

# ALTRONICS

## ELECTRONIC COMPONENTS CATALOGUE

Supplement to Electronics Australia Magazine February 1989



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Here is a birds eye view of the daily operations of Altronics in Perth  
To the many thousands of our Mail Order Customers - don't forget to drop in  
and say hello next time you visit Perth - we'd be delighted to see you.



**ELECTRONICS "SUPERMARKET" 174 ROE ST.**



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**R AND D NERVE CENTRE**



**BULK STORE - ADDED 1988**



**WAREHOUSE DISTRIBUTION CENTRE**



**WHOLESALE SALES OFFICE**



**STAFF AMENITIES "THE BACK DECK"**

Dear Customer,

Well here we are in 1989 our Thirteenth year of service to you our valued customer.

The last year was especially busy for us with strong growth in customers to our Roe Street Store and a virtual flood of mail and phone orders.

Apart from around 10,000 orders from within Australia, we have received an incredible number of orders from countries as diverse as UK, Belgium, U.S.A., Singapore, South Africa, India and of course, New Guinea and New Zealand. So I guess we are doing a little in addressing our ever burgeoning trade deficit with overseas countries.

Whilst on this subject it's very gratifying to see the upsurge in Australian design and manufacture of "High and Medium Tech" electronics products and systems. Our sister wholesale company Altronic Distributors is growing rapidly, concentrating in the main to supplying components and products to Australian manufacturers.

There are many local firms emerging that produce products and systems equal to or superior to imports.

It's time that we all give more support to Australian companies by considering the local product first. I was particularly unimpressed at EXPO to see the weatherproof PA column speaker system was an import.

It may surprise you to learn that Altronics manufacture a comprehensive range of column weatherproof speakers which in the view of many are superior in performance, construction and finish to the imported product. What's more astonishing is our prices are up to 50% lower than some imported brands.

Our R and D Department is committed to the design and production of products locally. We estimate that within this year 1/3rd of our sales will be from Altronics designed products produced here in Australia.

You will be delighted to note that most prices have been held at 1988 levels. Some in fact, have been reduced. So it makes more sense than ever to shop with us.

Remember whether you live across town or in the remotest outback locality, Altronics is committed to same day order despatch. We consistently deliver next day to every capital city and suburbs.

I would like to personally thank all those who contributed suggestions as to products we should add to our range. You will find around 200 new items in our catalogue for '89.

So if you have a constructive criticism or a suggestion to enhance our product range please write to me personally.

Once again our sincere thanks for your past custom. We look forward to being of service in the near future.

Regards,

*Jack O'Donnell*

JACK O'DONNELL  
Managing Director



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Phone: (09) 328 1599

**Shop Hours**8.30am — 5.15 p.m. **Monday - Friday**8.30am — 8.00 p.m. **Thursdays**8.30 a.m. — 12.00 noon **Saturday****Via Telex**

AA 94186 ALTRON

**Via Fax**

(09) 328 4459

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We pride ourselves with the standard of  
service we offer you, the Electronic  
Enthusiast and the general Electronics  
buying public. Altronics staff are all  
technically competent and will be only too  
pleased to assist with your enquiries.

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If you are dissatisfied with our goods and  
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our premises within 14 days of our  
despatch date and we will refund your  
purchase in full, less transport costs. All  
returned goods must be in as sold  
condition and include all packaging  
instructions, invoices etc.

**Sales Tax**

All prices in this catalogue include Sales  
Tax. Tax free sales can be made: -  
(a) Where official order with sales tax  
exemption is supplied. (b) Where each  
item total amount is not less than \$10.00.  
Our staff will simply deduct Sales Tax  
where possible.

**Complaints**

At Altronics we take great pride in the  
goods and service we offer. If you have  
any constructive comments or complaints  
please phone JACK O'DONNELL  
(09) 328 2199 or write C/-  
Altronics Distributors Pty.ltd.  
P.O.Box 8350 Perth Mail Exchange  
Perth Western Australia. 6000

**Stock**

Should any item ordered be temporarily  
unavailable, we automatically place this  
on back order. If this is inconvenient,  
please advise upon receipt of partial  
shipment.

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3 months from date of supply. Faulty  
goods must be returned to our store with  
evidence of purchase and \$4 money order,  
cheque or stamps to cover return postage.

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14 day mini convenience credit accounts  
are available to schools, universities,  
government institutions - sorry, we do not  
run accounts for private companies or  
individuals.

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We can deliver to P.O. Boxes only where  
your full address is also supplied for our  
records. Jetservice or Road Express  
deliveries cannot be made to P.O. Boxes.

**Minimum Order**

Altronics minimum is \$10.00 exclusive of  
delivery charge.

**Prices**

Some prices may alter during the life of  
this Catalogue. Circumstances such as  
exchange rates, sales tax & import duty  
can significantly influence prices & are  
regrettably beyond our control.

**Strike Bound?**

Mail strikes don't worry us. Simply phone  
us up to 6pm EST (don't forget cheap  
phone rates after 6pm). Quote your  
Bankcard details and we deliver next day  
via Jetservice.

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The delivery rates quoted here apply to  
Australia only. Overseas orders are  
welcome — please send M.O. in A\$  
allowing sufficient air or sea postage.

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pay by Bankdraft, N.Z. Bankcard or Visa.  
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At Altronics we take great care in the  
protective packing of each consignment.  
In the unlikely event of your goods arriving  
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you suspect goods are damaged.

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**Altronic Distributors** Phone: (09) 328 2199 Telex: 94186 Fax: (09) 328 4459



**Dear Constructor,**

Hi, I'm Daryl Freeman Kit Department Manager here at Altronics. I have just taken over this position from Brian Sorensen who is moving to head our new Wholesale Sales Office in Melbourne.

You will note many great new constructor projects for '89 - all of a very high standard of design and finished appearance.

It seems incredible but some time this year we will have produced our 50,000th Electronics Kit! We are naturally delighted that our dedication to producing kits of a high standard has been appreciated by so many.

Our Kit Department continues to be staffed entirely by Electronic enthusiasts, just like yourself, so remember should you strike a snag or have a technical querie, help is just a phone call away.

Finally you will be pleased to note that in the main, prices have been held down to 87/88 levels. It makes better sense than ever to "Build Your Own".

All the best for 1989 from Altronics Kit Staff.

