constructed from long lasting virtually unbreakable copper tubing this soldering iron has been made to last. It features a built in clear chamber for monitoring the gas level. This fully self contained unit offers the freedom of soldering anywhere, anytime without the hassle of power leads etc. It's long running time with just one refill (up to 60 minutes) makes it perfect for just about any job, large or small almost anywhere, i.e. on boats, cars, on the roof, on building sites, etc. With very clever engineering, the manufacturer has been able to incorporate a high temperature brazing tip (up to 1300°C) included as an integral part of the tool. Simply by unscrewing the tip, this exposes the brazing tip, which is ignited in the same manner as a normal tip. With a range of accessories from inbuilt brazing tips, hot air blowers, hot knife cutters and various size tips this iron will become one of your most often used tools on a day to day basis.

Features:

- Patented stainless steel nozzle
- Patented gas flow switch
- Large gas chamber giving up to 60 minutes use without refilling
- Runs on standard butane gas
- Uses long lasting iron clad tips

T 2480 **\$34.95**

Includes Bonus Brazing Tip!



NEW FOR '93

Exclusive to Altronics

Accessories:

T 2481	1 mm tip	\$5.95
T 2482	2 mm tip	\$5.95
T 2483	3 mm tip	\$5.95
T 2484	4 mm tip	\$5.95
T 2485	Tip Changing Tool	\$3.50
T 2486	Cutter Tip	\$5.95
T 2487	Hot Air Blower	\$5.95
T 2488	Hot Knife	\$5.95
T 2448	Refill Butane Gas	\$6.95

Micron Sure Shot Desoldering Tool

Exclusive to Altronics in Australia. This stand alone, fully self-contained desoldering tool makes it a breeze to remove components from any PCB. Even double sided, through hole plated boards. All it needs is a squeeze or two on the trigger and the component virtually falls out.

Features:

- Totally self contained
- Light and compact
- Anti static tip
- Easy to use
- Simple to clean and maintain
- Variable tip temperature

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 every time 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 removal of the component.

T 1270 **\$349.00**

T 1272 Replacement Tip to Suit **\$19.95**

T 1275 Replacement Filters to Suit **\$5.95**

Exclusive to Altronics



Supplied Complete With Deluxe Carry Case, Tool Kit and Replacement Filters

SOLDERING AIDS

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 Teflon Tip to Suit \$2.35



PCB Stand

Screw this handy little jig to your work bench and presto! You now have both hands free to insert and solder components!

T 1450 \$9.⁵⁰



Solder

Suitable for most electronic circuits. 200g reels. Resin cored. With Bitsave additive for longer tip life. Now two sizes available.

T 1200 1.0mm \$7.⁰⁰

T 1202 0.71mm \$8.⁰⁰



Also available in handy 5m lengths

T 1205 1.0mm \$1.⁹⁵

T 1208 0.71mm \$2.⁵⁰

PCB Stand with Magnifier

All the features of the T 1450 and including a magnifier. Great for servicing, assembling PCB's and inspecting soldered joints, component identification, cracks in PCB tracks etc.

T 1460 \$14.⁹⁵



De-Soldering Braid

Quality type available in two sizes. Ideal for removing most components.

T 1232 4mm Both

T 1234 3mm \$3.⁵⁰ ea



Heavy Duty Soldering Stand

Heavy duty cast iron base with sturdy spring stand. Suits most popular soldering irons.

Supplied with sponge.

T 1310 Stand \$12.⁹⁵

T 1320 Spare Sponge to Suit \$1.95



HAND TOOLS

Diagonal Cutter

With sharp bevelled edge and rounded jaw profile. Length 120mm.

T 2750 \$12.⁹⁵



Long Nose Pliers

General electronic use. Length: 140mm.

T 2760 \$12.⁹⁵



Flat Long Nose Pliers

For bending component legs, IC pins etc and general use. Length: 140mm.

T 2770 \$12.⁹⁵



Curved Long Nose Pliers

Offset jaws for working in confined and awkward spaces. Length: 135mm.

T 2780 \$12.⁹⁵



Wire Stripper

With hardened jaws.

T 1510 \$5.⁹⁵



Automatic Wire Stripper

With adjustable tension.

T 1522 \$20.⁹⁵

T 1525 Replacement Blade Set \$1.95



Professional Automatic Wire Stripper

The jaws on this stripper automatically adjust to suit any size cable up to 4mm. Ideal for repetition cable stripping for the professional or enthusiasts workbench.

T 1515 \$24.⁵⁰

NEW FOR '93



Coaxial Wire Strippers

Tough injection moulded thermoplastic.

Features a built-in tension spring, centre conductor cutter, and a slide adjustment to change from RG-58, RG-59, or RG-6.

T 1518 \$24.⁵⁰

NEW FOR '93



T 1519 Replacement Blade Set \$6.70

Crimping Tool

Suitable for all general type crimp connectors. Suits red, blue and yellow size connectors. Incorporates wire cutters and stripper.

T 1550 \$4.⁹⁵



Modular Connector Crimping Tool

This deluxe tool will 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 \$44.⁵⁰



See CONNECTORS Section for Plugs to Suit

Heavy Duty Crimping Tool

Ideal for automotive terminals and connectors. Crimping range 0.25mm - 6.0mm.

T 1552 \$54.⁹⁵

See HARDWARE Section for our Range of Crimp Connectors



Coaxial Crimping Tool

Suits most types of coaxial cable connectors.

T 1554 \$65.⁹⁵

NEW FOR '93



Nibbling Tool

For steel, plastic and aluminium. Very easy to use. Capacity:

Steel 1mm, Aluminium 1.6mm.

T 2355 \$19.⁹⁵ Cuts Perfect Square Holes!



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 \$97.⁵⁰



Mini Drill

Ideal for drilling PCB's. Powerful 6000 RPM motor. Comes with 0.8mm and 1mm chucks. Power Source:.....12-18V DC Drill Bit Sizes:.....0.8 to 1.2mm Weight:.....113gms Recommended Plug Pack: M 9022
T 2302 \$21.⁵⁰



Alignment Tool Set

Set of 4 tools. Double ended drivers. Ideal for TV servicing etc.



T 1400 \$4.⁵⁰

Alignment Screw Drivers



With metal tip 2mm blade. T 1401 100mm Shaft \$3.²⁵
T 1402 200mm Shaft \$3.⁹⁵

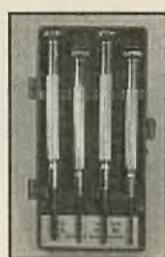
Anti-Static Wrist Strap



Velcro adjustable wrist strap allows full freedom of movement while protecting components from static damage. Fantastic for assembly, service work and enthusiasts alike!
T 4001 \$14.⁵⁰ **NEW FOR '93**

Jewellers Screwdriver Sets

Phillips and flat blade sets available.



T 2200 6 Piece Flat Blade Set \$4.⁵⁰
T 2205 4 Piece Phillips Set \$6.⁹⁵

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



Tapered Reamer

For Chassis work. Enlarges from 5-20mm.
T 2370 \$25.⁵⁰



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

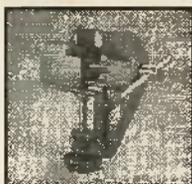
PCB Drill Bits

T 2320 0.8mm \$2.⁵⁰
T 2325 1.0mm \$2.⁵⁰



Mini Bench Vice

Quality die cast alloy. Clamps to any surface up to 25mm thick. Jaws open to 50mm. Ideal hobby vice.
T 2365 \$10.⁵⁰



Pearl Catch

Super natty tool for picking up small screws, nuts, washers, pins and holding in place for fixing etc.
T 2380 \$3.⁹⁵



IC Inserters & Extractors

Inserters
Also handy for IC pin straightening

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



Extractors
T 2550 8-40 Pin \$2.⁵⁰
(Insulated Spring Steel)



T 2570 PLCC Type \$9.⁵⁰
NEW FOR '93



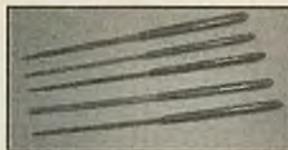
Tweezers

T 2375 Needle Nose \$2.⁹⁵
T 2377 Duck Bill \$2.⁵⁰
T 2379 Duck Bill (self-closing) \$5.⁹⁵



Needle File Set

Set of 5 files, round, square, half round, triangular and flat.
T 2350 \$24.³⁰



High Quality Steel Tools!

Multifunction Tester

Suitable for testing continuity, detecting the presence of 240VAC mains voltage, 12V DC this tool can virtually replace a multimeter in many instances. For simple testing like identifying cables, testing fuses, globes, elements, transformers even semiconductor junctions this tester will give you a yes/no answer. It can not give a precise reading but an indication only via an led, a buzzer or both that the cable or component is good. Slips neatly into your top pocket. Ideal for electricians, technicians or enthusiasts. For full details see test equipment section of this catalogue.
Q 1250 Amazing Low Price \$17.⁹⁵ **NEW FOR '93**



AEROSOLS, ETC.

Environmentally friendly, these aerosol spray packs have been designed to perform a specific task without the use of damaging CFC's or fluorocarbons!

TWO other great advantages - most are non-flammable and are Australian made

Compuclene Cleaner

Anti-Static case and keyboard cleaner. Simply spray on and buff off. 250ml.

T 3056 \$6.⁹⁵



Butane Gas Refill

Famous Weller brand ideal for Micron gas powered soldering iron. 200gm. Sulphur free.

T 2448 \$6.⁹⁵



Contact Treatment Oil

Supplied in an easy to use 45mL size bottle applicator. Ideal for any situation where a high quality, fine lubricant is required.

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.

T 3083 \$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 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



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



Contact Cleaner-Lube

Ideal for cleaning and lubricating all non-arcng contacts and edge connectors, mechanisms and switches. Safe on most plastics. 250gm, 250ml.

T 3061 \$7.⁹⁵



RP50 Positive Photoresist

The RP50 aerosol is a fast drying positive photoresist for one to one reproduction of circuits. Used in conjunction with Photoresist developer.

200ml. T 3111 \$36.⁹⁵



Screen Care

Anti-Static screen cleaner. Ideal for computers etc. Simply spray on and buff off. 250ml.

T 3098 \$9.⁹⁵



Circuit Board Cleaner

A quality blend of solvents for general purpose cleaning of circuit boards. Will remove oils, greases dirt and most resin based fluxes. 250ml, 250gm.

T 3069 \$7.⁹⁵



Air Duster

Pure, high pressure, non flammable gas for removing dust and airborne contaminants from delicate equipment. 250ml, 250gm.

T 3096 \$9.⁹⁵



Photoresist Developer

Safe Aqueous Alkali Developer for use with RP50 Photoresist. Takes 30-60 seconds at 20 C.

T 3115 \$14.⁹⁵



MISCELLANEOUS

Silastic Compound



150g pack Adhesive-Sealant provides tough non-brittle seal or joint. Corning 762RTV

T 3015 \$8.⁰⁰

Five Minute Epoxy

Similar to "Araldite" this multi purpose super strong epoxy in handy dual syringe.

T 3005 \$8.⁵⁰



Instant Super Type Glue

T 3010 \$2.⁹⁵



Ferric Chloride PCB Etchant

Ideal for making prototype PCB's. Dilute one pack with one litre of water.

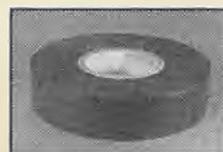
H 0800 \$4.⁹⁵



PVC Tape

Quality Tape. Heat resistant 20m x 19mm

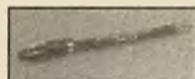
T 3001 \$1.⁴⁵ ea, 10 up \$1.³⁰ ea



Dalo Pen

Etch resistant pen. Used for making PCB's.

T 0033 \$5.⁹⁵



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 \$13⁵⁰

Motorola Power Data

Book includes a 9 page selection guide, application notes and data sheets for over 700 devices, 989 pages.

B 1101 \$31⁹⁰

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 \$13⁹⁵

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 \$17⁹⁵

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 familiarise the user with these circuits.

B 1106 \$19⁹⁵

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 \$17⁶⁰

Motorola Memory

An absolute must for the micro-processor 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 \$21⁹⁵

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 \$45⁵⁰

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 \$31¹⁰

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, Small Amplifiers and Tuning Diodes.

B 1117 \$48⁶⁰

Motorola OPTO Electronic Data

Motorola has concentrated on infra-red GaAs and GaA-As 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 \$15⁵⁰

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 familiarise the user with these new logic circuits. Includes 74HC Series IC's.

B 1121 \$22⁵⁰

Up-to-date Worlds Transistors Diodes Thyristor IC's Comparison Tables II

This extremely compact book of equivalents gives brief description and specification as well as full pin assignments of 28,000 types of transistors, diodes, thyristor and IC's. Also contains over 80,000 comparisons and equivalents. An excellent reference book for professionals and hobbyists alike. 954 pages.

B 1270 \$19⁹⁵



NEW FOR '93

Up-to-date Worlds Transistor Comparison Table (A-Z) Vol 1

This comparative data book contains more than 11,000 different transistors and FET's all of which are listed alphanumerically. Each page divided into 3 sections.

- The descriptive section with the columns, type, material, polarity and description of application.
- The data section with the most important ratings, divided into clear columns, and a drawing of the corresponding case with the connection sequence.
- The replacement section contains the most suitable alternative or equivalent transistor.

272 pages.

B 1275 \$18⁹⁵

NEW FOR '93



Up-to-date Worlds Transistor Comparison Tables (O-μ) Vol 2

This fully comprehensive data book contains over 15,000 different transistors and FET's all of which are listed alphanumerically. Like volume 1 the manual is divided up into 3 sections, descriptive section, data section and replacement or equivalent section. 430 pages

B 1280 \$18⁹⁵

NEW FOR '93



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. 581 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 \$21.⁵⁰



IC Timer Cookbook

2nd Edition.

You can learn lots of ways to use IC timers 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. 160 pages.

B 2220 \$16.⁷⁰



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



PC Music Handbook for IBM PC's and Compatibles

This book will be of interest to the professional musician, the gifted amateur or the just plain curious. It explains the possibilities of computer music and covers what is currently available in terms of both software and hardware. It warns you of the pitfalls to avoid and suggests a number of possible music systems that could bring out the best of your music skill or creativity. This book explains in detail the basics of computer music, sequencing, sampling and notation, checklists for software and hardware, guidelines for programming, appendices on midi, communications contact and much more. 158 pages

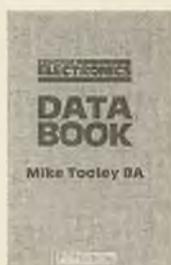
B 2225 \$21.⁵⁰



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 \$21.⁵⁰



Electronic Projects for Guitar

- Make your own effect at a fraction of the cost.
- Assumes no previous knowledge of electronics.
- Complete instructions on assembly - easy setting up - no test gear required.

If you're a guitarist with more sense than money, you will find this book a gold mine. It's a collection of 16 guitar and general purpose effects units that you can build yourself at a fraction of the shop price. Even if you do not know one end of a soldering iron from the other, do not worry, many of the projects are suitable for anyone new to project building. So if you need a guitar tuner or a pre-amp, a headphone amp, distortion unit, compressor, WAA-WAA pedal, phaser, DI box, etc. this is the book to use. 111 pages.

B 2230 \$21.⁵⁰



Talking Electronics 14

Build a continuity tester, crystal oscillator, guitar practice amp. Transistor theory.

B 1536 \$2.²⁰

From the Popular Talking Electronics Series



Talking Electronics 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



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. 112 pages.

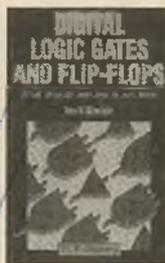
B 2270 \$16.⁷⁰



Digital Logic Gates and Flip-Flops

What they do and how to use them. For electronics technicians, students and enthusiasts. 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. 204 pages.

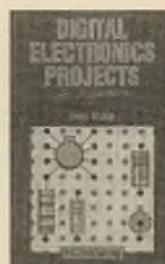
B 2250 \$21⁵⁰



Digital Electronics Projects for Beginners

For newcomers to electronics. Simple self build projects gives full constructional details. This book contains 12 digital electronics projects suitable for beginners to build with the minimum of equipment. They cover a wide range of topics, from instrumentation to home security and a few 'fun' projects as well. The introductory chapter and the detailed explanations of the working of each project make this not only a book of practical projects but an introduction to the theory and applications of digital electronics. 199 pages.

B 2280 \$15²⁰



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, bi-stables and timers, as well as microprocessors, memory and input-output devices. 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. 208 pages.

B 2260 \$16⁷⁰



Electronic Test Equipment Handbook

For students, enthusiasts, technicians and engineers
Principles of operation described throughout.
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. The book covers analogue and digital meters, bridges, oscilloscopes, signal generators, counters, timers and frequency measurement. 203 pages.