**Daryl Freeman**  
Manager Kits

**Build Yourself Kit Index**

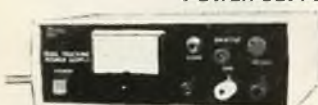
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**Just Some of the Fantastic New Kits for '89**

**DISCOLITE**



**LABORATORY POWER SUPPLY**



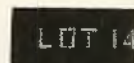
**180W PUBLIC ADDRESS AMPLIFIER**



**STUDIO 200W AMPLIFIER**



**STUDIO 200W CONTROL UNIT**



**LED LIGHT HOUSE NUMBER**

**FM STEREO TRANSMITTER**



**UTILITY TIMER**



**DUAL RANGE MEGGER METER**



**With Imported Test Equipment Almost Doubling in Cost it Makes Great Sense to Buy a Quality Altronics Kit**

## 1GHz Digital Frequency Meter

(See SC Nov'87 Jan'88)

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



### SPECIFICATIONS

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

### FEATURES:

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

**K 2515 \$299.00**

## 50MHz Digital Frequency Meter

(See EA May'88)

Fantastic for Work Bench & Tool Box For Less Than \$100

Easy to build & construct this fantastic meter measures to well over 50MHz in 5 ranges.

Features high input impedance overflow LED indicator, KHz & MHz LED indicators. All components mount onto a single PCB even the selector switch.

Altronics Kit comes complete with pre-punched & silk screened front panel. Ideal for use in testing CB radios, TV's & AM Radios etc.

**K 2510 \$99.00**



## Transistor Tester

(See EA Aug'83)

**Checks Transistor In Circuit "NO NEED TO UNSOLDER SUSPECT TRANSISTORS"**

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

### FEATURES:

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



**K 2530 \$17.50**

## Low Cost Temperature Probe



Here's an easy to build probe which adapts a multimeter or electronic voltmeter into a general purpose thermometer. It's just the shot for measuring heatsink temperatures, how hot it gets inside your car, or whether little Johnny has a fever! Measures accurately from -20 deg.C to +120 deg.C.

**K 2570 \$21.95**

## Transistor FET Zener Tester

(See EA Feb/Mar'88)



New updated circuit incorporates facilities for testing transistor FET's and Zeners etc.

### FEATURES:

- Gain
- Leakage
- Breakdown voltages
- Zener voltage
- Polarity — NPN/PNP

**K 2527 \$49.95**

## Zener Diode Tester

(See ETI May'83)

**Take The Guess Work Out Of Identifying Zeners. Simply Plug 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 & will also test LED's as well as give you a reading of its forward voltage drop.

All components mount inside our tiny H 0105 "ABS" Jiffy Box Supplied



**K 2620 \$19.95**

**Megger Meter**

Checks electrical wiring and appliances for insulation breakdown.



Insulation breakdown can be determined by the use of this dual range megohm meter. Ideally suited for checking breakdown in electrical wiring, appliances transformers, automotive generators and alternators, etc.

Breakdown can be measured at either 500V or 1000V depending on the required situation.

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

K 2555 **\$79.00**

**Power Transistor Tester**

(See 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. Super single operation allows for testing of current gain & Vbe of all popular power transistors even power Darlington. Suitable for both N.P.N. & P.N.P. types. Altronics Kit comes complete with silk screened box.

K 2532 **\$24.95**

**AC/DC Millivolt Meter**

(See EA Dec'87)

Precision measure critical circuits



Designed to cause minimal circuit loading whilst reading very low level voltages.

**FEATURES:**

- AC/DC range
- 7M Ohm input impedance
- Reverse polarity indicator
- Operates off 1.9V battery (Not included)
- 10mV to 30V ranges in 8 steps
- Zero position
- Battery Test position

K 2670 **\$55.00**



**Upgraded Digital Capacitance Meter**

(See EA Aug'85)

Digital Capacitance Meter Checks capacitor value from 1pF to 99.99uF over three ranges. Features include a nulling circuit and bright 4-digit LED display.

The readout consists of a bright 4-digit LED display and the full scale readings for each range are 9999pF, 999.9nF & 99.99uF. No adjustments are necessary when taking a reading. You simply connect the capacitor to the test terminals and select the appropriate range. The circuit can accurately measure capacitance down to one picofarad (1pF). This is made possible by the internal nulling circuit which cancels any stray capacitance between the test terminals or test leads. So when you measure a 5pF capacitor, the unit will display 5pF +/-10-20%

K 2522 **\$79.00**

**Capacitance Meter Adaptor**



(See SC Nov'87)

Great for hand selecting exact values e.g. exact values for timer circuits etc.

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

Suits Labtech Q 1075

K 2520 **\$24.99**

**Low Ohms Adaptor For Your DMM**

(See SC Feb'88)



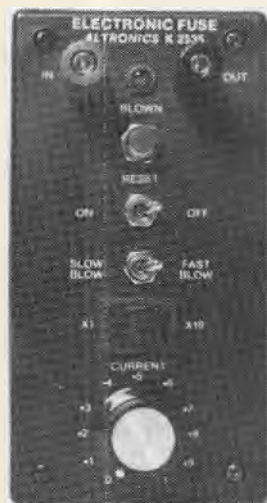
Measure Accurately Down To 50 Milli Ohms!

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

K 2518 **\$24.99**

## DC Electronic Fuse

(See EA Nov'87)



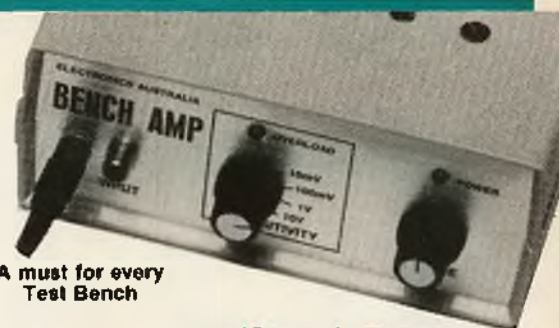
This unit simply clips across the DC Fuse holder. Offers protection adjustable from 0-10A in 2 ranges. In essence its an adjustable DC circuit breaker.

### FEATURES:

- Fast blow - slow blow setting
- Manual reset button
- LED fuse tripped indicator
- Operates off 1 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**



A must for every Test Bench

## Bench Amp/Signal Tracer

(See EA April'88)

Test & Fault Find Audio Equipment without Expensive Equipment.

This simple but effective bench amplifier is suitable for testing virtually any audio device. Ideal for fault finding & experimenting. **Features:** Input capability from 10mV to 10V : Inbuilt speakers, overload indicator & external speaker socket : Requires external 9-15V AC supply.

K 2100 **\$65.00**

## Bench Amplifier

(See ET1 April'80)



Invaluable for testing all your Audio Projects. This amplifier is a well proven design with low distortion and high reliability. One of the most useful pieces of equipment in an Electronic work-shop is a simple Amplifier Module to test circuits.