B 2281 \$21⁵⁰



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, fet's and op amps.

B 2265 \$15²⁰



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. All types of supplies are covered in detail, starting with cells and batteries and extending by way of rectified supplies and linear stabilisers to modern switch-mode systems, DC-DC converters and inverters.

B 2282 \$19¹⁵



Electronics for Model Railways Book 2 (Talking Electronics)

This simple easy to read and understand book presents various projects for uses in model railways including level crossing lights, station signals, relay module, walk around throttle etc. A total of 16 projects.

B 1526 \$3⁰⁰



Electronic Projects for Home Security

- Projects to help secure your home
- Principles of operations explained
- Constructional details
- Also suitable for beginners

This book deals with many aspects of home security - intruder, fire and flood protection - with the emphasis on how to make the best of electronic devices that you can build yourself. There are 25 constructional projects, ranging in complexity from a single-door protection circuit, that can be built in an hour or two, to a sophisticated multi-channel security system, that most intruders will find very difficult to beat. Much use is made of the latest in technology to combine simplicity of construction with reliability of operation. 141 pages.

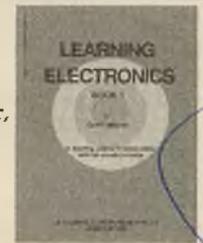
B 2290 \$16⁷⁰



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 \$3⁵⁰



Australian Radio Frequency Registers

The Australian radio frequency register contains all frequencies from 25MHz to 1500MHz. HF - VHF - UHF (SBS / AM / FM / NFM / WFM). Contains individual transmit and receive frequencies, locations, user name, call sign and mode of communication for all frequencies. Covers Fire Brigade, Ambulance, Police, Government Departments, Aircraft, Marine, Railways, Military, Domestic Air, CB, Mobile Phones, Cellular Phones, TV and more.

- B 1800 W.A. Listings
 - B 1802 QLD. Listings
 - B 1804 N.T. & S.A. Listings
 - B 1806 VIC. & TAS. Listings
 - B 1808 N.S.W. & A.C.T. Listings
- All \$39⁹⁵ ea, or
All 6 for \$199⁰⁰



Constructional Project Books

- B 1602 Project Electronics Vol 1 \$3.25
- B 1603 Project Electronics Vol 2 \$3.25
- B 1604 Project Electronics Vol 3 \$3.25
- B 1605 Popular Audio Projects \$4.95
- B 1606 Top Projects Vol 2 \$4.95
- B 1607 Test Gear Vol 4 \$4.95

See Page 95 for FET & MOSFET Transistors

Transistors

CAT No.	Type	TRANSISTOR No.	CASING STYLE	Ic MAX	VCB MAX	VCE MAX	VEB MAX	HFE	HFE BIAS	FREQ MAX	DESCRIPTION	ea	ea 10up
Z 1020	N	BC107	T018	100mA	50V	45V	6V	110MN	2mA	150M	LOW NOISE	.95	.90
Z 1021	N	BC108	T018	100mA	30V	20V	5V	120MN	2mA	150M	LOW NOISE	.95	.90
Z 1023	N	BC109C	T018	100mA	30V	20V	5V	120MN	2mA	150M	LOW NOISE	.95	.90
Z 1030	P	BC327	T092h	800mA	50V	45V	5V	100MN	100mA	60M	GENERAL PURPOSE	.35	.30
Z 1031	P	BC328	T092h	800mA	30V	25V	5V	100MN	100mA	60M	GENERAL PURPOSE	.35	.30
Z 1035	N	BC337	T092h	800mA	50V	45V	5V	100MN	100mA	60M	GENERAL PURPOSE	.35	.30
Z 1037	N	BC338	T092h	800mA	30V	25V	5V	100MN	100mA	60M	GENERAL PURPOSE	.35	.30
Z 1039	N	BC546	T092h	100mA	80V	80V	6V	110MN	2mA	200M	GENERAL PURPOSE	.35	.30
Z 1040	N	BC547	T092h	100mA	50V	45V	6V	110MN	2mA	200M	GENERAL PURPOSE	.20	.17
Z 1042	N	BC548	T092h	100mA	30V	30V	6V	110MN	2mA	200M	GENERAL PURPOSE	.20	.17
Z 1044	N	BC549	T092h	100mA	30V	30V	6V	110MN	2mA	200M	GENERAL PURPOSE	.20	.17
Z 1050	N	BC550	T092h	100mA	50V	45V	6V	240MN	2mA	200M	GENERAL PURPOSE	.35	.30
Z 1052	P	BC556	T092h	100mA	80V	80V	5V	110MN	2mA	150M	GENERAL PURPOSE	.35	.30
Z 1055	P	BC557	T092h	200mA	50V	45V	6V	110MN	2mA	75M	GENERAL PURPOSE	.20	.17
Z 1057	P	BC558	T092h	100mA	30V	30V	5V	110MN	2mA	75M	GENERAL PURPOSE	.20	.17
Z 1059	P	BC559	T092h	200mA	30V	30V	5V	125MN	2mA	75M	GENERAL PURPOSE	.20	.17
Z 1061	N	BC635	T092	1A	45V	45V	6V	40MN	150mA	50M	GENERAL PURPOSE	.70	.65
Z 1062	P	BC636	T092	1A	45V	45V	6V	40MN	150mA	50M	GENERAL PURPOSE	.70	.65
Z 1064	N	BC639	T092	1A	80V	80V	5V	40MN	150mA	50M	HIGH VOLTAGE	.60	.55
Z 1065	P	BC640	T092	1A	80V	80V	5V	40MN	150mA	50M	HIGH VOLTAGE	.60	.55
Z 1068	N	BD139	T0126	1A	80V	80V	5V	40-160	150mA	50M	HIGH VOLTAGE	1.25	1.15
Z 1069	P	BD140	T0126	1A	80V	80V	5V	40-160	150mA	50M	HIGH VOLTAGE	1.25	1.15
Z 1073	N	BD437	T0126	4A	45V	45V	5V	40MN	2A	3M	AF APPLICATIONS	1.40	1.25
Z 1074	P	BD438	T0126	4A	45V	45V	5V	4MN	2A	3M	AF APPLICATIONS	1.40	1.25
Z 1078	N	BD649	T0P3C	8A	100V	100V	5V	750MN	3A	1M	DARLINGTON	2.65	2.30
Z 1081	N	BD681	T0126	4A	100V	100V	5V	750mA	1500mA	1M	DARLINGTON	2.35	2.05
Z 1082	P	BD682	T0126	4A	100V	100V	5V	750mA	1500mA	1M	DARLINGTON	2.35	2.05
Z 1084	P	BDV64B	T0P3C	15A	100V	100V	5V	1KMN	5A		DARLINGTON	6.20	6.00
Z 1086	N	BDV65B	T0P3C	15A	100V	100V	5V	1KMN	5A		DARLINGTON	6.20	6.00
Z 1100	N	BFR91A	SOT37	35mA	15V	12V	5V	25MN	30mA	5G	SHF	2.25	2.00
Z 1105	N	BF115	T072F	30mA	50V	30V	5V	45-165	1mA	115M	FM-AM RADIO,	1.10	1.00
Z 1106	N	BF199F	T092	25mA	40V	20V	4V	37	7mA	550M	RF	.65	.50
Z 1109	N	2N3569	T092B	30mA	15V	12V	25-250	30mA	5G	RF	TRANSISTOR	.40	.35
Z 1110	N	BF469	T0126	200mA	250V	250V	5V	50MN	25mA	60M	HIGH VOLTAGE, RF	1.70	1.40
Z 1112	P	BF470	T0126	200mA	250V	250V	5V	50MN	25mA	60M	HIGH VOLTAGE, RF	1.70	1.40
Z 1114	N	BU208A	T03	6A	1K5V	700V		2MN	3A	3M	HIGH VOLTAGE	6.70	6.50
Z 1116	N	BUX80	T03	10A	800V	400V	10V	15MN	1A2	3M	RF	5.70	5.35
Z 1117	N	BU326	T03	6A	800V	375V	7V	30MN	600mA	4M	RF	3.99	3.90
Z 1118	P	MJ2955	T03	15A	100V	60V	7V	5MN	10A	4M	HIGH CURRENT	2.75	2.50
Z 1120	P	MJ4032	T03	16A	100V	100V	5V	1KMN	10A		DARLINGTON	21.95	19.00
Z 1121	N	MJ10012	T03	10A	550V	400V		300MN	3A		DARLINGTON	12.00	11.00
Z 1122	N	MJ4035	T03	16A	100V	100V	5V	1KMN	10A		DARLINGTON	21.95	19.00
Z 1124	N	MJ15003	T03	20A	140V	140V	5V	25MN	4A	2M	HIGH VOLTAGE	7.80	7.50
Z 1125	P	MJ15004	T03	20A	140V	140V	5V	25MN	4A	2M	HIGH VOLTAGE	7.80	7.50
Z 1126	N	MJE340	T0126	500mA	300V	300V	3V	30-240	50mA	10M	HIGH VOLTAGE	1.80	1.50
Z 1127	P	MJE350	T0126	500mA	300V	300V	3V	30-240	50mA	10M	HIGH VOLTAGE	1.80	1.50
Z 1128	P	MJE2955T	T0220	10A	60V	60V	5V	20MN	4A	2M	AF APPLICATIONS	1.80	1.70
Z 1129	N	MJE3055T	T0220	10A	60V	60V	5V	20MN	4A	2M	AF APPLICATIONS	1.80	1.70
Z 1130	N	TIP29C	T0220	1A	100V	100V	5V	40-200	200mA	3M	GENERAL PURPOSE	1.70	1.60
Z 1132	P	TIP30C	T0220	1A	100V	100V	5V	40-200	200mA	3M	GENERAL PURPOSE	1.70	1.60
Z 1134	N	TIP31C	T0220	3A	100V	100V	5V	20-100	1A	3M	GENERAL PURPOSE	1.70	1.60
Z 1136	P	TIP32C	T0220	3A	100V	100V	5V	20-100	1A	3M	GENERAL PURPOSE	1.70	1.60
Z 1138	N	TIP41C	T0220	6A	100V	100V	5V	15-75	3A	3M	GENERAL PURPOSE	1.80	1.70
Z 1140	P	TIP42C	T0220	6A	100V	100V	5V	15-75	3A	3M	GENERAL PURPOSE	1.80	1.70
Z 1142	N	TIP121	T0220	5A	80V	80V	5V	1000MN	3A		GENERAL PURPOSE	1.95	1.80
Z 1144	P	TIP126	T0220	5A	80V	80V	5V	1000MN	3A		GENERAL PURPOSE	1.95	1.80
Z 1146	P	TIP2955	T0P3	15A	100V	60V	7V	20MN	4A	3M	GENERAL PURPOSE	2.50	2.30
Z 1148	N	TIP3055	T0P3	15A	100V	60V	7V	20MN	4A	3M	GENERAL PURPOSE	2.50	2.30
Z 1150	N	TT800-2N3019	T05	1A	140V	80V	7V	100MN	150mA	100M	G/P DRIVER	1.80	1.65
Z 1152	P	TT801-2N4033	T05	1A	80V	80V	5V	100MN	150mA	100M	G/P DRIVER	1.80	1.65
Z 1157	P	MPSA56	T092B	500mA	80V	80V	4V	50MN	10mA	50M	G/P DRIVER	.80	.75
Z 1160	N	2N2218A	T05	800mA	75V	40V	6V	40-120	150mA	250M	RF TRANSISTOR	1.20	1.10
Z 1164	N	2N2219A	T05	800mA	75V	50V	6V	100MN	150mA	300M	RF TRANSISTOR	1.20	1.10
Z 1166	N	2N2222A	T092B	800mA	75V	40V	6V	100MN	150mA	300M	RF TRANSISTOR	.90	.85
Z 1167	P	2N2905	T05	600mA	60V	40V	5V	100MN	150mA	200M	GENERAL PURPOSE	1.35	1.20
Z 1168	N	2N3053	T05	700mA	60V	40V	5V	50MN	150mA	100M	G/P DRIVER	1.35	1.20
Z 1170	N	2N3054	T066	4A	90V	60V	7V	25-100	500mA	750K	AF APPLICATIONS	4.30	4.10
Z 1174	N	2N3055	T03	15A	100V	60V	7V	20-70	4A	200K	AF/SWITCH/POWER	2.75	2.50
Z 1177	N	2N3442	T03	10A	160V	140V	7V	20-70	3A	500K	HIGH VOLTAGE	4.50	4.30
Z 1185	N	2N3643	T092B	500mA	80V	30V	5V	100MN	150mA	250M	RF TRANSISTOR	.50	.45
Z 1186	P	2N3644	T092B	500mA	45V	45V	5V	115mA	50mA	200M	AF SWITCH	.50	.45
Z 1187	P	2N3645	T092B	500mA	60V	45V	5V	115mA	50mA	200M	AF SWITCH	.50	.45
Z 1190	N	2N3771	T03	30A	50V	40V	5V	15-60	10A	200K	AF/SWITCH/POWER	6.30	5.85
Z 1192	N	2N3773	T03	30A	160V	140V	7V	15-60	10A	200K	AF/SWITCH/POWER	5.95	5.35
Z 1195	P	2N3740	T066	10A	60V	60V	7V	30-160	250mA	4M	RF TRANSISTOR	6.95	6.35
Z 1200	N	2N3904	T092B	200mA	60V	40V	6V	50-150	10mA	200M	LOW NOISE	.40	.35
Z 1201	P	2N3905	T092B	200mA	40V	40V	5V	50-150	10mA	200M	GENERAL PURPOSE	.40	.35
Z 1202	P	2N3906	TC92B	200mA	40V	40V	5V	100	10mA	250M	GENERAL PURPOSE	1.00	.95
Z 1230	P	2N4250	T092B	100mA	40V	40V	5V	250MN	0.1mA	50M	LOW NOISE	.40	.35
Z 1235	N	2N4292	T092	50mA	30V	15V	3V	20MN	3mA	600M	VHF TRANSISTOR	3.95	3.70
Z 1242	P	2N5087	T092B	50mA	50V	50V	3V	250MN	1mA	40M	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 0040	IN5819 Schottky Diode	.75	.65
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	W04 400V 1.2 Amp	1.10	.95
Z 0134	PW04 400V 6 Amp	2.30	2.10
Z 0136	1004 400V 10Amp Inline Package	1.95	1.75
Z 0139	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 High Intensity Clear	.55	.50
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 infra 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	2.25	2.15
Z 0182	Led 5mm Flashing Green	2.75	2.55
Z 0200	Led & Bezel 3mm Red	.65	.60
Z 0202	Led & Bezel 3mm Green	.65	.60
Z 0204	Led & Bezel 3mm Yellow	.65	.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 0330	11V	1N962
Z 0306	3V6	1N747	Z 0332	12V	1N963
Z 0308	3V9	1N748	Z 0334	13V	1N964
Z 0310	4V3	1N749	Z 0336	15V	1N965
Z 0312	4V7	1N750	Z 0338	18V	1N967
Z 0314	5V1	1N751	Z 0340	20V	1N968
Z 0316	5V6	1N752	Z 0342	22V	1N969
Z 0318	6V2	1N753	Z 0344	24V	1N970
Z 0320	6V8	1N754	Z 0346	27V	1N971
Z 0322	7V5	1N755	Z 0348	30V	1N972
Z 0324	8V2	1N756	Z 0350	33V	1N973
Z 0326	9V1	1N757	Z 0352	36V	1N974
Z 0328	10V	1N758			

1 Watt Zeners

All One Price...45¢ ea or 10 Up...40¢ ea

Z 0603	3V3	1N4728	Z 0630	11V	1N4741
Z 0606	3V6	1N4729	Z 0632	12V	1N4742
Z 0608	3V9	1N4730	Z 0634	13V	1N4743
Z 0610	4V3	1N4731	Z 0636	15V	1N4744
Z 0612	4V7	1N4732	Z 0637	16V	1N4745
Z 0614	5V1	1N4733	Z 0638	18V	1N4746
Z 0616	5V6	1N4734	Z 0640	20V	1N4747
Z 0618	6V2	1N4735	Z 0642	22V	1N4748
Z 0620	6V8	1N4736	Z 0644	24V	1N4749
Z 0622	7V5	1N4737	Z 0646	27V	1N4750
Z 0624	8V2	1N4738	Z 0648	30V	1N4751
Z 0626	9V1	1N4739	Z 0650	33V	1N4752
Z 0628	10V	1N4740	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 0415	15V	1N5352
Z 0405	5V1	1N5338	Z 0418	18V	1N5355
Z 0409	9V1	1N5346	Z 0422	22V	1N5358
Z 0412	12V	1N5349	Z 0424	24V	1N5359
Z 0413	13V	1N5350			

Bulk Users Call Our Parent Company Altronic 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	LM337K	-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	38.95	35.95
Z 0585	LM723CN	+/- 2-37V	150mA Adj. Reg.	DIL	1.45	1.40
Z 0590	UC3905	Geli Cell Power Controller		DIL	14.95	13.50