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

K 2105 **\$22.70**

## RF Detector Probe

(See EA May'88)



This simple RF probe is ideally suited for fault finding & trouble-shooting in AM radios It enables you to follow signals progressively through a circuit. Feeds directly in to the input of an audio amp. Requires external supply. Ideally suited for use with the K 2100 Bench Amp (above)

K 2565 **\$12.00**

## EXCELLENT SCHOOL PROJECTS

### FM Radio Microphone

This simple FM Microphone Kit can be built in next to no time and only requires an ordinary FM Radio for reception. • Works in the standard FM Range 88 — 108MHz • Runs from a single 9V Battery • High Sensitivity microphone insert supplied • Long range transmission approximately 30M.

### USES:

- Wireless Microphone
- Professional Eavesdropping
- Listen to the TV in the kitchen.
- Makes an excellent child minder.
- Could be adapted to an alarm.

i.e. Send a tone to your Clock Radio when your car alarm trips.

K 1106 **\$9.50**

### Regenerative Radio

(See EA Jan'88)

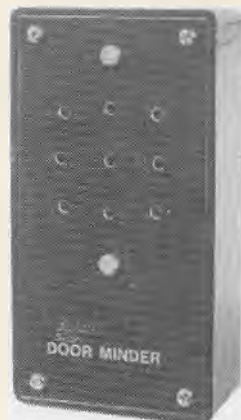


Step back in time and build this simple regenerative radio receiver. Using only 3 transistors, its not only fun to build, but educational as well. Uses Varicap tuning.

K 1150 **\$55.25**

### Door Minder

(See SC Feb'88)



This project will sense a door opening in a large or small room and will sound a two-tone chime. It does not have to be anywhere near the doorway as it uses an ingenious sensor to detect the pressure change caused when the door opens. **Ideal for use in shops, offices, doctors surgeries, Chemists, etc.**

K 1915 **\$45.00**



**FM Stereo Transmitter (Mini Mitter)**

(See Silicon Chip Oct'88)



Turn Your C.D. Player Into a Mini FM Transmitter

Simply connect your C.D. player to the mini mitter which converts the C.D. signal to an FM signal. This FM signal then can be tuned in via your FM walkman or your shed radio. Great for listening to your favorite C.D. while washing the car, mowing the lawn or doing the vacuuming etc. with out blasting the neighbours. Powered by single 1.5V penlite battery. Single IC circuit. Simple to build and construct.

K 1120 **\$43.50**

**LED LIGHT : The House Number**

(See Silicon Chip Oct'88)



Identify your House Build the LED Light

The LED light makes your house easily recognisable at night by illuminating your house number. Great for people visiting, easy for taxis and emergency services to locate you at night. Virtually any number can be configured including alpha-numeric combinations making it extremely versatile and suitable for most applications. Operates off low voltage plug pack • Automatic operation • Works only at night • Automatic switch off after 4-5 hrs. Altronic Kit comes complete. 64 LEDs supplied.

K 1960 **\$59.95**

**Video Amplifier**

(See EA Aug'83)



This video amp can greatly improve picture stability and eradicate shimmer, screen swm etc. Two outputs, normal and inverted.

For VCR's: 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)

Another first class project from EA. Super Cheap and Super effective. For computers with low video output e.g. "Taiwan Apples etc."

K 5850 **\$17.50**

**Utility Timer**

(See E.A. March'88)

Time your STD calls and Save Money

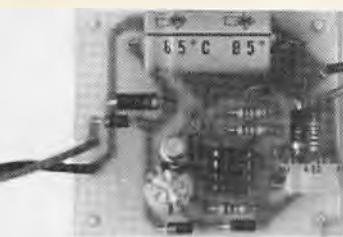


This simple timer has a multitude of uses, from cooking your eggs to timing telephone calls. Timing is adjustable from 10 seconds to 15 minutes. It features a ten way count down LED display. As time elapses the LED's progressively light up and the buzzer sounds momentarily. At the end of the cycle the buzzer sounds for a longer period. Altronics Kit features full kit and silk screened front panel.

K 1425 **\$28.50**

**Solar Generator**

(See ETI Dec'87)



Charge Your Batteries Free From The Sun

The Solar Generator charges and maintains your standard 12V lead acid car battery via. the sun. Fantastic for maintaining batteries which are not used or checked frequently. Ideal for boats, caravans and remote data acquisition stations etc.

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

K 1680 **\$13.99**

**Telephone Off Hook Indication**

(See Silicon Chip Nov'87)



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

K 1400 **\$9.95**

**Telephone Line Grabber**

(See Silicon Chip 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 & listening in - no more accidental over dialing. Also great for use with modems. One unit required for each extension.

K 1415 **\$19.95**

**TV Masthead Amp**

(See EA Aug'79)

**FEATURES:**

- Reduces snow in low signal areas
- Reduces ghosting effects caused by reflected signals and feeder cables
- Suitable for black and white, colour VHF and FM reception

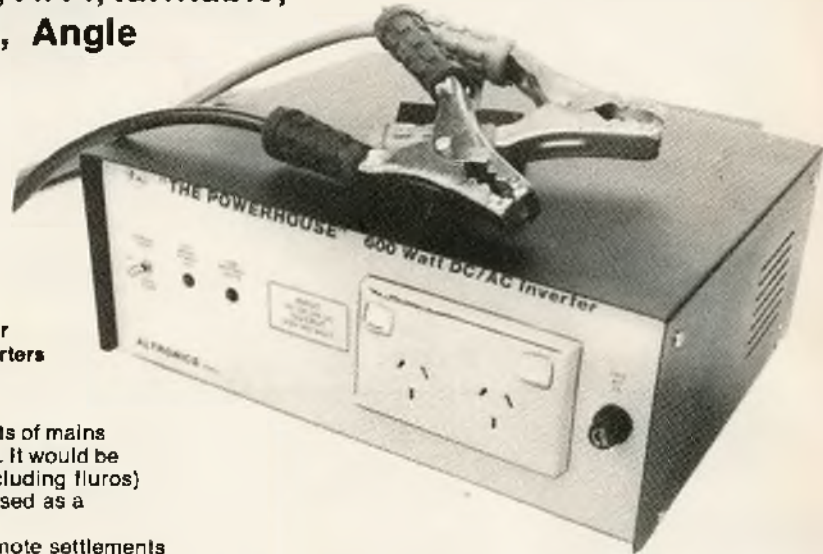


Complete Kit includes Power Supply and every last nut and bolt

K 1798 **\$39.00**

**Get 240V AC Mains Power from Your 12V Battery  
With These Handy Inverter Kit Sets**

Depending on power capacity the various models will power  
Microwave Oven, TV Sets, Hi Fi, turntable,  
AC Lighting, Electric Drill, Angle  
Grinder and 100 and  
1 Appliances



**Powerhouse 600W Inverter**  
(See EA Dec'87)

Go anywhere 240V mains power from your car or  
truck battery with these fantastic DC to AC Inverters

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 fluoro)  
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:**

- Strong custom steel chassis • Industrial grade powder coat finish
- Can be configured to operate off either 12V and 24 V DC
- Very little internal wiring • Manual or Auto start facilities
- Low battery cut out • Compact Toroid transformer.

K 6770	K 6774	K 6775
<b>\$425.00</b>	<b>\$525.00</b>	<b>\$525.00</b>
KIT VERSION	12V INPUT	24V INPUT
	FULLY BUILT & TESTED	

**300 Watt Inverter with Auto Start**  
Operates From 12V Car Battery

- **Super Compact** - kit is supplied in Altronics H 0482 tough ABS case
- **Uses High Efficiency Toroid Transformer** thus keeping down heat dissipation battery drain and weight
- **Auto start** draws power from your battery only when appliance is plugged in and "turned on" i.e. battery can be left permanently connected if req.
- **Voltage regulated • Current Regulated • Current Overload** unit self limits — Single PC Board construction — easy to build as there is very little internal wiring.

Complete Kit	K 6750	<b>\$279.00</b>
Fully Built & Tested	K 6755	<b>\$379.00</b>



**12/240V Inverter for Small Appliances**  
(See EA Aug'85)

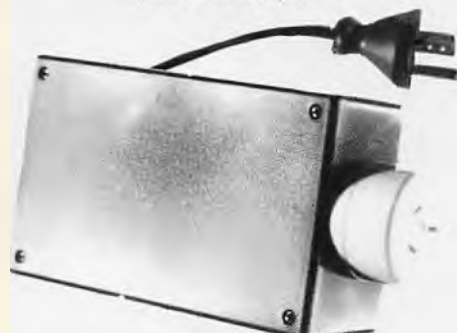
This inverter is ideally suited to powering low wattage mains  
appliances from the car battery while camping. This  
considerably improves the comfort level of the civilised  
camper. Similarly, it has uses in boating. Typically, it can be  
used to power an electric shaver, electric blanket, electric can  
opener or a 40W light bulb. Alternatively, back in the home (or  
still on the camp site), frequency sensitive items such as belt  
or idler driven turntables can be powered at a very precise  
crystal controlled frequency for accurate sound reproduction  
if speed variation over a small range is required, then a switch  
is provided to change from the crystal based 50Hz signal to a  
variable oscillator.

K 6705 **\$89.00**



**Doubles as battery charger  
under normal mains conditions**

**Line Filter and Conditioner**  
(See EA July'88)



Simple, easy to build and low cost too - Helps eliminate those annoying clicks and pops on your stereo and TV when the fridge compressor switches on and off. Helps prevent computer crashes from power spikes and glitches. Altronics customised version housed in strong sturdy Jiffy Box. Nickel sprayed for EMI shielding.

K 6040 **\$39.50**

**13.8V High Current Supply**  
Massive 10 Amps



Ideal For Radio Amateurs - Will power your Mobile Rig back at home

- Output 13.8V DC 7.5A Continuous - 10A intermittent
- Regulation is +/- 50mV at 7.5A
- Now includes - Custom Designed Printed Circuit Board as opposed to Vero Board in original article.
- Supplied in a quality instrument case.
- LED overload indicator.

K 3250 **\$139.50**



**Bench Top Power Supply**  
(See EA Jan'85)

3—30V to 1 Amp Max. With Variable Current Limit.

**SPECIFICATIONS:**

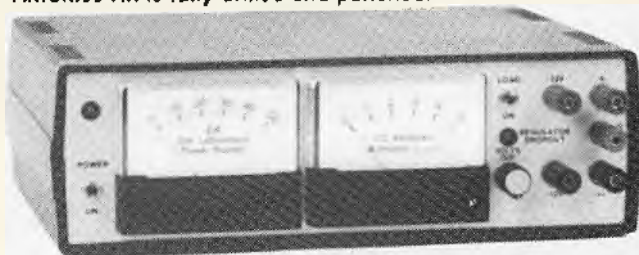
- Output Voltage — 3 to 30V
- Output Current — 0 to 1 amp (fully variable)
- Load Regulation — Better than 0.2% from 0 to full load
- Output Ripple - Less than 2mV RMS

K 3210 **\$79.00**

**Laboratory Power Supply**

3 — 50 Volt at Up to 5 Amps (See EA May'85)

Designed by Electronics Australia, this supply has been one of our most popular ever. Our superb version incorporates the latest refinements and is now housed in an attractive, tough "ABS" instrument case. This all new compact version has been made possible by use of a high efficiency Toroid Power Transformer. So you win four ways — less heat, less weight — greatly enhanced appearance and easier to build — Remember the Altronics Kit is fully drilled and punched.



Brilliant Switch Mode High efficiency design by the design team at Electronics Australia Magazine. Single Printed Circuit Board Construction — dead easy to build

**EXCLUSIVE TO ALTRONICS:**

- Deluxe instrument case
- Attractive silk screened front panel
- Fully drilled and punched chassis - No holes to drill.
- Front panel supplied to accommodate K 3302 option if required.
- Heatshrink tubing supplied for critical component termination.

**SPECIFICATION:**

- Output Voltage - 3-50 volts
- Output current up to 5 Amps (max. 175W)
- Floating outputs isolated from ground.
- Ripple less than 90mV p-p at max.

**Employs Dual Meters -** No switching from one to the other.

K 3300 **\$195.00**

**10 TURN OUTPUT VOLTAGE CONTROL OPTION**

K 3300 is normally supplied with standard pot

K 3301 **\$29.50**

**AUXILLARY + AND — 12V OUTPUT TERMINALS OPTION**

Fixed Outputs Independent of Variable Main Output

K 3302 **\$14.50**



**Low Cost Dual Tracking Supply**  
(See SC Jan'88)

Ideal For Experimenting And Prototyping With Memory, Logic And Op Amps

**FEATURES:**

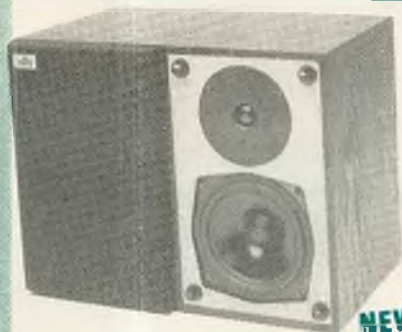
- Adjustable + or - 18.5V at 1.7A
- Volt Meter
- Floating Ground
- Dropout Indicator
- Load Switch

- Compact Sturdy "ABS" instrument case.