Fixed Voltage Regulators

		ea	10up			
Z 0460	78L05	5V	100mA Reg.	TO-92	.95	.85
Z 0462	78L12	12V	100mA Reg.	TO-92	.95	.85
Z 0464	78L15	15V	100mA Reg.	TO-92	.95	.85
Z 0466	79L05	-5V	100mA Reg.	TO-92	.95	.85
Z 0468	79L12	-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 0526	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	4.50	4.15
Z 0542	7812KC	12V	1.5 Amp Reg.	TO-3	6.95	6.50
Z 0588	LM336V	5V	10mA Reg.	TO92	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	11.95	10.95
Z 7299	PCI602AR-F, 16 Characters x 2 line LCD Display	35.00	31.50

OPTO

		ea	10up
Z 1600	FPT100 Photo Transistor	1.60	1.50
Z 1610	MEL12 Darlington Photo Transistor	2.25	1.95
Z 1620	ORP 12 Light Dependant Resistor	5.50	5.20
Z 1635	BPW50 Infra Red Diode	3.45	3.20
Z 1642	MOC3021 Triac Coupler	2.95	2.75
Z 1644	MOC3041 TRIAC CPLR Zero Crossing	3.45	3.20
Z 1645	4N28 OPTO Coupler	1.50	1.40
Z 1650	6N138 Optocoupler	4.95	4.45

Triacs

		Lead Info	ea	10up
Z 1710	BT136/503 TRIAC 500V/4A	P2	1.95	1.85
Z 1712	BT137/500 TRIAC 500V/8A	P2	2.65	2.50
Z 1715	BT138/500 TRIAC 500V/12A	P2	3.80	3.60
Z 1720	BT139/500 TRIAC 500V/16A	P2	4.50	4.25
Z 1722	SC146D TRIAC 400V/10A	P2	3.50	3.30
Z 1735	MAC320 TRIAC 600V/8A Inst. Tab	P2	3.95	3.75

Diacs (Triggers)

		ea	10up
Z 1745	ST2/BR100 Diac	.95	.90
Z 1750	ST4 Diac (Equiv HT32)	2.20	2.05

SCR's

		Lead Info	ea	10up
Z 1765	C103B/MCR100 SCR 200V/.8A	TO92F	1.70	1.55
Z 1768	C106D SCR 400V/4A TO126	TO202	1.50	1.40
Z 1769	C106Y SCR 30V/4A Sensitive Gate	TO202	1.60	1.50
Z 1774	C122E/BT151 500V/8A	TO220A	3.40	3.15

Linear IC's

	ea	10up	
Z 2005	CA3130 FET Op.Amp 8 Pin Dtl	3.30	2.95
Z 2010	CA3140 FET Op.Amp 8 Pin Dtl	2.45	2.25
Z 2021	KCL7555/TLC555 CMOS Timer	1.60	1.40
Z 2501	LM301 Op.Amp (Un-Comp)	1.20	1.10
Z 2507	LM307 Op.Amp Comparator	1.70	1.60
Z 2509	LM308 Super Beta Op.Amp	1.10	1.00
Z 2512	LM310 Voltage Follower	2.95	2.85
Z 2516	LM311/UA311 Comparator	1.25	1.15
Z 2520	LM331N Prec. Volt. to Freq. Converter.	17.95	16.95
Z 2524	LM324 Low Power Quad Op.Amp	1.40	1.25
Z 2528	LM334Z Constant Current Source	3.50	3.20
Z 2530	LM335Z Volt.Mode Temp Sensor	3.95	3.75
Z 2532	LM339 Quad Comparator	1.20	1.05
Z 2536	LM348 Quad Op.Amp	1.85	1.75
Z 2540	LM358 L/Pwr Dual Op.Amp	1.25	1.15
Z 2541	LM359N Hi Speed Norton Op.Amp	4.00	3.75
Z 2546	LM380 Power Amp 14 Pin Dtl	2.10	2.00
Z 2550	LM381 Low Noise Dual Pre Amp	5.25	4.95
Z 2552	LM382 Low Noise Dual Pre Amp	4.50	4.25
Z 2554	LM384 5 Watt Audio Pwr Amp	4.50	4.25
Z 2556	LM386 Low Volt. Amp.(1 Amp)	1.95	1.75
Z 2557	LM391 Audio Driver IC	2.50	2.35
Z 2558	LM393 Dual Comparator Low Power	1.25	1.15
Z 2560	LM394CH Matched Transistor Pair	8.95	8.15
Z 2580	LM709/UA709 Op.Amp.	2.00	1.80
Z 2590	LM741 Op.Amp. 8 Pin Dtl	.95	.90
Z 2595	LM747 Dual Op Amp	1.90	1.80
Z 2598	LM833 Dual Low Noise Op.Amp.	2.25	2.10
Z 2599	LM1875 20W Audio Amp	6.50	6.15
Z 2620	LM1458/4558 Dual Op.Amp.	1.10	1.00
Z 2640	LM2917 Freq. to Voltage Conv.	3.95	3.85
Z 2645	LM/CA3080 Transcon Op.Amp.	1.95	1.75
Z 2650	LM3086 Transistor Array	1.10	1.00
Z 2655	LM3900 Quad Norton Op.Amp.	1.25	1.15
Z 2660	LM3905 Precision Timer	3.60	3.40
Z 0590	LM3906 Power Controller	14.95	13.50
Z 2665	LM3909 Led Oscillator	3.10	3.00
Z 2670	LM3914 Led Bar/Dot Driver (Linear)	6.50	5.95
Z 2672	LM3915 Led Bar/Dot Driver (Log)	5.95	5.45
Z 2674	LM3916 Led Bar/Dot Driver	5.95	5.45
Z 2690	LM/RC4136 Quad Op.Amp.	2.70	2.55
Z 2755	NE555 Timer IC	.65	.60
Z 2758	NE556 Dual Timer IC	1.40	1.25
Z 2760	NE570 Compaider IC	7.50	6.95
Z 2762	NE571 Compaider IC	6.50	6.15
Z 2790	NE5534N Op.Amp. Low Noise	2.70	2.50
Z 2792	NE5534N Op.Amp. V/Low Noise	4.45	3.95
Z 2861	TL061 Lo/Pwr JFET Op.Amp.	1.95	1.80
Z 2862	TL062 Lo/Pwr 2XJFET Op.Amp.	2.60	2.40
Z 2864	TL064 Lo/Pwr 4XJFET Op.Amp.	3.50	3.30
Z 2871	TL071 Lo/Noise JFET Op.Amp.	1.20	1.10
Z 2872	TL072 Lo/Noise 2XJFET Op.Amp.	1.95	1.75
Z 2874	TL074 Lo/Noise 4XJFET Op.Amp.	3.50	3.30
Z 2881	TL081 GP JFET Op.Amp.	1.45	1.20
Z 2882	TL082 GP 2XJFET Op.Amp	1.55	1.45
Z 2884	TL084 GP 4XJFET Op.Amp	3.50	3.30
Z 2894	TL494 Pulsewidth Mod Cont CCT	4.50	4.35

Special FET/Mosfet

	ea	10up	
Z 1123	MTP 3055A N Channel Mosfet	1.95	1.90
Z 1240	2N4342 TO-226 P Channel JFET	1.50	1.30
Z 1243	BF245C FET	1.70	1.60
Z 1245	2N5458-MPF 104 TO-226 N Chan. JFET	1.20	1.10
Z 1246	2N5459-MPF 105 TO-226 N Chan. JFET	1.10	1.00
Z 1248	MFE131 TO-206 Dual Gate Mosfet	2.95	2.65
Z 1250	2N5484 TO-92 N Channel JFET	1.20	1.10
Z 1251	2N5485 TO-92 N Channel JFET	1.20	1.10
Z 1252	2N5486 TO-92 N Channel JFET	1.20	1.10
Z 1510	2SK134 N Channel Power Mosfet	11.95	11.25
Z 1512	2SJ49 P Channel Power Mosfet	12.95	12.00
Z 1520	2SJ56 P Channel Power Mosfet	14.95	14.00
Z 1525	2SK176 N Channel Power Mosfet	14.95	14.00
Z 1530	BUZ71 Fet	4.25	4.05
Z 1535	IRF540	6.95	6.50
Z 1540	VN88AF	9.95	9.45
Z 1560	MTM55N10	31.50	29.95

Computer Memory IC's

	ea	10up	
Z 6256	41256 DRAM (256K x 1)	4.95	4.75
Z 6464	4464 DRAM (64K x 4)	4.95	4.80
Z 6664	4164/6664 DRAM (64K x 1)	4.95	4.75
Z 6670	44256 DRAM (256K x 4)	12.95	10.95
Z 6821	6821 Motorola PLA	4.95	4.50
Z 9001	Z80A 4MHZ CPU	6.00	5.50
Z 9005	Z80A 4MHZ P10	5.40	5.20
Z 9010	Z80A 4MHZ CTC	5.40	5.15
Z 9107	2732 32K EPROM	9.50	8.50
Z 9112	2764 64K EPROM	6.95	6.50
Z 9115	27C64 64K EPROM CMOS	7.95	7.45
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	9.80
Z 9130	27C512 EPROM CMOS	10.95	9.95
Z 9160	8255 P.I.A.	6.50	6.20
Z 9170	AY-3-1015D 25K BAUD UART	19.95	18.95

Misc. Semi Conductors

	ea	10up	
Z 0590	UC3906 Gell Cell Power Controller	14.95	13.50
Z 2668	LM3911 Temperature Controller	4.95	4.35
Z 2705	MC1488 Quad. RS-232C Trans	1.95	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 Converter.	6.95	6.50
Z 2930	MC145026 Trinary Encoder	3.10	2.95
Z 2931	MC145027 Trinary Decoder	3.95	3.45
Z 2932	MC145028 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 2945	ADC0820 Fast A to D Converter	21.95	19.95
Z 2950	MC145412 DTMF Telephone Encoder	9.95	9.10
Z 2970	MC145436 DTMF Decoder	9.95	8.95
Z 2980	5L486 IR Receiver	12.50	12.00
Z 7200	NE566 Function Generator	3.15	2.75
Z 7202	NF567 P.I./Tone Decoder	2.25	2.10
Z 7205	XR2206 Function Generator	10.95	10.75
Z 7216	ICM7216AJI Intersil DFM	79.00	75.00
Z 7235	MC3334P Trans. Assisted Ignition	11.50	10.50
Z 7245	LM34018 Hand Free Speaker Phone	9.95	9.50
Z 7250	MC34063 DC to DC Controller	2.95	2.75
Z 7290	74C922 4x4 Keyboard Decoder	8.95	8.15
Z 7292	74C926 4 Dig. Dis. Driver	12.50	12.00
Z 7294	74C946 4 Digit LCD Driver	24.95	22.95
Z 7295	KCL7107 3.5 Digit LED Driver	10.95	9.95
Z 7296	KCL7106 LCD 3-5 Digit Display Driver	10.50	9.95
Z 7297	3.5 Digit LCD Display with Low Bat	10.50	9.95
Z 7298	4 Digit LCD Display	11.95	9.95
Z 7300	ZN414 AM Radio Receiver	1.70	1.50
Z 7315	MC10116 Decade Decoder	3.50	3.30
Z 7320	IDAI170 TV Vert. Deflect	6.50	5.95
Z 7330	TMS 3477 Digital Recorder	14.95	14.50
Z 7335	TEA2000 Colour Bar Generator	12.00	11.50
Z 7350	ULN2003 Solenoid Driver	1.50	1.40
Z 9190	Max232 RS232 Driver Tx/Rx	5.95	5.40

Modem IC

	ea	10up	
Z 9215	7910 World Modem Chip	29.00	26.00

Uni-junction

	ea	10up	
Z 1410	2N6027 TO-92 Programmable	1.20	1.10

IC Sockets

Standard Tinned Type			Machined & Gold Plated				
	ea	10up		ea	10up		
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	1.55	1.45
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 4068	4068 8 Input Nand Gate	.80	.75
Z 4001	4001 Quad 2 I/P Nor Gate	.80	.75	Z 4069	4069 Hex Inverter	.80	.75
Z 4002	4002 Dual 4 I/P Nor Gate	.80	.75	Z 4070	4070 Quad 2 Input Or Gate	.80	.75
Z 4006	4006 18 Stg. Stat Shift Register	1.50	1.40	Z 4071	4071 Quad 2 Input Or Gate	.80	.75
Z 4007	4007 Dual Comp PR Inv	.80	.75	Z 4073	4073 TPL 3 Input And Gate	.80	.75
Z 4008	4008 4 Bit Full Adder	1.50	1.40	Z 4075	4075 TPL 3 Input And Gate	.80	.75
Z 4009	4009 Hex Buffer Inverting	.80	.75	Z 4076	4076 Quad D Flip Flop	1.20	1.10
Z 4010	4010 Hex Buffer N/Invert	.80	.75	Z 4077	4077 Quad Excl Nor Gate	.80	.75
Z 4011	4011 Quad 2 I/P Nand Gate	.80	.75	Z 4078	4078 8 Input Nor Gate	.80	.75
Z 4012	4012 Dual 4 I/P Nand Gate	.80	.75	Z 4081	4081 Quad 2 Input And Gate	.80	.75
Z 4013	4013 Dual D Flip Flop	.80	.75	Z 4082	4082 Quad 4 Input And Gate	.80	.75
Z 4014	4014 8 STG 5TC Shift Reg	1.50	1.20	Z 4093	4093 Quad 2 Input Nand Sch/Trig	.80	.75
Z 4015	4015 Dual 4 Bit STAT Reg	1.20	1.10	Z 4094	4094 8 Stage Shift Register	1.95	1.80
Z 4016	4016 Quad Analog Switch	.80	.75	Z 4097	4097 2x8 Way Analog Switch	2.50	2.70
Z 4017	4017 Decade Counter Driver	.80	.75	Z 4161	4161 Binary Counter A/5	2.00	1.80
Z 4018	4018 Reset Divide-BY-N	.80	.75	Z 4174	4174 Hex D Type Flip Flop	1.30	1.20
Z 4019	4019 Quad And OR SLT Gate	2.20	2.10	Z 4175	4175 Quad D Type Flip Flop	1.30	1.20
Z 4020	4020 14 Stage Bin Counter driver	1.20	1.10	Z4495	4495 Hexdec to 7 Seg Driver	3.95	3.80
Z 4021	4021 8 STG STAT Shift Register	1.20	1.10	Z 4501	4501 Triple Gate	.80	.75
Z 4022	4022 Divide by 8 Counter divider	2.00	1.80	Z 4502	4502 Strobed Hex Inv	2.00	1.80
Z 4023	4023 Triple 3 IPT Nand Gate	.80	.75	Z 4503	4503 Hex N/Inv Tri-St Buffer	1.20	1.10
Z 4024	4024 7 Stage Binary Counter Divider	.80	.75	Z 4508	4508 Dual 4 Bit Lach	3.60	3.40
Z 4025	4025 Triple 3 IPT Nor GT	.80	.75	Z 4510	4510 BCD Up DN Counter	2.00	1.80
Z 4026	4026 Decade CTR-7-Seg Output	2.00	1.80	Z 4511	4511 BCD to 7 SEG DCDR/DR	1.20	1.10
Z 4027	4027 Dual JK Flip Flop	.80	.75	Z 4512	4512 8 CHData Selector	2.00	1.80
Z 4028	4028 BCD-TO-Decimal Decoder	1.50	1.40	Z 4514	4514 4-16 I/N DCDR/4 BT LT	3.50	3.30
Z 4029	4029 Pre-settable UP/DN Counter	1.80	1.60	Z 4515	4515 416 Line Encoder	2.00	1.80
Z 4030	4030 Quad 2 IPT Ex. Or Gate	.80	.75	Z 4516	4516 Binary Up DN Cntr	2.00	1.80
Z 4032	4032 Triple Serial Adder	2.95	2.75	Z 4518	4518 BCD Up Counter	1.20	1.10
Z 4034	4034 8-ST/TRI-ST BI-DIR I/O Bus Reg	4.20	4.00	Z 4520	4520 Dual Binary Up Cntr	1.20	1.10
Z 4035	4035 4 Bit Shift Reg	2.00	1.80	Z 4521	4521 24 Stage Freq Divider	2.00	1.80
Z 4040	4040 12 STG Binary CTR	1.20	1.10	Z 4526	4526 Prog 4 BT BI Counter	2.00	1.80
Z 4042	4042 Quad Clockd D Latch	1.20	1.10	Z 4528	4528 Dual Mono Multi	1.20	1.10
Z 4043	4043 Quad Nor RS Latch	1.20	1.10	Z 4538	4538 Dual Mono/Freq Multiplexer	1.50	1.40
Z 4046	4046 Micro power PLL	1.50	1.40	Z 4543	4543 BCD-7SEG LT/DC/DR/LCD	1.20	1.10
Z 4047	4047 Low Pwr Mono/Asa M/VIB	2.20	2.00	Z 4553	4553 3 Digit BCD Counter	3.50	3.30
Z 4049	4049 Hex Inverting Buffer	.80	.75	Z 4557	4557 1-64 BIT V/LNG Shift Reg	6.95	6.40
Z 4050	4050 Hex Buffer (Non/Inv)	.80	.75	Z 4566	4566 Industrial Time Base Gen	3.15	2.95
Z 4051	4051 8 CH A/Log Multiplex	.80	.75	Z 4568	4568 Phase Comp. Prog Counter	4.50	4.10
Z 4052	4052 4 CH A/Log Multiplexer	1.50	1.40	Z 4581	4581 4 Bit Arithmetic L Unit	5.95	5.50
Z 4053	4053 TPL 2 CH A/Log Multiplexer	1.20	1.10	Z 4582	4582 Look Ahead Carry BLK	2.00	1.80
Z 4060	4060 14 Bit Counter	1.20	1.10	Z 4583	4583 Dual Schmitt Trigger	2.00	1.80
Z 4066	4066 Quad A/Log Switch	.80	.75	Z 4584	4584 Hex Schmitt Trigger	.80	.75
Z 4067	4067 16 Way Analog Switch MLT/DG	2.90	2.70	Z 8450	74C14/40106 Hex Schmitt Trig.	1.50	1.30

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					
	ea	10up	ea	10up	ea	10up				
00	Quad. 2 I/P Nand Gate	Z 7400	1.00	.95	Z 8000	.70	.65	Z 8500	.80	.75
01	Quad. 2 I/P Nand Gate	Z 7401	1.00	.95	Z 8001	.70	.65			
02	Quad. 2 I/P Nor Gate	Z 7402	1.00	.95	Z 8002	.70	.65	Z 8502	.80	.75
03	Quad. 2 I/P Nand Gate(D/C)	Z 7403	1.00	.95	Z 8003	.70	.65			
04	Hex Inverter	Z 7404	1.00	.95	Z 8004	.70	.65	Z 8504	.80	.75
05	Hex Inverter (O/C)	Z 7405	1.00	.95	Z 8005	.70	.65			
06	Hex Inverter Buffer Dvr (O/C)	Z 7406	1.00	.95						
07	Hex/Buf Dvr (O/C)	Z 7407	1.00	.95						
08	Quad. 2 I/P And Gate	Z 7408	1.00	.95	Z 8008	.70	.65	Z 8508	.80	.75
09	Quad. 2 I/P And Gate	Z 7409	1.00	.95	Z 8009	.70	.65			
10	Triple 1/P Nand Gate	Z 7410	1.00	.95	Z 8010	.70	.65	Z 8510	.80	.75
11	Triple 1/P Nand Gate	Z 7411	1.00	.95	Z 8011	.70	.65			
12	Triple 1/P Nand Gate (O/C)	Z 7412	1.00	.95	Z 8012	.70	.65			
13	Dual Nand Gate Schmitt Trigger	Z 7413	1.00	.95	Z 8013	.70	.65			
14	Hex Schmitt Trigger	Z 7414	1.00	.95	Z 8014	.70	.65	Z 8514	.80	.75
17	Hex Buffer Dvr (O/C)	Z 7417	1.00	.95						
20	Dual 4 I/P Nand Gate	Z 7420	1.00	.95	Z 8020	.70	.65	Z 8520	.80	.75
21	Dual 4 I/P Nand Gate	Z 7421	1.00	.95	Z 8021	.70	.65			
23	Dual 4 I/P Nand Gate W/Strobe	Z 7423	1.00	.95						
25	Dual 4 I/P Nand Gate W/Strobe	Z 7425	1.00	.95						
27	Triple 3 I/P Nor Gate	Z 7427	1.00	.95	Z 8027	.70	.65			
30	8 I/P Nand Gate	Z 7430	1.00	.95	Z 8030	.70	.65	Z 8530	.80	.75
32	Quad. 2 I/P Or Gate	Z 7432	1.80	1.70	Z 8032	.70	.65	Z 8532	.80	.75
33	Quad. 2 I/P Nor Gate (O/C)				Z 8033	.70	.65			
37	Quad. 2 I/P Nand Buffer	Z 7437	1.50	1.40	Z 8037	.70	.65			
40	Dual 4 I/P Nand Buffer	Z 7440	1.00	.95						
42	BCD to Decimal Decoder (Q/C)	Z 7442	1.50	1.40	Z 8042	1.00	.90	Z 8542	2.00	1.90
47	BCD to 7 Seg Dec/Driver	Z 7447	2.50	2.30	Z 8047	1.50	1.40			
48	BCD to 7 Seg Dec/Driver				Z 8048	2.10	2.00			
49	BCD to 7 Seg Dec/Driver				Z 8049	2.95	2.80			
50	DL 2W 2 I/P A/O Inv Gate	Z 7450	1.00	.95						
51	And/Or Inv Gate	Z 7451	1.50	1.40						
53	Exp 4W A/O Inv Gate	Z 7453	1.00	.95						
54	4W And/Or Inv Gate	Z 7454	1.00	.95	Z 8054	.70	.65			
60	Dual 4 I/P Expander	Z 7460	1.00	.95						

Continued Next Page

74/74LS/74HC SERIES Continued

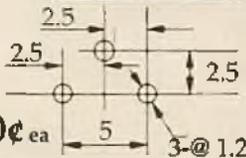
Please note we have listed the relevant last device digits only with this table e.g.: device 10 is available as 7410 (Z 7410), 74LS10 (Z 8010), and 74HC10 (Z 8510). We have adopted this approach to enable you to ascertain at a glance type availability in the different families.

	7400 Series			74LS Series			74HC Series		
		ea	ea 10up		ea	ea 10up		ea	ea 10up
70 And Gated JK Flip Flop	Z 7470	1.50	1.30						
72 And Gated JK Flip Flop	Z 7472	1.50	1.30						
73 Dual JK FF W/=Clear	Z 7473	1.50	1.30	Z 8073	.70	.65	Z 8573	1.50	1.30
74 Dual D Type F/F	Z 7474	1.50	1.30	Z 8074	.70	.65	Z 8574	.80	.75
75 4 Bit Bistable Latch	Z 7475	1.50	1.30	Z 8075	.70	.65			
76 Dual JK Flip Flop	Z 7476	1.00	.95	Z 8076	1.50	1.30	Z 8576	1.50	1.30
76 Dual JK Flip Flop				Z 8076	1.20	1.10			
82 4 Bit Binary Full Adder	Z 7482	4.80	4.40						
83 4 Bit Full Adder	Z 7483	2.00	1.90	Z 8083	1.20	1.10			
85 4 Bit Magnitude Comp	Z 7485	2.00	1.90	Z 8085	.70	.65	Z 8585	1.50	1.30
86 Quad Excl. Or Gate	Z 7486	1.50	1.30	Z 8086	.95	.90	Z 8586	1.00	.90
90 Decade Counter	Z 7490	2.00	1.80	Z 8090	.70	.65			
91 8 Bit Shift Reg	Z 7491	1.00	.95						
92 Divide By 12 Counter	Z 7492	2.00	1.80	Z 8092	.70	.65			
93 4 Bit Binary Counter	Z 7493	1.50	1.30	Z 8093	.70	.65			
94 4 Bit Shift Reg	Z 7494	4.50	4.10						
95 4 Bit Shift Reg	Z 7495	2.00	1.80	Z 8095	1.00	.90			
100 8 Bit Bistable Latch	Z 7700	4.20	4.00						
107 Dual JK Flip Flop	Z 7707	1.50	1.30	Z 8107	1.00	.90	Z 8607	1.50	1.30
109 Dual JK Flip Flop	Z 7709	2.00	1.80	Z 8109	1.00	.90			
112 Dual JK Flip Flop				Z 8112	1.00	.90			
121 Monostable Multivibrator	Z 7721	1.00	.95						
122 Re-triggerable Mono Multivibrator	Z 7722	1.00	.95	Z 8122	1.50	1.30			
123 Dual Re-triggerable Mono Multivibrator	Z 7723	2.00	1.80	Z 8123	1.50	1.30			
125 Quad Tri State Buffer	Z 7725	2.00	1.80	Z 8125	.70	.65			
126 Quad Tri State Buffer				Z 8126	1.50	1.30			
132 Quad 2 I/P Nand Schmitt Trig.	Z 7732	2.00	1.80						
138 Decoder/Demultiplexer				Z 8138	.70	.65			
139 Decoder/Demultiplexer				Z 8139	.70	.65			
141 BCD to Dec Decoder/Drv	Z 7741	1.50	1.40						
143 Counter/Latch Decoder/Drv	Z 7743	8.95	8.50						
147 10 I/P Priority Encoder				Z 8147	1.50	1.30			
148 8 I/P Priority Encoder				Z 8148	1.50	1.30			
151 8 I/P Multiplexer				Z 8151	.70	.65	Z 8651	.80	.75
153 Dual 4 I/P Multiplexer				Z 8153	.70	.65			
155 Dual Decoder/Demultiplexer				Z 8155	1.50	1.30			
156 Dual Decoder/Demultiplexer				Z 8156	1.50	1.30			
157 Quad 2 I/P Multiplexer				Z 8157	.70	.65	Z 8657	.80	.75
158 Quad 2 I/P Multiplexer				Z 8158	1.50	1.30			
160 BCD Decade Counter	Z 7760	2.00	1.80	Z 8160	1.50	1.30	Z 8660	2.00	1.90
161 4 Bit Binary Counter	Z 7761	2.00	1.80	Z 8161	.70	.65	Z 8661	2.00	1.90
162 BCD Decade Counter	Z 7762	2.50	2.30	Z 8162	1.50	1.30			
163 4 Bit Binary Counter				Z 8163	1.50	1.30	Z 8663	2.00	1.90
164 8 Bit Shift Register				Z 8164	.70	.65	Z 8664	2.00	1.90
165 8 Bit Shift Register				Z 8165	2.00	1.80	Z 8665	1.50	1.30
166 8 Bit Shift Register				Z 8166	2.00	1.80			
173 4 Bit D Type Register	Z 7773	1.50	1.30	Z 8173	1.20	1.10	Z 8673	1.50	1.30
174 Hex D Type Flip Flop				Z 8174	1.50	1.30	Z 8674	1.50	1.30
175 Quad D Type Flip Flop				Z 8175	.70	.65	Z 8675	.80	.75
190 U/D Decade Counter	Z 7790	2.00	1.80	Z 8190	2.00	1.80			
191 U/D Binary Counter	Z 7791	2.00	1.80	Z 8191	2.00	1.80			
192 U/D Decade Counter	Z 7792	3.80	3.60	Z 8192	2.00	1.80			
193 U/D Binary Counter	Z 7793	2.20	2.10	Z 8193	.70	.65	Z 8693	1.50	1.30
194 4 Bit R/L Shift Register				Z 8194	2.00	1.80			
195 4 Bit Shift Register				Z 8195	1.50	1.30	Z 8695	2.00	1.90
221 Dual Monostable Multivibrator				Z 8221	1.50	1.30			
240 Octal Inv B/L Dvr				Z 8240	1.50	1.30	Z 8740	2.00	1.90
241 Octal Bus Line Driver				Z 8241	2.00	1.80			
244 Octal 3 State Driver				Z 8244	2.00	1.80	Z 8744	1.50	1.30
245 Octal 3 State Transceiver				Z 8245	2.00	1.80	Z 8745	1.50	1.30
257 Quad 2 I/P Multiplexer				Z 8257	.70	.65			
258 Quad 2 I/P Multiplexer				Z 8258	1.20	1.10			
259 8 Bit Address Latch				Z 8259	1.20	1.10			
266 Quad Exclusive Nor				Z 8266	1.20	1.10			
273 Octal D Type Flip Flop				Z 8273	2.00	1.80			
265 Hex Buffer	Z 7910	2.20	2.00	Z 8365	1.20	1.10			
266 Hex Inverter				Z 8366	1.20	1.10			
267 Hex Buffer				Z 8367	1.20	1.10			
268 Hex Inverter				Z 8368	1.20	1.10			
273 Octal Transparent Latch				Z 8373	1.20	1.10			
274 Octal D Type Flip Flop				Z 8374	1.20	1.10			
277 Octal D Type Flip Flop				Z 8377	2.00	1.80			
293 Dual 4 Bit Shift Register	Z 7923	4.70	4.50	Z 8393	1.20	1.10	Z 8793	1.50	1.30
26 Quad Gate	Z 7926	2.00	1.80						
29 Volt Control Oscillator				Z 8429	6.90	6.15			
70 Register File				Z 8435	2.00	1.80			

Vertical Trimpots

2.54mm Pin Spacing (5mm Overall)

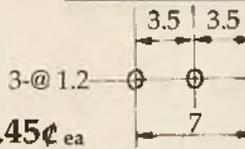
- R 2501 100
- R 2503 200
- R 2505 500
- R 2507 1K
- R 2509 2K
- R 2512 5K
- R 2514 10K
- R 2516 20K
- R 2518 50K
- R 2520 100K
- R 2522 200K
- R 2524 500K
- R 2526 1M
- R 2528 2M



.45¢ ea, 10up .40¢ ea

3.5mm Pin Spacing (7mm Overall)

- R 2551 100
- R 2553 200
- R 2555 500
- R 2557 1K
- R 2559 2K
- R 2557 5K
- 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

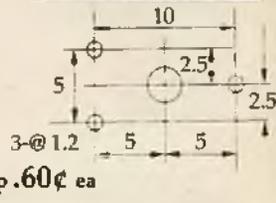


.50¢ ea, 10 up .45¢ ea

Horizontal Trimpots

Enclosed Type

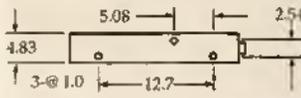
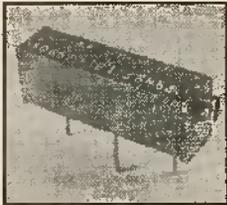
- R 2450 100
- R 2452 200
- R 2454 500
- R 2456 1K
- R 2457 2K
- R 2458 5K
- R 2460 10K
- R 2462 20K
- R 2464 50K
- R 2466 100K
- R 2468 200K
- R 2470 500K
- R 2472 1M
- R 2474 2M



All .65¢ ea, 10 up .60¢ ea

10 Turn Trimpots

- R 2410 100R
- R 2415 200R
- R 2417 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



All \$2.⁶⁰ ea, 10up \$2.⁴⁰ ea

24mm Dual Rotary Pots

With 6.35mm Shafts. Mounting Hole 10mm Ø.

Linear

- R 2270 10K
- R 2271 20K
- R 2272 50K
- R 2273 100K
- R 2274 500K
- R 2275 1M



Logarithmic

- R 2280 10K
- R 2281 20K
- R 2282 50K
- R 2283 100K
- R 2284 500K
- R 2285 1M

All \$3.³⁰ ea, 10 up \$3.⁰⁰

16mm Single Rotary Pots

With 6.35mm Shafts. Mounting hole 8mm Ø. PCB Pin Spacing 5mm, Drill Hole 1.2mm.

Linear

- R 2240 500R
- R 2241 1K
- R 2242 5K
- R 2243 10K
- R 2244 20K
- R 2245 50K
- R 2246 100K
- R 2247 500K
- R 2248 1M



Logarithmic

- R 2250 500R
- R 2251 1K
- R 2252 5K
- R 2253 10K
- R 2254 20K
- R 2255 50K
- R 2256 100K
- R 2257 500K
- R 2258 1M

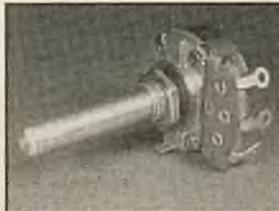
All \$1.⁹⁵ ea, 10 up \$1.⁷⁵ ea

24mm Single Rotary Pots

With 6.35mm Shafts. Mounting Hole 10mm Ø.

Linear

- R 2201 500R
- R 2202 1K
- R 2203 5K
- R 2204 10K
- R 2205 20K
- R 2206 50K
- R 2207 100K
- R 2208 500K
- R 2209 1M
- R 2210 2M



Logarithmic

- R 2211 500R
- R 2212 1K
- R 2213 5K
- R 2214 10K
- R 2215 20K
- R 2216 50K
- R 2217 100K
- R 2218 500K
- R 2219 1M
- R 2220 2M

All \$1.⁹⁵ ea, 10 up \$1.⁷⁵ ea

24mm 3 Watt Wire Wound

With 6.35mm Shafts. Mounting Hole 10mm Ø.