K 3325 **\$99.00**

## SPEAKER KITS

**ALTRONIC**  
Components



### VIFA SA-50 2-Way Speaker Kit

C 3250 **\$399** pr

No longer is big, ugly looking boxes of the size of refrigerators necessary to fill your lounge with sound. A new special developed 5" woofer/midrange from VIFA has been computer

**NEW FOR '89**

optimized for use in a 5 litre bass reflex cabinet. Flushmounted in the front baffle the woofer blends perfectly with the classic 19mm VIFA dome tweeter with ferro fluid for higher power handling and perfect control of the diaphragms movements.

The SA-50 has its bass reflex port mounted at the rear, which makes this speaker ideal for bookshelf mounting. A distance of 5-10cm to the wall will provide the optimal bass performance.

The compact size of these speakers, will make it possible to blend them in with any decor, without cluttering the room up.

One of the many benefits of small speakers is their stereo imaging. Due to the small surface of the front baffle, reflections are very limited, resulting in better stereo picture than can be achieved from larger speakers. Complete Kit includes crossovers and cabinets.



### VIFA SA-70 2-Way Speaker Kit

C 3260 **\$499** pr

The new SA-70 is an improved version of the original EA-60/60 speaker kits released in Electronics Australia magazine.

2,500 of these speakers have been built since their release and they have become one of the most popular bookshelf speakers in Australia. Everybody can build these speakers - no carpentry skill or electronics certificate is needed.

Some extracts from EA magazine: "The tweeters are exotic little beasts" (Editor EA magazine). It is the all-time popular 19mm soft dome tweeter with ferro-fluid damped voice coil and very smooth frequency response.

The woofers are a new improved 8" sandwich-coated woofer with foam surround.

A new crossover design extracts all the performance out of these esoteric Danish loudspeaker drivers. The power handling is increased to 70 watts RMS per channel, and in an average size lounge room driven by a 20-80 watts amplifier these speakers will reproduce all kinds of music with the highest fidelity.

Complete kit of speakers, crossovers and cabinets.



### VIFA SA-100 2-Way Speaker Kit

C 3270 **\$799** pr

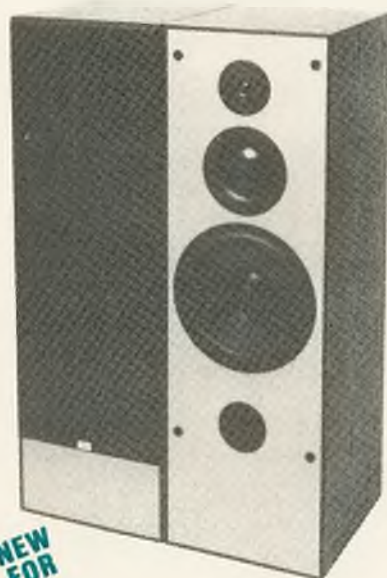
(Stands not included)

This exciting new high-performance speaker kit uses VIFA drivers from Denmark. It is an improved version of the original David Tilbrook design AEM-6102 speaker kit. A new advanced crossover design with asymmetrical crossover slopes and impedance correction circuit give these speakers an unequalled performance with any fully-imported loudspeaker system under \$2,000 a pair. Well over 1800 of the original AEM-6102 speaker systems have now been built in Australia with superb results.

With a saving well in excess of \$1,000 compared to any fully-imported loudspeaker system, it is now your amplifier and the rest of your ancillary equipment that sets the limit for your enjoyment of your hi fi system. The speaker kits consist of the famous 8" polycone woofer with diecast chassis and rubber roll surround. The tweeters are the legendary D25 tweeter with ferro-fluid cooling and polymer diaphragms. The cabinet is supplied in knock-down form veneered in beautiful black woodgrain look with silver front baffles, speaker cloth, damping material, grill clips, speaker terminals, screws and ports.

The performance of these speakers is outstanding. Australian Hi Fi magazine recently acclaimed: "Well, Mr. Tilbrook and Scan have certainly done their homework. The AEM-6102 is simply superb. A very accurate design and exhibits remarkably low levels of colouration and distortion - across the board".

Complete kit with speakers, crossovers and cabinets.



### VIFA SA-130

### 3-Way Speaker Kit

C 3280 **\$1,199** pr

The large floorstanding top-model AEM-6103, originally designed by David Tilbrook, has since been improved, & are now available in a new slimmer cabinet, with improved drivers & the latest European cross-over technology. With a dispersion pattern linear up to 120° these new SA-130 are to be ranked among the finest imported speakers in the 2500-3000 dollar bracket.

**NEW FOR '89**

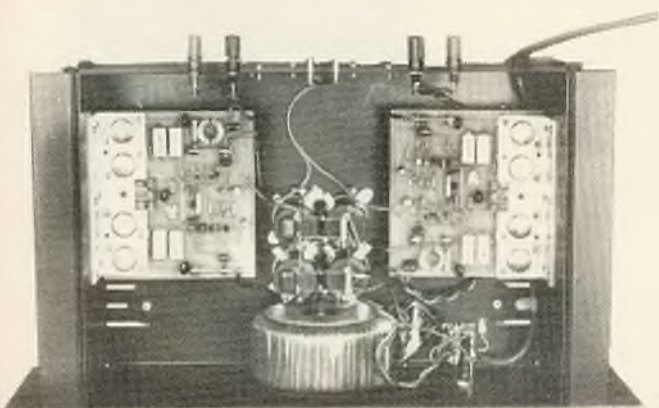
The tight deep bass is produced by the powerful 10" Polycone woofer P25W0, which has diecast magnesium basket, aluminium voicecoil former and rubber roll surround. The new improved 3" dome midrange D75MX takes care of the critical midrange area, giving these speakers a most accurate and neutral performance, especially notable on human voices, which are reproduced with the highest fidelity.

A classic among dometweeters is the brilliant 19mm ferro fluid cooled D19TD. Have a close look at all the imported English and European loudspeakers and you will find this little star in almost half of them. Not without reason! Its polymer diaphragm provides extremely clear and well balanced treble.

The new VIFA SA-130 top-model is supplied in kit form, with flat-pack cabinets, finished in nice blackwood grain.

Calling All Audio Purists  
This Great New Amp from Silicon Chip Is For You

### Studio 200 Series 100 Watts Per Channel Power Amplifier



### 100/100 Stereo Amplifier (See SC Feb'88)

Sensational, natural, uncoloured high definition audio is the result from this great design by the team at Silicon Chip Magazine. The sound quality and overall specifications of this Amplifier will compliment any sound system.

The overall mechanical design and pre-drilled chassis means that this Kit virtually falls together and should only take the average constructor about 8 hours to build.

Why pay hundreds of dollars when you can build it yourself and end up with a quality professionally finished amplifier.