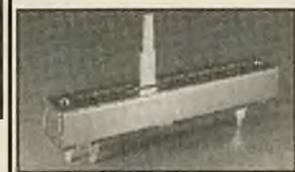
- R 2150 10R
- R 2152 25R
- R 2154 50R
- R 2156 100R
- R 2158 200R
- R 2160 500R
- R 2162 1K
- R 2163 2K
- R 2164 5K
- R 2166 10K



All \$8.⁵⁰ ea, 10up \$7.⁹⁵ ea

Slider Pot

R 2090 50K \$3.⁵⁰ ea, 10 up \$3.⁰⁰ ea



Mounting hole centres 65mm. Thread 3mm. Slider travel 50mm.

RF Chokes



Cat. No.	DC Inductance µH±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	580
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

Cat. No.	DC Inductance µH±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

All \$1.²⁰ ea, 10 Up \$1.⁰⁵ ea

Resistors

ALTRONICS
PHONEORDER 008 999 007

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	Link	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

Resistor Price List

	ea	10up	100up
0.25W Metal Film	10c	8c	7c
0.25W Carbon Film	6c	5c	4c
0.5W Carbon Film	8c	7c	6c
1W Carbon Film	15c	14c	13c
5W Wire Wound	65c	60c	55c

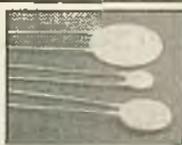
Intermediate Value 0.25W Metal Film

Value	Cat No.	Value	Cat No.
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	51K	R 0623
2K	R 0565	62K	R 0625
2.4K	R 0567	75K	R 0627
3K	R 0569	91K	R 0629

Polyswitches

NEW FOR '93

The Polyswitch circuit protector is a positive temperature coefficient (PTC) resistor that undergoes a large, abrupt change in resistance when an over-current or high temperature heats it above a specific point.



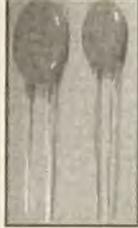
Normally just tens of milli-ohms, the resistance of the PolySwitch protector increases orders of magnitude when switched. This increase limits current to several milli-amps. Self resets when fault condition is removed. Possible applications of Polyswitch devices include: • Speakers • Batteries • Motors

• Power supplies • Transformers etc.

Suppliers Code	Hold Current	On Resistance	ea
R 4050 RDE050A	0.50A	0.423Ω	\$6.20
R 4055 RDE115A	1.15A	0.123Ω	\$6.95
R 4060 RDE245A	2.45A	0.039Ω	\$8.90

Metal Oxide Varistors

Varistors are used as protection devices. When its rated value is exceeded by a voltage spike or transient, as produced by lightning or back EMF from large motors etc its resistance changes from a very high to a very low value thus clamping the dangerous high spike to a safe level.

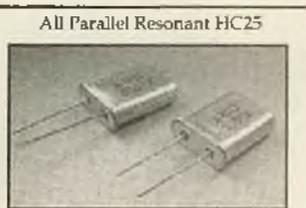


Disc Size	Voltage RMS	Peak Current	Joules	Dissipation
R 4110 14mm	275V	4500A	75	0.6W
R 4120 20mm	275V	6500A	140	1.0W
R 4130 14mm	130V	4500A	35	0.6W

NEW FOR '93

Crystals

	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 1020 8.0	\$3.95	\$3.65
Y 1025 10.0	\$3.95	\$3.65



All Parallel Resonant HC25

Note 0 Ohm Link See Value 0.00Ohm - R 0005

**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 or rubber bung.
- Temperature Range -40 to 85 deg. C
- Tolerance: -10% to +50%



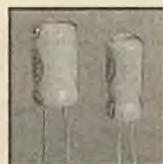
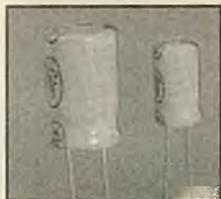
*Superb OEM Quality
& Reliability -
Supplied to Several
Major Australian
Manufacturers!*

Cat.No.	µF	Working Voltage	Surge Voltage	Ripple Current mA	Can Diameter mm	Lead Spacing mm	Can Height mm	ea 1-9	ea 10-24	ea 25up
R 5010	47µF	63V	79V	18	5	2	12	.25	.23	.20
R 5018	1µF	63V	79V	25	5	2	12	.25	.23	.20
R 5024	2.2µF	25V	32V	37	5	2	12	.25	.23	.20
R 5028	2.2µF	63V	79V	37	5	2	12	.25	.23	.20
R 5034	3.3µF	25V	32V	46	5	2	12	.25	.23	.20
R 5038	3.3µF	63V	79V	46	5	2	12	.25	.23	.20
R 5044	4.7µF	25V	32V	59	5	2	12	.25	.23	.20
R 5048	4.7µF	63V	79V	59	5	2	12	.25	.23	.20
R 5054	6.8µF	25V	32V	71	5	2	12	.25	.23	.20
R 5058	6.8µF	63V	79V	71	5	2	12	.25	.23	.20
R 5062	10µF	16V	20V	86	5	2	12	.25	.23	.20
R 5064	10µF	25V	32V	86	5	2	12	.25	.23	.20
R 5065	10µF	35V	44V	86	5	2	12	.25	.23	.20
R 5068	10µF	63V	79V	86	5	2	12	.25	.23	.20
R 5084	22µF	25V	32V	87	5	2	12	.25	.23	.20
R 5088	22µF	63V	79V	134	6.3	3.5	12	.35	.32	.29
R 5094	33µF	25V	32V	108	6	2.5	12	.30	.27	.24
R 5098	33µF	63V	79V	164	8	3.5	12	.40	.35	.32
R 5102	47µF	16V	20V	120	5	2	12	.30	.27	.24
R 5104	47µF	25V	32V	129	6	2.5	12	.30	.27	.24
R 5105	47µF	35V	44V	108	6.3	2.5	12	.35	.32	.30
R 5108	47µF	63V	79V	220	8	3.5	12	.40	.38	.35
R 5122	100µF	16V	20V	176	6	2.5	12	.30	.27	.24
R 5124	100µF	25V	32V	195	6.3	3.5	12	.45	.40	.36
R 5125	100µF	35V	44V	246	8	3.5	12	.60	.55	.50
R 5128	100µF	63V	79V	370	10	5	17	.75	.70	.65
R 5142	220µF	16V	20V	272	8	3.5	12	.35	.30	.27
R 5144	220µF	25V	32V	326	8	3.5	12	.60	.55	.50
R 5148	220µF	63V	79V	570	13	5	12	.90	.85	.75
R 5154	330µF	25V	32V	416	10	5	12	.65	.60	.55
R 5158	330µF	63V	79V	766	13	5	12	.95	.90	.85
R 5162	470µF	16V	20V	467	10	5	12	.60	.55	.50
R 5164	470µF	25V	32V	548	10	5	17	.70	.65	.60
R 5165	470µF	35V	44V	690	13	5	17	1.00	.90	.80
R 5168	470µF	63V	79V	942	16	7.5	17	1.50	1.35	1.20
R 5182	1000µF	16V	20V	751	10	5	17	.75	.70	.65
R 5184	1000µF	25V	32V	830	13	5	17	.95	.90	.80
R 5185	1000µF	35V	44V	1046	13	5	21	1.40	1.25	1.15
R 5188	1000µF	63V	79V	1450	18	7.5	32	1.95	1.85	1.70
R 5202	2200µF	16V	20V	1020	13	5	21	.95	.90	.80
R 5204	2200µF	25V	32V	1180	16	7.5	21	1.40	1.30	1.15
R 5206	2200µF	50V	63V	1650	18	7.5	21	2.90	2.65	2.40
R 5208	2200µF	63V	79V	1680	22	10	21	4.70	4.30	3.90
R 5214	3300µF	25V	32V	1268	18	7.5	31	1.95	1.75	1.60
R 5216	3300µF	50V	63V	1680	22	10	31	4.70	4.30	3.90
R 5222	4700µF	16V	20V	1471	16	7.5	32	1.60	1.50	1.35
R 5224	4700µF	25V	32V	1614	18	7.5	35	2.75	2.50	2.25
R 5226	4700µF	50V	63V	1938	25	12.5	40	4.95	4.60	4.10
R 5234	10000µF	25V	32V	2617	25	12.5	40	5.95	5.50	5.00

**PCB Mount (RB) Low
Leakage Capacitors**

Features:

- Very low leakage current
- Low impedance characteristics
- Long life
- Can be used as a replacement for tantalum capacitors
- Temperature Range -40 to 85 deg C
- Tolerance: -20% to +50%



Cat.No.	µF	Working Voltage	Surge Voltage	Ripple Current mA	Can Diameter mm	Lead Spacing mm	Can Height mm	ea 1-9	ea 10-24	ea 25up
R 6006	1µF	50V	63V	7	5	2	11	.35	.30	.27
R 6016	1.5µF	50V	63V	9	5	2	11	.35	.30	.27
R 6026	2.2µF	50V	63V	11	5	2	11	.35	.30	.27
R 6036	3.3µF	50V	63V	14	5	2	11	.35	.30	.27
R 6046	4.7µF	50V	63V	17	5	2	11	.35	.30	.27
R 6056	6.8µF	50V	63V	21	5	2	11	.35	.30	.27
R 6066	1µF	50V	63V	25	5	2	11	.35	.30	.27
R 6076	1.5µF	50V	63V	31	5	2	11	.35	.30	.27
R 6086	2.2µF	50V	63V	37	5	2	11	.35	.30	.27
R 6096	3.3µF	50V	63V	46	5	2	11	.35	.30	.27
R 6106	4.7µF	50V	63V	55	5	2	11	.35	.30	.27
R 6115	6.8µF	35V	44V	66	5	2	11	.35	.30	.27
R 6125	10µF	35V	44V	72	5	2	11	.35	.30	.27
R 6135	15µF	35V	44V	89	6	2.5	11	.35	.30	.27
R 6145	22µF	35V	44V	108	6	2.5	11	.40	.35	.32
R 6154	33µF	25V	32V	121	6	2.5	11	.40	.35	.32
R 6155	33µF	35V	44V	137	8	3.5	11.5	.40	.35	.32
R 6164	47µF	25V	32V	150	6.3	3.5	11.5	.40	.35	.32
R 6165	47µF	35V	44V	164	8	3.5	11.5	.40	.35	.32
R 6174	68µF	25V	32V	180	5	3.5	11.5	.40	.35	.32
R 6175	68µF	35V	44V	220	8	3.5	11.5	.45	.40	.35
R 6182	100µF	16V	20V	219	6.3	3.5	11.5	.45	.40	.35
R 6185	100µF	35V	44V	269	8	3.5	15	.45	.40	.35
R 6192	220µF	16V	20V	324	8	3.5	11.5	.45	.40	.35
R 6195	220µF	35V	44V	459	10	5	20	.65	.60	.55
R 6202	330µF	16V	20V	456	10	5	16	.45	.40	.35
R 6205	330µF	35V	44V	584	13	5	21	.80	.75	.70
R 6212	470µF	16V	20V	613	10	5	21	.50	.45	.40
R 6215	470µF	35V	44V	765	13	5	21	.95	.90	.85

Capacitors

ALTRONICS
PHONEORDER 008 999 007

PCB Mount (RB) Bipolar

Features:
Radial lead, bi-polarized, suitable for crossover networks

Have excellent frequency characteristics
Low leakage current and low dissipation factor
Temperature range -40 to +85°C
Tolerance: -20% to +50%



Cat.No.	µF	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 6510	1µF	50V	63	30	8	3.5	13	.45	.40	.35
R 6520	2.2µF	50V	63	44	8	3.5	13	.45	.40	.35
R 6530	3.3µF	50V	63	54	8	3.5	13	.45	.40	.35
R 6540	4.7µF	50V	63	65	8	3.5	13	.45	.40	.35
R 6550	6.8µF	50V	63	79	8	3.5	13	.45	.40	.35
R 6560	10µF	50V	63	88	10	5	17	.65	.60	.55
R 6570	22µF	50V	63	145	10	5	20	.75	.70	.65
R 6580	47µF	50V	63	220	13	5	20	1.15	1.05	.90
R 6590	100µF	50V	63	363	16	7.5	25	1.60	1.45	1.30

Chassis Mount Electrolytics - Can Type With Clip

No.	µF	Working Voltage	Surge Voltage	Ripple Current mA	Can Diameter mm	Lead Spacing mm	Can Height mm	ea	ea
								1-9	10up
10	4000µF	63V	80V	1814	30	10	50	10.80	9.90
20	8000µF	63V	80V	2039	35	14	61	19.50	17.50
30	10000µF	50V	80V	2473	30	10	51	16.50	15.00
12	4000µF	75V	95V	2870	35	14	50	16.00	15.00
22	8000µF	75V	95V	4200	35	14	80	19.50	17.50
40	10000µF	100V	125V	5630	40	14	75	29.50	28.00

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° to +85° C
- Tag type terminals for easy connection
- Tolerance: -20% to +50%



PCB Mount Electrolytic

Capacitors

With Auxiliary Lead

Has an auxiliary terminal (not electrically connected), which acts as a stabiliser and allows positive fixing to PCB, to withstand vibration and transit movement.

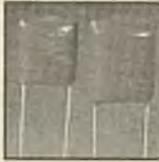
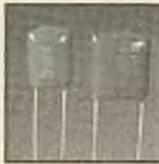


Cat. No.	µF	Working Voltage	Surge Voltage	Ripple Current mA	ea	ea
					1-9	10up
R 6820	4700µF	50V	63	2400	6.60	5.95
R 6825	4700µF	80V	100	3000	9.95	9.15
R 6840	10000µF	50V	63	3300	9.95	9.15

50V Greencaps

Tolerance: +/-10%

No	Value	Lead Space	ea	ea	ea
			10up	10up	100up
00	.001µF	4mm	.25	.20	.18
01	.0012µF	4mm	.25	.20	.18
02	.0015µF	4mm	.25	.20	.18
03	.0018µF	4mm	.25	.20	.18
04	.0022µF	4mm	.25	.20	.18
06	.0033µF	4mm	.25	.20	.18
08	.0039µF	4mm	.25	.20	.18
10	.0047µF	4mm	.25	.20	.18
12	.0056µF	4mm	.25	.20	.18
14	.0068µF	4mm	.25	.20	.18
16	.0082µF	4mm	.25	.20	.18
18	.01µF	4mm	.25	.20	.18
19	.012µF	4mm	.25	.20	.18
20	.015µF	4.5mm	.25	.20	.18
21	.018µF	4.5mm	.25	.20	.18
22	.022µF	4.5mm	.25	.20	.18
24	.033µF	4.5mm	.25	.20	.18
26	.039µF	5mm	.25	.20	.18
28	.047µF	5mm	.30	.25	.22
30	.056µF	5mm	.30	.25	.22
32	.068µF	7mm	.30	.25	.22
34	.082µF	7mm	.30	.25	.22
16	.1µF	7mm	.30	.25	.23
17	.12µF	7mm	.40	.35	.31
18	.15µF	7mm	.40	.35	.31
19	.18µF	10mm	.50	.45	.40
10	.22µF	10mm	.50	.45	.40
12	.27µF	10mm	.50	.45	.40



50V Greencaps

No	Value	Lead Space	ea	ea	ea
			10up	10up	100up
14	.33µF	17mm	.50	.45	.40
16	.47µF	17mm	.70	.60	.54
18	1.0µF	22.5mm	1.40	1.25	1.10
10	2.2µF	27.5mm	2.10	2.00	1.50
12	3.3µF	27.5mm	2.95	2.75	2.45
14	4.7µF	37.5mm	4.25	4.00	3.85
16	6.8µF	37.5mm	4.95	4.75	4.50
18	10µF	37.5mm	6.95	6.75	6.50

50V Greencaps

No	Value	Lead Space	ea	ea	ea
			10up	10up	100up
0	.01µF	5.5mm	.35	.30	.20
2	.022µF	5.5mm	.35	.30	.20
4	.033µF	5.5mm	.40	.35	.30
6	.047µF	5.5mm	.40	.35	.30
8	.1µF	5.5mm	.90	.80	.75
10	.22µF	5.5mm	1.05	.95	.80
12	.33µF	5.5mm	1.30	1.15	1.05
14	.47µF	5.5mm	1.35	1.20	1.10

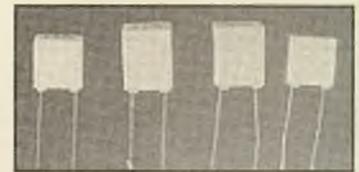


MKT Style Capacitors

Unlike normal greencap type polyester capacitors MKT's have a consistent physical size and constant lead spacing. In actual fact the lead spacing on all values is the same at 5mm.

Tolerance: +/-10%

R	Value	Price	R	Value	Price
R 3001	.001µF	.25	R 3019	.033µF	.35
R 3002	.0012µF	.25	R 3020	.039µF	.35
R 3003	.0015µF	.25	R 3021	.047µF	.35
R 3004	.0018µF	.25	R 3022	.056µF	.35
R 3005	.0022µF	.25	R 3023	.068µF	.35
R 3006	.0027µF	.25	R 3024	.082µF	.35
R 3007	.0033µF	.25	R 3025	.1µF	.35
R 3008	.0039µF	.25	R 3026	.12µF	.35
R 3009	.0047µF	.25	R 3027	.15µF	.35
R 3010	.0056µF	.25	R 3028	.18µF	.45
R 3011	.0068µF	.25	R 3029	.22µF	.45
R 3012	.0082	.25	R 3030	.27µF	.45
R 3013	.01µF	.25	R 3031	.33µF	.45
R 3014	.012µF	.25	R 3032	.39µF	.60
R 3015	.015µF	.25	R 3033	.47µF	.70
R 3016	.018µF	.25	R 3034	.56µF	.80
R 3017	.022µF	.25	R 3035	.68µF	1.00
R 3018	.027µF	.25			



NEW FOR '93

250V AC Capacitors

Specifically designed for mains and other suppression applications. They are all rated at 250V AC continuous.

R	Value	ea	10 up
R 3101	0.01µF	.90	.80
R 3106	0.022µF	.90	.80
R 3111	0.033µF	\$1.00	.90
R 3116	0.47µF	\$1.35	\$1.25
R 3121	0.1µF	\$2.00	\$1.80
R 3126	0.22µF	\$2.25	\$2.00
R 3131	0.47µF	\$2.75	\$2.50



NEW FOR '93

440V AC Capacitor

As used in mains isolation applications eg Telephone line isolation equipment. Modems etc. PCB mount. 2µF 440V AC.

R 6900 \$4.⁹⁵ ea, 10 up \$4.⁴⁵ ea



50V Ceramic Capacitors

Tolerance: +/-20%

Cat No	Value	Lead Space	ea		
			ea	10up	100up
R 2791	1pF	5mm	.15	.12	.10
R 2792	2pF	5mm	.15	.12	.10
R 2793	3pF	5mm	.15	.12	.10
R 2794	4pF	5mm	.15	.12	.10
R 2795	5pF	5mm	.15	.12	.10
R 2796	6pF	5mm	.15	.12	.10
R 2797	7pF	5mm	.15	.12	.10
R 2798	8pF	5mm	.15	.12	.10
R 2810	10pF	5mm	.15	.12	.10
R 2811	12pF	5mm	.15	.12	.10
R 2812	15pF	5mm	.15	.12	.10
R 2813	18pF	5mm	.15	.12	.10
R 2814	22pF	5mm	.15	.12	.10
R 2815	27pF	5mm	.15	.12	.10
R 2816	33pF	5mm	.15	.12	.10
R 2817	39pF	5mm	.15	.12	.10
R 2818	47pF	5mm	.15	.12	.10
R 2819	56pF	5mm	.15	.12	.10
R 2820	68pF	5mm	.15	.12	.10
R 2821	82pF	5mm	.15	.12	.10
R 2822	100pF	5mm	.15	.12	.10
R 2823	120pF	5mm	.15	.12	.10
R 2824	150pF	5mm	.15	.12	.10
R 2825	180pF	5mm	.15	.12	.10
R 2826	220pF	5mm	.15	.12	.10
R 2827	270pF	5mm	.15	.12	.10
R 2828	330pF	5mm	.15	.12	.10
R 2829	390pF	5mm	.15	.12	.10
R 2830	470pF	5mm	.15	.12	.10
R 2831	560pF	5mm	.15	.12	.10
R 2832	680pF	5mm	.15	.12	.10
R 2833	820pF	5mm	.15	.12	.10
R 2834	.001μF	5mm	.15	.12	.10
R 2837	.0022μF	5mm	.15	.12	.10
R 2840	.0033μF	5mm	.15	.12	.10
R 2842	.0047μF	5mm	.15	.12	.10
R 2843	.0056μF	5mm	.15	.12	.10
R 2844	.0068μF	5mm	.15	.12	.10
R 2845	.0082μF	5mm	.15	.12	.10
R 2846	.01μF	5mm	.15	.12	.10
R 2850	.022μF	5mm	.15	.12	.10
R 2855	.033μF	5mm	.15	.12	.10
R 2860	.047μF	5mm	.15	.12	.10
R 2865	.1μF	5mm	.35	.30	.25



Tantalum Capacitors

Tolerance: +/-10%

Cat No	Value	Volts	Lead Space	ea	
				ea	10up
R 2620	.1μF	35V	5mm	.70	.65
R 2622	.22μF	35V	5mm	.70	.65
R 2624	.33μF	35V	5mm	.70	.65
R 2626	.47μF	35V	5mm	.70	.65
R 2628	1μF	35V	5mm	.70	.65
R 2632	2.2μF	35V	5mm	.80	.75
R 2634	3.3μF	35V	5mm	.70	.65
R 2635	4.7μF	25V	5mm	.70	.65
R 2636	4.7μF	35V	5mm	.95	.85
R 2637	6.8μF	35V	5mm	1.05	.95
R 2638	10μF	25V	5mm	1.10	.98
R 2640	15μF	25V	5mm	1.10	.98
R 2642	22μF	16V	5mm	1.10	.98
R 2644	33μF	10V	5mm	1.10	.98
R 2646	47μF	6.3V	5mm	1.35	1.25
R 2648	100μF	3V	5mm	1.50	1.35



50V Monolithic Capacitors

Tolerance: +/-10%

Cat No	Value	Lead Space	ea		
			ea	10up	100up
R 2900	.001μF	5mm	.25	.20	.18
R 2915	.022μF	5mm	.25	.20	.18
R 2910	.01μF	5mm	.25	.20	.18
R 2920	.033μF	5mm	.25	.20	.18
R 2925	.047μF	5mm	.25	.20	.18
R 2930	.1μF	5mm	.25	.20	.18
R 2935	.22μF	5mm	.55	.50	.45
R 2940	.33μF	5mm	.55	.50	.45
R 2945	.47μF	5mm	.70	.60	.55
R 2950	1μF	5mm	1.25	1.15	1.05



Trimmer Capacitors

D Series, top adjust, 2 pin, 5mm pin spacing. Colour coded for capacitor range identification.

Cat No	Value	Color
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^{.50} ea, 10 up \$1^{.35} ea

60-160pF Variable Tuning Capacitor

R 2601 \$1^{.75} ea, 10 up \$1^{.40} ea



Component Bulk Packs

Convenient for Schools and Hobbyists
All computer selected values, i.e.: you get more of the most used values and less of the least common. All 1st quality factory fresh.

1/4 W Carbon Resistor Packs

Average Contents: 300 \$12.00 value.
R 3501 \$7^{.50} pk, 10 Up \$6^{.95} pk

1/4 W Metal Film Resistor Packs

Average Contents: 150 \$14.00 value.
R 3505 \$5^{.95} pk, 10 Up \$5^{.50} pk

Greencap Capacitor Packs

Average Contents: 50 \$12.00 value.
R 3510 \$5^{.95} pk, 10 Up \$5^{.50} pk

Ceramic Capacitor Packs

Average Contents: 100 \$14.00 value.
R 3515 \$5^{.95} pk, 10 Up \$5^{.50} pk

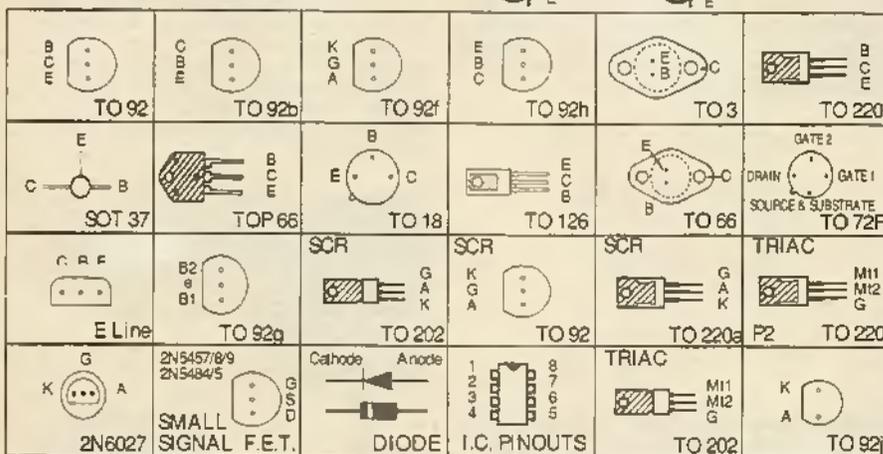
Electrolytic Capacitor Packs

Average Contents: 40 \$16.00 value.
R 3520 \$8^{.95} pk, 10 Up \$8^{.50} pk

Welcome to the 1993 revised data pages. We have spent considerable time to put together our best data pages yet, however they are by no means complete. We are always on the look out for new information and general data. If you have any ideas that you would like to see in this section, then please write to us and let us know what you would like to see.

Transistor Cases.

(All viewed from below unless stated.)



A Brief Introduction To Electronics.

Voltage and Current.

There are two quantities that we want to keep track of within an electronic circuit, these are voltage and current. These are normally changing with time, for if they didn't nothing interesting would happen.

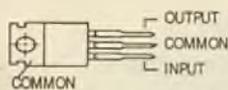
Voltage is the measure of potential difference between two points, either within a circuit or anywhere where electricity is found. The higher the voltage, generally, the more energy. Although voltage should not be confused with the quantity of current. Current is the measure of the rate of flow of electricity past a point. The two being very different but both very important. For example:

A car uses 12 Volts within all its circuits, but the current flow is very different between the interior light and the starter motor. We all know that the starter motor will flatten a battery much quicker than the light globe. However, the light globe will flatten the battery if it is left on long enough.

The reason it is important to know both quantities, is because not enough current, too much, or too little voltage can cause damage to the circuit or power supply.

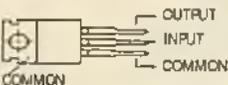
Voltage Regulators

Connections for TO 220 package 78xx positive series voltage regulators.

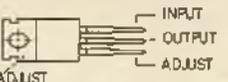


Top View.

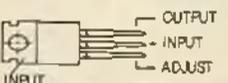
Connections for TO 220 package 79xx negative series voltage regulators.



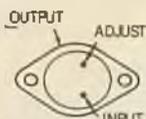
Connections for TO 220 package LM 317T and LM 350T adjustable voltage regulator.



Connections for TO 220 package LM 337T adjustable voltage regulator.



Connections for TO 92 package LM 317K and LM 350K voltage regulators.



Bottom View.

Connections for TO 92 package 78XX series positive voltage regulators.



Bottom View.

Schematic Diagram Component Identification Chart.

RESISTOR	RESISTOR	CAPACITOR	CAPACITOR	INDUCTOR
DIODE	L.E.D	NEON	ZENER DIODE	ZENER DIODE
TRANSISTOR NPN	TRANSISTOR PNP	F.E.T. N-TYPE	F.E.T. P-TYPE	UNI-JUNCTION
DIAC	P.U.T.	MOSFET	TRIAC	SCR

Peak, Average and RMS Relationships

The term RMS often causes confusion. RMS stands for root-mean-squared and can be calculated from the formulas in the table below. To explain this term simply, it is best done through an example. A 100 volt RMS AC waveform will cause the same power dissipation as a 100 volt D.C. when put on a resistive load. The power dissipation will be identical for both. Most test equipment does not actually measure RMS value, but actually measures an average value. Knowing this, we can convert an average value back through the formula to calculate true RMS as long as we know the wave shape.

Given Value	Multiplication Factor			
	Average	RMS	Peak	Peak to Peak
Average	1.0	1.11	1.57	3.14
RMS	0.9	1.0	1.414	2.828
Peak	0.637	0.707	1.0	2.0
Peak to Peak	0.32	0.3535	0.5	1.0

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Resistance.

A piece of plastic has a very high resistance to the flow of electricity and is very often referred to as an insulator. That is why it is used in many places where it is desirable to completely prevent the flow of electricity. Conversely, copper wire has a very low resistance, and thus it is used as a conductor of electricity. There are many other materials which are available that are in between the two extremes of copper and plastic, and these have particular uses one of which is the light bulb. When a material has a resistance, it reduces the flow of electricity, i.e. the current flow. One of the devices used within electronic circuits is a component called the resistor. As its name suggests, it resists the flow of current through it. This is often used to limit the current flowing to a particular device for reasons varying from preventing the over charging of a battery, to dimming a light bulb. When a resistance is put into a circuit and a voltage is applied across it some current will flow. The amount of current will vary due to a number of factors such as the voltage across it and the value of the resistance. The lower the resistance, the more the current.

The process of putting a resistance into a circuit has a few side effects, one of which is the fact that heat will be produced.

Resistors

There are a number of different types of resistors as well as there being a wide range of values. Resistors can normally be identified by having coloured rings around a cylindrical body. Some of the more common sizes available are 1/4, 1/2, 1 and 5 Watt. The Wattage refers to the amount of power each one can handle without burning out. Generally the larger the wattage the larger the body. 5 watt resistors are normally rectangular in shape, and are made of wire wound onto a former which is then encapsulated in ceramic for heat dissipation. Resistance is measured in OHMS or R. When the values get into the 1000's it is abbreviated to a K, and millions, an M.

eg.
100 R = 100 Ohms
4,700 R = 4K7 Ohms or 4.7 K

1,200,000 R = 1M2 Ohms or 1.2 M

To read the value of the resistor we use the coloured bands placed on the body. The way the colour bands are read is thus:

Read the colour of the first two bands and look up the values in the table below. Then obtain the value of the third band and add that amount of Zeros to the reading obtained (cont) previous. The fourth band refers to the tolerance of the resistor. (Or how close it is to it's true value.)

e.g.
Brown, Green, Black, Gold = 15 () = 15 Ohms
Brown, Black, Red, Gold = 10 (00) = 1000 Ohms or 1 K
Blue, Green, Yellow, Gold = 68 (0000) = 680000 Ohms or 680 K
Brown, Black, Blue, Gold = 10 (000000) = 10000000 Ohm or 10M

Resistor Colour Chart



Colour	Tens	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)

One percent resistors have an extra band on them, but reading them is just as easy. All you have to do is read the first three values, not the first two, and then add the zeros.

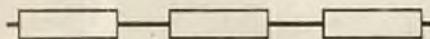
Preferred Values

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 components there can be between 3 to 192 values per decade. The table below shows the more common series.

(5% Tolerance.) E 12 Series. 12 Per Decade.
10, 12, 15, 18, 22, 27, 33, 39, 47, 56, 68, 82, (100, 120, etc.)

(1% Tolerance.) E 24 Series. 24 Per Decade.
10, 11, 12, 13, 15, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82, 91, (100, 110, 120 etc.)

Resistors In Series



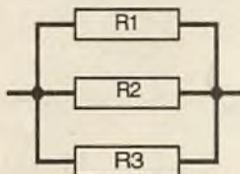
When two or more resistors are placed end to end, this is called putting them in series. This does have an effect on the overall resistance of the resistors. Quite simply, you just add the values together. Thus:-

$$R_{Total} = R_1 + R_2 + R_3 + \dots$$

e.g.
Two resistors of values 1 K 5 and 150 Ohms are put in series the total value would now be 1650 Ohms.

Resistors In Parallel

Resistors put in parallel unfortunately are not quite so easily calculated. A calculator comes in very handy for these calculations. As you can see from the formula, it is necessary to divide 1 by the value of each resistor, then add up all the parts and do the division again, but this time with the answer obtained from the addition. It is easy to do once you see how it is done.



$$R_{Total} = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}}$$

e.g.
Two resistors of values 1 K 5 and 150 Ohms are put in parallel the total value would now be 136.36 Ohms.

Power In A Circuit.

When you pass current through a particular component, heat is produced. The amount of heat can be calculated with the following formulas. This is important to know for when calculation the wattage of particular components used in a circuit. (Such as resistor values).

$$P = V \times I \text{ or}$$

$$P = I^2 R$$

Alternatives.

$$V = P / I$$

$$I = P / V$$

Where
P = Power in Watts
V = Voltage across device
I = Current in Amps

The PVI triangle helps to remember which way round the formula goes. Just cover up the value you want and the formula appears.



Ohms Law.

Ohms law would have to be the single most commonly used formula in electronics today. It defines the relationship between voltage, current and resistance. The current flowing through a resistance is proportional to the voltage applied. It is a very useful formula for calculating things like resistor values for running LED's on higher voltages to calculating the current draw of a heater.

$$V = I \times R$$

$$I = V / R$$

$$R = V / I$$

Where
V = Voltage across device
I = Current in Amps
R = Resistance of device
An easy way to remember Ohms law is to remember the Ohms law triangle.



Capacitors. A Brief Description.