#### FEATURES:

- In-Built speaker protection
- Toroidal Transformer (Low Hum)
- Black Satin Finish
- Low leakage power supply capacitors
- Housed in Rugged Custom Chassis.

#### SPECIFICATIONS:

**Output Power** 100W into 8 Ohms

**Frequency Response (at 1W)** 20Hz-50KHz + or -1db

**Input Sensitivity** 870mV

**Harmonic Distortion (20Hz-20KHz)** 0.1%

**Signal To Noise Ratio** 100db or Better

**Protection** 5A fuses plus RDE245A Polyswitch

**Damping Factor**

(without Polyswitches) 100

(with Polyswitches) 100.

**Stability** Unconditional

K 5010 **\$399.00**

### Studio 200 Stereo Control Unit (Silicon Chip June/July'88)

Out Performs Commercial Units Costing \$600 or More



The Studio 200 Stereo Control unit is companion to the studio 200 stereo power amplifier (and other power amps). It features slim 1u rack mount profile, treble, bass, balance, input selector, tape monitor switch, stereo mono switch and volume control. Inputs include phono, tuner, V.C.R. & tape loop. Virtually all components mount on PCB's, making assembly and construction a breeze.

Altronics kit includes fully professionally punched and printed panels.

#### SPECIFICATIONS:

**Frequency Response:** Phono inputs: RIAA/IEC +/-0.3db from 20Hz to 20KHz - High level inputs: within +/-1db from 10Hz to 100kHz.

**Total Harmonic Distortion:** Less than .005%, 20Hz to 20kHz, at rated output level for any input or output.

**Signal-to-Noise Ratio:** Phono (moving magnet): 86db unweighted (20Hz to 20kHz) with respect to 10mV input signal at 1kHz and rated output with 1k Ohm resistive input termination; 90db A-weighted with respect to 10mV input signal at 1kHz and rated output, with 1k Ohm resistive input terminal. High level inputs (CD, Tuner, etc.): 104db unweighted (20Hz to 20kHz) or better, with respect to rated output (with volume at maximum) with Tone Defeat switch in or out; 107db A-weighted, with respect to rated output (with volume at maximum) with Tone Defeat switch in or out.

**Separation Between Channels:** -62db at 10kHz; -81db at 1kHz; and -93db at 100Hz with respect to rated output and with undriven channel input loaded with a 1k Ohm resistor.

#### Input Sensitivity:

Phono inputs at 1kHz	4.3mV
High level inputs	240mV
Input impedance (phono)	50k Ohm shunted by 100pF
Input impedance (CD, etc)	50k Ohm
Overload capacity (phono)	150mV at 1kHz

**Output Level:** Rated output, 1.25V; maximum output, 8.4V RMS; output impedance, 470 Ohm; headphone output, 40 milliwatts into 8 Ohm phones, 100 milliwatts into 32 Ohm phones.

**Tone Controls:** Bass, +/-10db at 100Hz; treble, +/-12db at 10kHz

**Phase:** With tone controls defeated, non-inverting (ie, zero phase shift) from phono to main output; non-inverting from high level inputs to main outputs. Non-inverting from all inputs to Tape Out. With tone controls in circuit, inverting from phono and high level inputs to main outputs (ie, 180 deg. phase shift).

K 5015 **\$229.00**



### Loudspeaker Protection Kit

Protect your valuable loudspeaker system with this easy to build, professional appearance kit. This easy to construct kit, provides both DC and overpower protection for your valuable Hi-Fi speakers.

Self-powered unit disconnects the speakers within 1/10th of a second of a fault occurring yet in no way effects the sound quality.

The ALTRONICS Kit comes in a superb 1 unit rack box including quality silk screened front panel.

K 5050 **\$125.00**

Don't forget to check our adverts each month in E.A. and Silicon Chip Magazines for new Kit Projects and Products.

## Universal High Power Amplifier Module (See SC Dec'87)

High power rugged reliable design featuring low distortion and inbuilt speaker protection.

All components, including output transistors mount on a single PCB. Suitable for high quality guitar amp, public address or in a high fidelity stereo amplifier. Kit includes angled heatsink bracket, main heatsink and unlike other kit suppliers, the In-Built Polyswitch for loudspeaker protection.

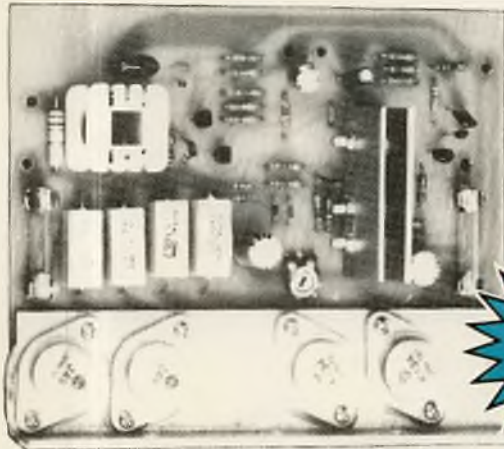
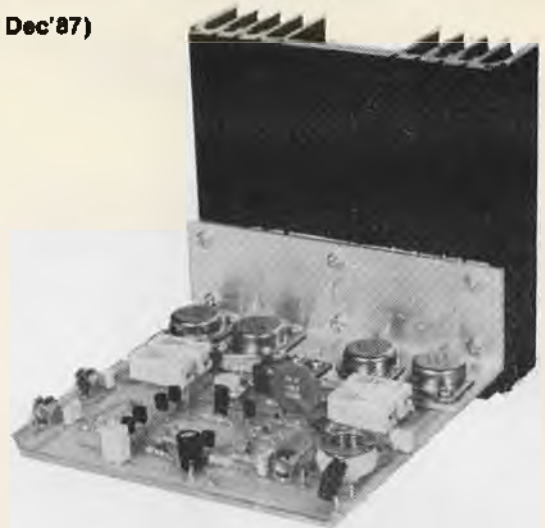
	100W Version	150W Version
Output Power	100W into 4 Ohms	150W into 4 Ohms
Frequency Response (at 1 W)	20Hz-50KHz + -1db	20Hz-50KHz + -1db
Input Sensitivity	870mV	870mV
Harmonic Distortion (20Hz-20KHz)	0.1%	0.15%
Signal to Noise Ratio	100db	100db
Protection	Fuses plus Polyswitch	Fuses plus Polyswitch

100W  
Version

K 5140 **\$69.00**

150W  
Version

K 5150 **\$99.00**



## Mosfet Power Amp Module 150 Watt

(See ETI Jan'81)

### Studio Specifications

Here is a general purpose power Amplifier module suitable for Hi Fi, guitar and PA applications employing sturdy reliable MOSFET's in the output.

### SPECIFICATIONS:

**Power Output**  
150W RMS into 4 Ohms  
100W RMS into 8 Ohms  
(At onset of clipping)  
**Frequency Response**  
20Hz to 20KHz +0 -0.5db  
10Hz to 60KHz +0 -3db  
Measured @ 1W & 100W levels  
**Input Sensitivity**  
1 Volt RMS for full output  
**Hum**  
98db below full output

**Noise**  
114db below full output  
**Total Harmonic Distortion**  
0.006% @ 1KHz 120W  
0.03% @ 10KHz 120W  
**Stability**  
Exceptional (tested to full output driving 3.3uF into short circuit at 10KHz).

K 5120 **\$79.00**



## Speaker Protector Kit

(See ETI Oct'82)

### Cheap Insurance for That \$1000 Speaker System

Protect your valuable loudspeaker system with this easy to build kit. Based on the ETI design (Oct'82) provides both DC and overpower protection for your valuable Hi-Fi speakers. Self-powered unit disconnects the speakers within 1/10th of a second of a fault occurring yet in no way affects the sound quality. Just connects into speaker line.

Install it in minutes — No AC or DC connections required —  
2 required for stereo

K 5051 **\$35.00**



## Active Direct Injection Box

(See EA Oct'87)

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

### FEATURES:

- Sturdy diecast box
- Black tough indust. powder coat finish
- Professionally screen printed.
- Earth isolate switch.
- +5db pad.
- Phantom powering plus internal 9V bat.

K 5550 **\$45.00**

### 120 Watt Public Address Amplifier (See Silicon Chip November '88)



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

**Inputs** 2 balanced microphones with 3 Pin XLR connectors. 2 Auxiliaries suitable for direct connection to C.D. player, tuner etc. **Outputs** 4 Ohm, 8 Ohm or 100V line output configuration.

K 5020 **\$499.00**

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

**Power Output (RMS)** 125 Watts into 4 Ohms; 90 watts into 8 Ohm; 120 watts into 100V AC line.

**Frequency Resp.** 30Hz to 30kHz (-3db) with line output transformer (all inputs)

**Input Sensitivity** 340mV (Aux 1, Aux 2) 0.5mV for balanced microphones 0.5mV for unbalanced microphones.

**Input Impedance** 50k Ohm for line inputs (Aux 1, Aux 2) 600 Ohm for balanced microphones - 300 Ohm for unbalanced microphones.

**Harmonic Distortion** Less than 0.3% from 20Hz to 20kHz.

**Signal-to-Noise Ratio** -56db unweighted for microphones. -72db unweighted for line inputs.

**Stability** Unconditional.

### Balanced Input Pre-Amp (See ETI Dec '82)



High Performance balanced line input pre-amp — makes a superb Mic input stage -30db gain.

**ALTRONICS KIT FEATURES:**

- 5534 AN's for super low noise
- TL 071 Bifet Op Amp (Great common mode rejection ratio) genuine Texas Insts.

### SPECIFICATIONS:

- Frequency response (10K load)—12Hz—60KHz +0.1db
- T.H.D. (output)—100Hz 0.007% —1KHz 0.006% —10KHz 0.012%
- Input Impedance—nominal 560 Ohms
- Output impedance—nominal 260 Ohms
- Common mode rejection ratio — easily adjustable to 80db.

K 5530 **\$19.95**

### Discolite

(See Silicon Chip July/Aug '88)



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

The Discolite flashes party lights on & off in beat with music from your amplifier.

- 4 light channels controlled by 4 separate audio channels
- Forward reverse & auto-reversing chaser patterns
- Simultaneous strobe on all four channels
- Alternating light patterns
- Music modulation available on chaser strobe & alternate patterns
- Inbuilt microphone for beat triggering or audio modulation of lights
- Direct inputs for beat triggering or audio modulation of lights
- Sensitivity control
- presettable sensitivity levels for each channel
- Front panel LEDs mimic light display. Altronics Kit pre-punched & silk screened.

K 5805 **\$159.50**

### Beat Triggered Strobe

(See AEM July '85)

Add Some Life To Your Next Party

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



For Increased Power  
Two Tube Option

K 5790 **\$79.95**

K 5795 **\$16.50**

### General Purpose Pre-Amp

(See ETI July '76) Based upon a Single LM 382 IC

This Unit contains all necessary components to complete:-

- A Phono Pre-Amp with RIAA frequency response
- A tape Pre-amp with NAB response
- A microphone Pre-amp with either 40, 55 or 80db of gain.
- Or a Pre-Amp for just about anything!

Pre-amp may be powered by any DC Voltage between 10 and 40 volts. The output being automatically biased to about +6 Volts. High 100db Ripple Rejection.



K 5510 **\$18.50**

### 20 Watt Utility Amp Module

(See EA Nov '84)

All components mount entirely on one printed circuit board, even the heatsinks!

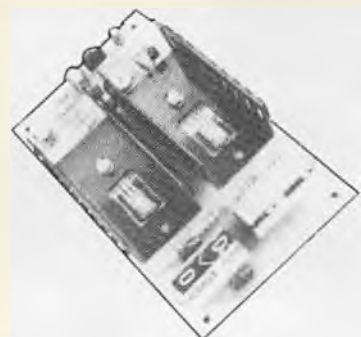
Design uses discrete transistors and is very easy to build. In addition the Module presents an ideal opportunity for the Hobbyist to gain an understanding of how an Audio Amplifier works.

### SPECIFICATIONS:

**Input Impedance** 100K Ohm approx. **Output Impedance** 0.1 Ohm approx. **Signal to noise ratio** 58db with respect to 1W **Freq. Res.** -3db @ 45Hz and 68KHz **Load Imp.** 4 Ohms or greater **Quiescent Current** 22mA with 8 Ohm load.

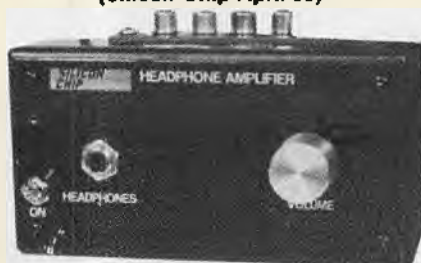
DC Supply	PWR into 8 Ohms	PWR into 4 Ohms
20V	4W	6.6W
30V	8W	12W
35V	15W	19W

K 5112 **\$21.50**



## C.D. Headphone Amplifier

(Silicon Chip April'88)



**Adds Headphone facility to your CD Player**  
This clever design suits any C.D. player and low or high impedance headphones. The circuit offers very low noise distortion. The signal output of the CD is not degraded. All inputs/outputs via standard RCA sockets. Requires external 12V AC plug pack.