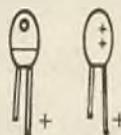


The function of a capacitor is to store an electrical charge. They can be thought of as similar to a small and very fast rechargeable battery. Although they can transmit an alternating current they cannot pass direct current because there is no electrical connection between the two wires going to the capacitor. This feature makes them very useful for passing things like audio signals, which should only be A.C. to the other main use for them which is to act as a smoothing component for voltage rails.

Capacitor Types

The most commonly used types of capacitors are greencaps, electrolytics, ceramics, monoblocks, MKT's and tantalums. Electrolytic and tantalum capacitors are both polarized which means when they are installed care needs to be taken to which lead is positive.

Tantalum Capacitors



Very low leakage, high reliability, long life and offers 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 tight tolerance in (RF) radio frequency circuits.
2. (RF) capacitors. Also for spike suppression in digital circuits and power supply filtering.

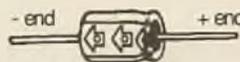


Greencap (Metalized Polyester)

Widely used in general purpose applications, lowest cost.



Electrolytics



RT or Axial Style



HB or PC mount

Low tolerance. Mostly used where accuracy is not too important such as power supply filters and such like.

Decimal Multipliers

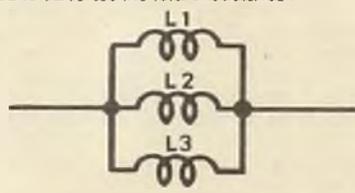
Capacitance, although it is measured in farads, the unit of a farad is much too large to be of practical use in most cases. Purely for convenience, we use sub-multiples to save extremely long figures. For example, instead of writing 0.000000000001 farads, simply use 1pF (1 picofarad). Following are the more common prefixes and the relationships to one another.

Abbrev.	Prefix	Multiply by	or	pF	nF	uF	mF	EIA Code
p	pico	0.000000000001	10 ⁻¹²	100	0.1	0.0001	-	101
n	nano	0.000000001	10 ⁻⁹	820	0.82	0.00082	-	821
u	micro	0.000001	10 ⁻⁶	1000	1	0.001	-	102
m	milli	0.001	10 ⁻³	82,000	8.2	0.0082	-	822
	UNIT 1		10 ⁰	10,000	10	0.01	-	103
k	kilo	1000	10 ³	82,000	82	0.082	-	823
M	mega	1000000	10 ⁶	100,000	100	0.1	0.001	104
				-	820	0.82	0.00082	824
				-	1,000	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	-

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

Inductors in Parallel

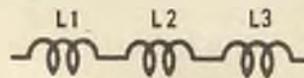
Inductors in parallel, are very much like resistors in parallel. In the way that the same formula is used to calculate the total inductance.



$$L_{Total} = \frac{1}{\frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3} + \dots}$$

Inductors in Series

As per inductors in parallel, inductors in series can be treated the same way as resistors in series. Thus:



$$L_{Total} = L_1 + L_2 + L_3 + \dots$$

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 capacitors and inductors is termed reactance while the impedance of a resistor is termed resistance. The impedance of an inductor increases with increasing frequency, while the impedance of a capacitor increases with decreasing frequency. Capacitive Reactance can be calculated from the following formula:

$$X_C = \frac{1}{2\pi f C}$$

For an inductor the formula becomes:

$$X_L = 2\pi f L$$

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:

$$Z = \sqrt{R^2 + X^2}$$

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:

$$f = \frac{1}{2\pi\sqrt{LC}}$$

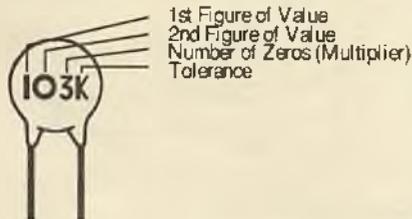
Capacitor Magnitudes

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 100pF
 10pF remains as 10pF
 1pF remains as 1pF

Capacitor Codes

The markings on capacitors puzzle amateurs and professionals alike. There are many different codes in use, the most common being the 'EIA Code'

Most capacitors will have their value printed on them. However, there are a growing number of capacitor manufacturers who use the EIA code. The EIA code is a numerical code that works in a similar way to the resistor colour code: i.e. The first two figures for the value followed by a multiplier. Quite often there is a single letter, indicating tolerance. The code is designed to operate in picofarads, so there is a good chance you will have to use the appropriate multiplier to obtain the final value. For example a capacitor may have a code '103K'. The first two figures gives us '10', the third figure gives us '3' which is '000', and the last 'K'.



This translates to 10 (000) or 10000pF or 10nF or 0.01uF.

This is normally expressed as 0.01uF as nanofarads are nowadays rarely used. Capacitors with a value below 0.001uF are normally expressed in Picofarads. There may be a further figure marked on the capacitor, this would normally be the maximum voltage rating.

Circuit Notation

Component values in some circuits are given as they are spoken e.g. 4.7pF for 4.7 picofarads, 56pf for 56 picofarads. 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. This is a very similar method to resistors.

Conversions

The following chart is quite useful to get to understand the relationship in all the different decimal multipliers. It shows the EIA code compared to their true values and their comparisons.

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. Some of the more commonly used tolerance codes are:

Code	Colour	Tolerance	Code	Colour	Tolerance
A	-	+/- 20-10	L	-	+/- 15%
C	Red	+/- 0.25pf	M	Black	+/- 20%
D	Green	+/- 0.5pf	N	-	+/- 30%
E	White	+/- 1pf	P	-	+100-0
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

Voltage Rating

Some 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 in which case refer to the supplier. (Usually 50 Volt for Ceramics.)

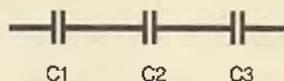
Polarity

Capacitors that are polarity conscious, such as electrolytics and tantalums are usually marked with a '+' or '-' symbol adjacent to one lead.

Capacitors in Series

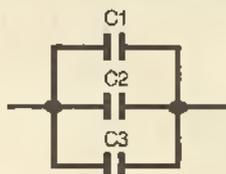
Capacitors in series are similar to resistors in parallel you add the reciprocals as follows:

$$C_{Total} = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} + \dots}$$



Capacitors in Parallel

Capacitors behave exactly the opposite to resistors: when capacitors are in parallel, you simply just add them:



101a

OPTO AND LED SECTION

A Brief Description of a LED

Light Emitting Diodes are a special type of diode which lights when a voltage is applied across its terminals. They are available in red, green, yellow, orange and blue, although blue LED's are still very expensive. They also come in various shapes and sizes. Some of the more common types available are round, square, and rectangular. Sizes are generally 3mm, 5mm or 10mm in diameter. LED's are polarized so it is important to connect them up correctly to prevent damage. As a general rule, the longer lead is the positive.

Typical Voltage Drop Of LED's

COLOUR	Red	Green	Yellow	Orange
V _f (Typical.)	1.8V	2.2V	2.1V	2.0V

Average current draw of LED = 20 mA (Approx)

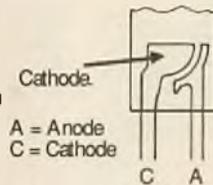
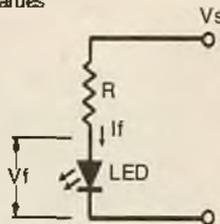
Operating LED's From a DC Voltage Source

Preselcted Resistor Values

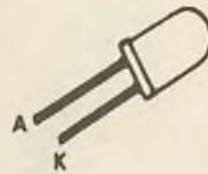
For I_f = 20 mA
 3 VDC use 68 Ohm
 6 VDC use 220 Ohm
 9 VDC use 390 Ohm
 12VDC use 560 Ohm
 20VDC use 1.2 K Ohm

$$R = \frac{V_s - V_f}{I_f}$$

Where V_f is the voltage drop of the LED and I_f is the current draw of the LED



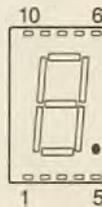
A = Anode
C = Cathode



If the leads have been chopped, as they quite often are, it is still possible to identify the leads by taking a close look at the head of the LED. As you can see from the diagram, the cathode is easily identified.

7 Seg Display Pinouts

Characteristics	FND 700 FND 507 HDSF5303	5151 5150 HDSF5301
Digit Size	12.7mm	1. Seg E
Colour	Red	2. Seg D
Average Forward Current Per Segment	25 mA	3. Common
Forward Voltage	1.7 V	4. Seg C
Min Reverse Breakdown Voltage	3V	5. Dec Point
Max Reverse Current Per Segment	100µa	6. Seg B
Light Intensity	600 ucd	7. Seg A
Max Power Dissipation	400mW	8. Common
		9. Seg F
		10. Seg G

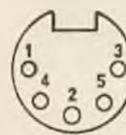


Din Connections



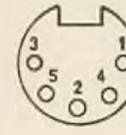
- Microphone**
- Hot Lead.
 - Screening Earth.
 - Return Lead.

Male Plug



- Microphone**
- Balanced Line**
- Hot Lead of Left Channel
 - Screening Earth
 - Return of Left Channel
 - Hot Lead of Right Channel
 - Return of Right Channel

Female Socket

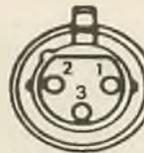


- Unbalanced Line**
- Hot Lead of Left Channel
 - Screening Earth
 - Not Used
 - Hot Lead of Right Channel
 - Not Used

Record Player

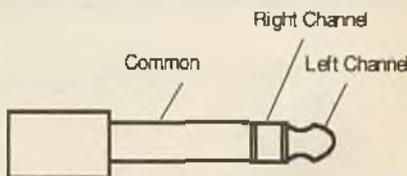
- Input of Left Channel
- Screening Earth
- Output of Left Channel
- Input of Right Channel
- Output of Right Channel

3 Pin XLR Cannon Connectors

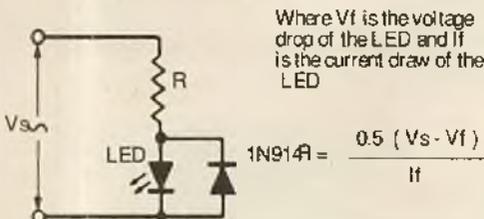


- EC Standard**
- Earth / Shield
 - In Phase (Hot)
 - Out Of Phase (Cold).
- Common Alternative**
- Earth / Shield
 - Out Of Phase
 - In Phase.

Headphone Plug Pin Connections



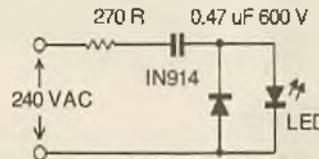
Operating a LED from an AC Voltage Source



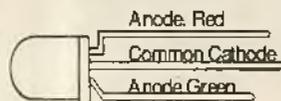
Where V_f is the voltage drop of the LED and I_f is the current draw of the LED

$$1N914R = \frac{0.5 (V_s - V_f)}{I_f}$$

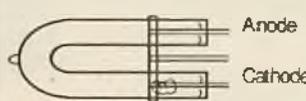
Operating LED Directly From 240 VAC (Not Recommended.)



Tri- Colour LED.

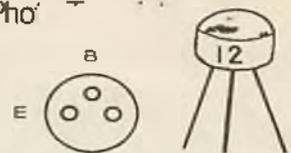


Xexon Strobe Tube

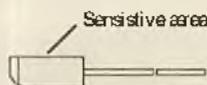


Mel 12 NPN Darlington Pho

P_d = 200mW
 I_c = 150mA
 V_{ceo} = 40V
 I_f = 3mA (typ), H = 2mW-Cm²
 I_d = 100nA, V_{ce} = 5V



BPW 50



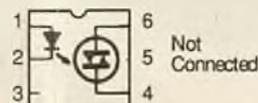
Silicon Photo Diode
 Cont. Reverse Voltage Max 32 V
 Total Power Disipation Max 150mW
 U T Temp Ambient
 Dark Reverse Current V_r = 10V E_e = 0 30nA
 Light Reverse Current V_r = 5V E_e = 1mW/cm 30ma
 Wavelength At Peak EmmissiTypical 930nm

Flashing LEDs

Operating Voltage 4.5 - 7.5 Volts Current 20-35mA

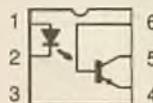
Note: Flashing LEDs require a voltage source rather than a current source because they oscillate. It is a good idea to place a zener diode of around 8 Volts across the LED for protection.

Opto Coupled TRIAC Driver MOC 3021



Specifications
 Package Dissipation 300mW
 Surge Isolation Voltage 7500 V
 Peak Blocking Voltage 400
 LED Trigger Current (Max) 5mA
 LED Fwd Voltage (Max) 1.5v

Opto Coupler 4N28

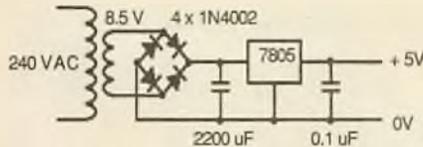


Specifications
 Diode: V_r - 3 V, I_f - 80 mA cont; 1 - 3A Peak;
 V_I @ 50mA - 1.5mA, P_d - 150 mW.
 NPN Photo Transistor: V_{ce} - 30V; V_{cb} - 70 V;
 P_d - 150mW; I_{ce} - Dark Current - 50 nA Max
 (V_{ce} = 10 V).
 Total Device Rating: P_d - 250mW; Isolation
 Voltage 500 V Min.

Typical Power Supply Regulated Output : 5 Volts at 1 Amp

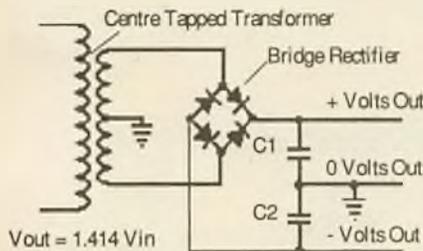
The circuit shown below show the basic configuration for a regulated power supply. It can easily be modified to suit other voltage regulators simply by replacing the 7805 regulator with the appropriate voltage and by putting in a different transformer. To maintain line regulation, a DC voltage input to the device needs to be a minimum of 2.5 Volts DC above the output voltage.

i.e. if a DC output of 5 Volts was required then a minimum voltage of 7.5 volts is required at the input of the regulator.



Split Voltage Rail Power Supplies

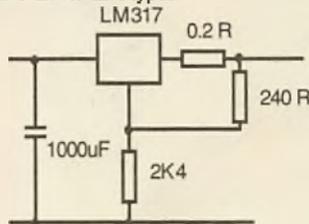
The value and ratings of the components used in split voltage rail supplies is very dependant on the voltages and currents required. In a normal situation, lets say in an amplifier circuit, the diodes (or bridge) would probably be rated at about 25 Amps with 8000uF capacitors. The size of the capacitor is proportional to the current draw of the circuit, and how 'tight' the power supply rails have to be to a particular voltage.



Where V_{in} = Voltage of transformer

12 Volt Battery Charger

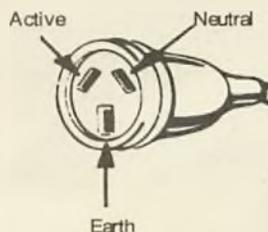
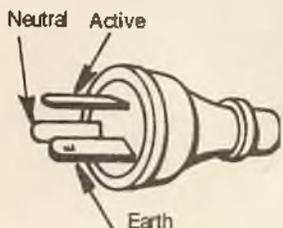
One application of this circuit is to construct a simple battery charger. Because it is a fixed voltage output, we can lock it in by using fixed resistors rather than variable types.



240 Volt Mains Connections.

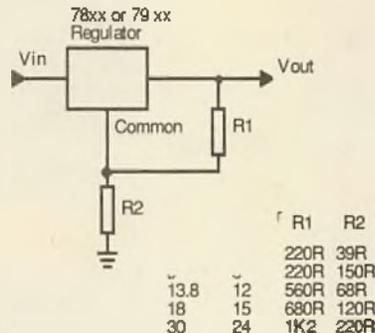
CAUTION !

240 Volts can kill. If you are going to be utilising the 240 Volt mains supply, make sure you have read all the relevant literature from the State Energy Commission in your state. DO NOT attempt to wire anything unless you are one hundred per cent certain on what you are doing.....! (And you have the relevant license to do so.) (Applicable in some states).

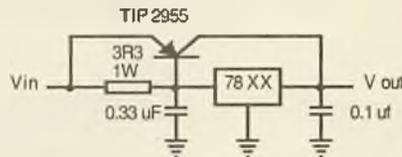


Increasing the Output Voltage of a Fixed Voltage Regulator

With the addition of two resistors, regulators can be configured to give higher output voltages or even made variable. Some example resistor values are given below.

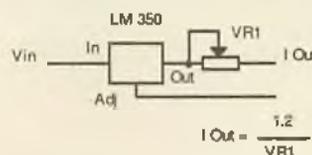


Increasing the Output Current of a Voltage Regulator



To increase the output current above the normal rating of the regulator, we can simply add an appropriate PNP Power Transistor (to a positive regulator. NPN to a negative), and a feed resistor. In this configuration the voltage regulator controls the transistor, and thus supplies very little if the actual current. This circuit is capable, with a heatsink, of delivering in excess of 4 Amps.

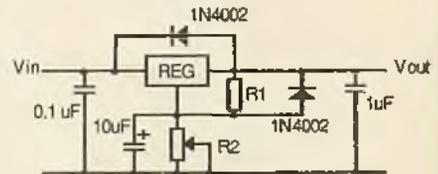
Precision Current Regulator



This is a good circuit to use when a fixed current source is required. It requires few components and is simple to set up. Watch out for the power rating of the Variable Resistor though, it can be easily exceeded. Before putting a potentiometer in the circuit, calculate the power dissipation of the circuit and purchase something large enough to cope with the power. The power rating is based on the maximum voltage drop multiplied by the maximum current required.

Variable Voltage P.S.U. using the LM 317 or LM 350

The circuit diagram shown below is a simple method of producing a variable voltage power supply with only a hand full of components. The main part of the circuit is the voltage regulator. The two resistors bias the regulator and therefore set the output voltage. The two capacitors are for smoothing of the power supply rails and the diodes are only included for protection (Recommended).



Notes:

1. R2 should be a 5 K variable resistor unless a non adjustable power supply is required. Below is the formula used to calculate the output voltage which is based upon the resistors used.

$$R2 = (96 \times V_{out}) - 240. \text{ Where } R2 \text{ is in Ohms.}$$

2. V_{in} should be at least 2.5 volts above the output voltage.

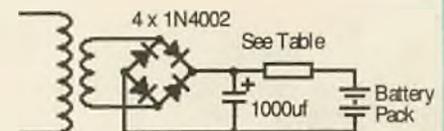
3. The capacitor voltage ratings must be chosen appropriately.

4. If the Input or Output are shorted to ground the diodes will protect the regulator.

A Simple Charger

The circuit below depicts a constant current nickel cad battery charger. Normally the correct charge current is printed on the side of each battery, however the table below can be used as a guide to the value of the series limiting resistor used.

Please note:
This circuit is not an automatic charger and can over charge the batteries. Do not leave NiCads on charge once they are fully charged as damage may occur. Automatic chargers are available. Details can be found in our KITS section within this catalogue.



Capacity	4 Cells	6 Cells	8 Cells
500mAhour	220R / 1 Watt	50 R / 1Watt	120 R / 1 Watt
1.6 AHour	56 R / 5 Watt	7 R / 5Watt	33 R / 5 Watt
4 AHour	22 R / 10 Watt	R / 5 Watt	12 R / 5 Watt

Conversion Ratio Table

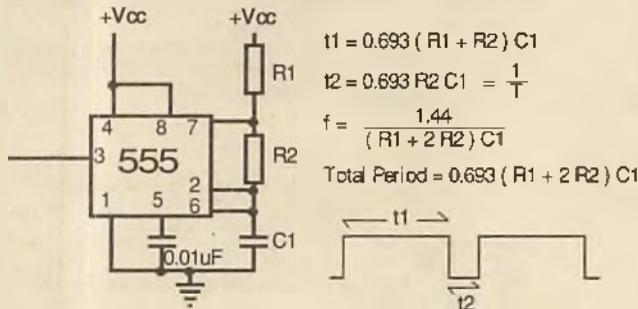
millimetres - inch	25.4
centimetres - foot	30.48
metres - yards	0.914
kilometres - mile	1.609
grams - ounce	28.35
kilograms - pound	0.454
litres - pint	0.567
litres - gallon	4.54
litres - cubic foot	28.32
Watts - Horsepower	746
Coulombs - Amp Hour	3600

555 Timer Circuits

Astable Multivibrator

Variable duty cycle

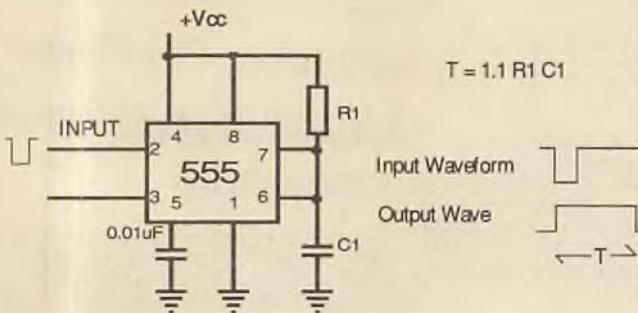
This circuit is designed to create a series of pulses of t1 seconds in length at an interval of t2. Shown are four formulas which will calculate the value of R1, R2 and C1 once the values for t1 and t2 have been established.



Mono Stable Multivibrator

Single Shot.

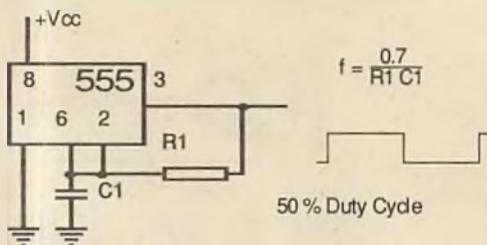
This simple circuit is very useful in many applications. One of its main functions is to act as a wave shaper. When a pulse is applied to the input pin (2), a pulse of T seconds in length is produced at pin 3. The formula for this circuit is just as simple.



Fixed Period Astable Multivibrator.

50 / 50 Cycle.

This is a great circuit for when you just simply need an oscillator of 50 percent on and 50 percent off. Once powered up is free running and requires nothing else to work.



Moving Coil Meters and Shunts

Formulas to use with DC Meters Movements

One of the most basic methods of measuring current is with a Moving Coil Meter which normally are made to measure, either amps, milliamperes or microampere. By the addition of a resistor 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 Voltage Measuring Device and if in parallel, the resistor will then act as a Current Shunt and allow high than normal currents be measured. The principal of a Current Shunting is to bypass the majority of the current to be measured away from the coil itself, but to still allow measurement of the current flowing. (The ratio of current flowing through the coil and through the shunt is fixed.) To work with Shunts it is necessary to first know the internal resistance of the Moving Coil Meter that we are going to work with.

Voltage Multipliers

Current meters can be made to measure voltage by simply adding a series resistor.

$R = \frac{Vs}{Is} - Rm$

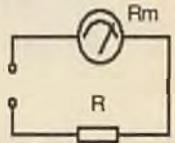
Where:

R = Resistance in Ohms

Vs = Full Scale Reading In Volts

Is = Full Scale Reading In Amps

Rm = Resistance Of Meter Movement



Ammeter Shunts

The range of a movement can be multiplied by placing a resistor in parallel across the coil thus forming a current shunt. Formula as follows:

Where:

R = Resistance In Ohms

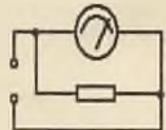
Rm = Meter Resistance

N = Multiplication Factor

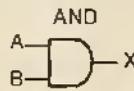
Im = Meter Current

Is = Shunt Current

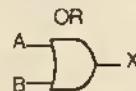
$R = \frac{Rm}{N-1} = \frac{Im Rm}{Is}$



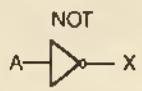
Logic Gates With Truth Tables



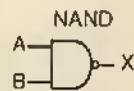
A \ B	0	1
0	0	0
1	0	1



A \ B	0	1
0	0	1
1	1	1



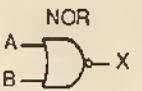
A	0	1
X	1	0



A \ B	0	1
0	1	1
1	1	0



A \ B	0	1
0	0	1
1	1	0

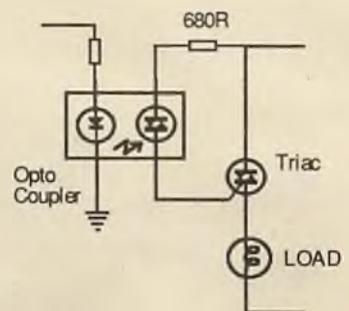


A \ B	0	1
0	1	0
1	0	0

Hooking up OPTO Couplers

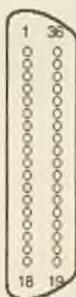
The MOC 3021 opto coupler consists of an infra-red LED optically coupled to a silicon bilateral switch in a 6 pin DIL package. It is a very effective method of linking low voltage circuits to 240 VAC with out any form of electrical connection. The device has a low trigger current, high blocking and isolation voltage and a reasonably cheap price. These devices are capable of switching on at any part of the mains cycle which means they can be used for voltage controlling in such applications of speed controllers and light dimmers. The MOC 3041 is different in this respect as it only allows the switching to occur at the point where the mains crosses the 0 Volt mark. This point is called the 'Zero Crossing' point. This makes it ideal for switching motors, and the like, where a gradual voltage increase is desired. Running light globes using the MOC 3041 means you will be unable to dim them, but it does mean that the globes will last longer as there are no voltage spikes.

Please read the warnings in this data section about the dangers of working with 240 Volts.



Centronics Parallel Connections

Pin No.	Signal
1	-Strobe (Active Low)
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 (Active Low)
11	Busy
12	Paper End
13	Select
14	-Auto Feed (Active Low)
16	Logical Ground
17	Chassis Ground
19-30	Signal Ground
31	-Printer Init (Active Low)
32	-Fault (Active Low)
36	-Select In (Active Low)



IBM 34 Way Floppy Connector

2	Unused
4	Unused
6	Unused
8	Index
10	Motor Enable A
12	Drive Select B
14	Drive Select A
16	Motor Enable B
18	Direction (Stepper Motor)
20	Step Pulse
22	Write Data
24	Write Enable
26	Track 0
28	Write Protect
30	Read Data
32	Select Head 1
34	Unused

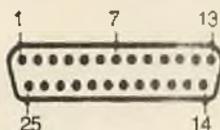
All other Pins are Ground



Parallel Port Connector

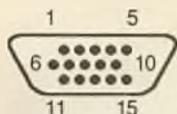
Female Connector

Pin No.	Active	Signal Name
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
13	+	Select
14	-	Auto Feed
15	-	Error
16	-	Initialize Printer
17	-	Select Input
18-25	-	Ground

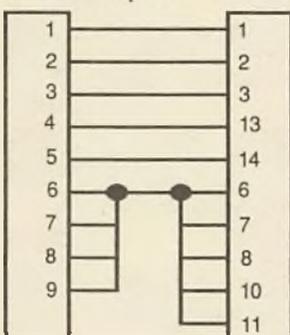


VGA Pinouts. High Density Connector.

1	Red
2	Green
3	Blue
4	Monitor ID Bit 2
5	Not Used
6	Ground
7	Ground
8	Ground
9	Not Used
10	Ground
11	Monitor ID Bit 0
12	Monitor ID Bit 1
13	Horizontal Sync
14	Vertical Sync
15	Not used

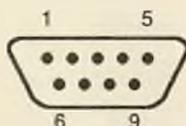


D9 to High Density D 15 Adaptor



VGA Pinout. D 9

1	Ground
2	Secondary Red
3	Primary Red
4	Primary Green
5	Primary Blue
6	Secondary Green- Intensity
7	Secondary Blue- Mono Video
8	Horizontal Sync
9	Vertical Sync

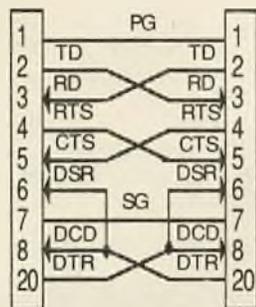
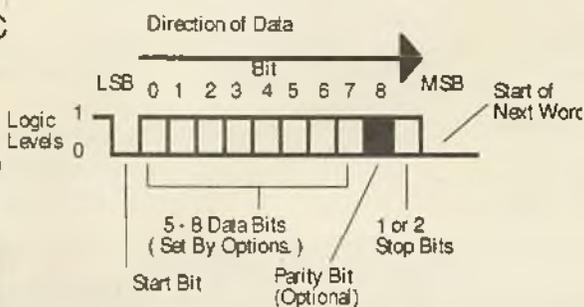


Serial Port Connector

Male Connector

D 9 Pin No.	D 25 Pin No.	Signal Name
3	2	TX Data
2	3	RX Data
7	4	Request To Send
8	5	Clear To Send
6	6	Data Set Ready
5	7	Signal Ground
1	8	Carrier Detect
4	20	Data Terminal Ready
9	22	Ring Indicator

Protocol for Serial Data Transmissions. Null Modem Connections



3 1/2" Disc Drive Pin Outs

4	In Use
6	Drive Select 3
8	Index
10	Drive Select 0
12	Drive Select 1
14	Drive Select 2
16	Motor On
18	Direction
20	Step
22	Write Data
26	Track 00
28	Write Protect
30	Read Data
34	Ready

All other pins are ground.

Connections For PC Floppy Disc Drive

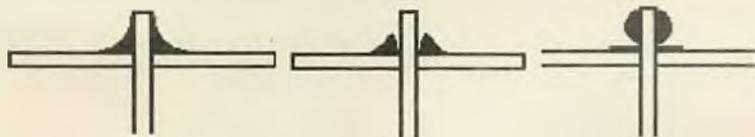
Pin	Power
1	+ 12 Volts
2	+ 12 Volts Return
3	+ 5 Volts Return
4	+ 5 Volts



Data Pages Created on an AMIGA 3000.

Soldering Guide

Of the kit failures, which is not that many, that we get passing through the shop on their way to the service department, the single most common cause would have to be simply bad soldering. Although a solder joint can look okay at first glance, there is a chance that under close inspection, it will turn out to be a 'Dry Joint'. A dry joint is when either the circuit board track or the leg of the component have not been heated enough and no solder has flowed between them thus there is no electrical connection between them. This can also be caused by a lack of flux, which is impregnated in the solder. Quite often, reheating a bad joint will cure the problem, but in extreme cases some extra flux may need to be added. The diagrams show what a good joint looks like, and it also shows two types of dry joints.



Good Solder Joint.
The solder has flowed over both PCB and Component leg.

Bad Solder Joint.
Solder has flowed over PCB but the leg of the component remains untouched. Caused by not enough heat to the components leg.

Bad Solder Joint.
The solder has not taken to the PCB and a ball of solder has formed on the component leg. Caused by not enough heat to PCB.

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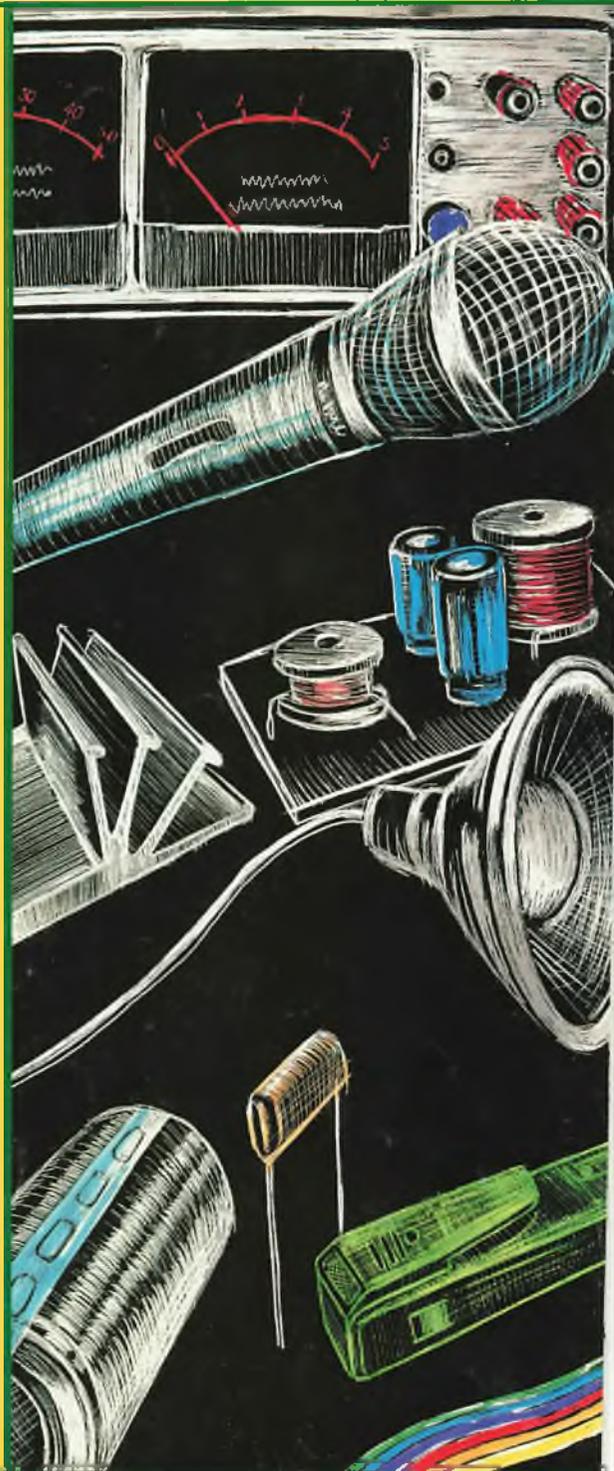
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