K 5350 **\$25.50**

## LED Bargraph Display

(See ETI Oct'83)



This easy to build level Meter displays a peak reading from -21db to +6db in either dot or bar mode. Incorporates our exclusive imported LED Bargraph Module giving a very professional finish.

**Great for the Car, Home Hi Fi, Disco Console, Mixers, Audio Monitoring.**

K 5412 **\$19.50**

## Voice Operated Relay

(See EA April'82)

**Professional design eminently suited to Commercial Applications**

This versatile Vox Circuit does just that whenever a noise or sound is made it triggers the circuit causing a relay to close.

**THINK OF THE USES:**

- Controlling Tape Recorders.
- Slide Projectors
- Eliminate the need for a press to talk button on transmitters.
- Turning on external porch lights.
- Paging systems.
- Hands Free Intercom switchover reaction sensitivity and "On Time" are fully variable.



K 5540 **\$15.00**

## LAMP DIMMERS

### Touch Lamp Dimmer

(See EA April'83)

**Controlled By The Latest Siemens Light Dimmer IC The S 576A**



Instantly turn lamps on and off with just a light touch on a wall panel. Alternatively you can dim or brighten the lamps to any desired level by merely touching the panel for two or three seconds — very classy! The **Altronics** Kit is complete in every way, including satin touch plates for that prestigious look.

SUPPLIED WITH **SILVER TOUCH PLATE**

K 6320 **\$35.00**

SUPPLIED WITH **GOLD TOUCH PLATE**

K 6319 **\$35.00**

### Infra-Red Remote Control

(See EA Jan'84)



Imagine being able to control all the functions of your touch lamp dimmer from your armchair. Well with our infra-red Remote Control, it all becomes possible. This unit combined with your touch lamp dimmer, will turn your lights on and off or dim them to any desired level, all at the touch of a single button.

- **Altronics** Screened front panel supplied with quality "ABS" plastic Jiffy Box.

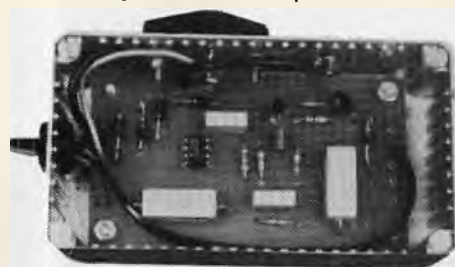
K 6322 **\$27.50**

## KITS FOR CARS

### High Energy Ignition System

(See Silicon Chip May'88)

**Keep Your Car In Top Tune**



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

K 4015 **\$43.50**

### Car Parking Proximity Detector

(See Silicon Chip 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 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. Altronic kit comes complete with all parts, boxes and cable.

K 4310 **\$34.50**



**Ultrasonic Movement Detector**

(See EA Aug'84)

Ideally Suited to K 4370 Takes Minutes to Install



This Ultrasonic Movement Detector provides added protection against illegal entry via. an open window etc. Connects directly to any alarm with a normally open input

- Detects any movement up to 3 metres within an angle of 30 deg.
- Will operate directly off 12V i.e. Car battery etc.

K 4400 **\$29.50**

**The Protector Car Alarm** (See SC Feb'88)



This refined car burglar alarm has about every feature you could possibly want to keep would be thieves away.

- FEATURES:**
- Internal & External Sirens
  - Dash lamp flasher
  - Battery back up
  - Delayed & Non delayed inputs
  - Ignition killer
  - Easy to build and install.

K 4370 **\$129.00**

**Screacher Car Alarm**

**Ear Splitting 110db Modulated Tone** (See EA Aug'86)

Now our top selling Car Alarm. Two Sensor inputs — Normally open and normally closed enable simple connection to door, bonnet, Boot light, switches etc.



K 4360 **\$39.95**

*Protect Your House & Contents  
Build this Feature Packed Alarm*

**GREAT FOR  
SMALL BUSINESS  
PREMISES TOO!**

**House Guard Alarm System**

Fantastic New Alarm Project — Easy to build as it all assembles on a single PCB.

Includes 12V 1.2 amp hour Inbuilt lead calcium backup battery.

(See EA March/April'89)

With todays high incidence of crime it makes sense to protect your home whilst it's unoccupied.

- Features:**
- Delayed and instant input
  - Entry and exit delay
  - Panic alarm input
  - Battery backup
  - Line monitoring
  - Soft alarm start
  - Lamp telltale output
  - Auxiliary relay for external siren etc.
  - Key switch operation
  - Operates on virtually any type of sensor.

All components mount on a single PCB including transformer Complete Kit housed in H 0202 Jiffy Box.

K 1910 **\$79.00**



**Basic Car Alarm ETI 084**

This Ingeniously Simple Alarm Operates by Detection of any Voltage drop in your vehicles electrical system.

e.g. Operation of courtesy light, hot wiring of ignition etc. will activate the alarm.

**FEATURES:**

- Flashing Led to Deter would be thieves & vandals.
- Installs in minutes
- Easy to Build.



K 4350 **\$15.00**

**Protect your Home or Business from Intruders with this "State of the Art" Burglar Alarm System**

Over the last few years, House Break-Ins have increased dramatically. The recovery rate of stolen goods is very low. **Now more than ever before, it makes extremely good sense to build and install this Ingenious Multi-Sector System.** This unique Alarm System incorporates the features of the more expensive commercial models—at a fraction of the price.

**FEATURES:**

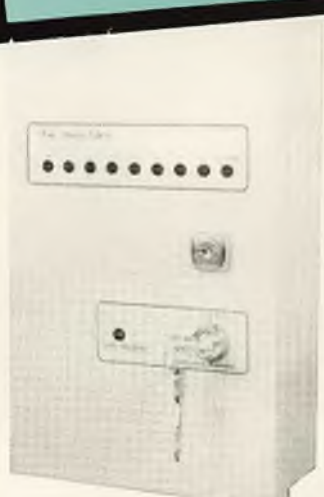
- Alarm has 8 separate input circuits—8 sectors can be monitored independently.
- Each input circuit is provided with an indicator LED and a sector On/Off switch.
- Individual sector isolation allows the user to have some areas of the premises habited while others remain protected.
- Inputs accept both normally closed and normally open sensors.
- Two inputs provided with an entry delay (between 10-75 seconds)
- Alarm is disabled by frontpanel key switch.
- Internal trip warning buzzer. This buzzer is pre-settable between 5 and 55 seconds prior to Alarm.
- Unique circuit detects automatically when any N/O or N/C loops are either open circuit or dead short.e.g. someone trying to bridge reed switches etc.
- Automatic muting of the siren driver when under test.
- Fully variable exit delay—between 5 and 45 seconds.
- Will drive a separate external horn speaker
- Alarm output variable between 1 & 15 mins.
- When triggered, gives a switched double pole output for connection to external devices e.g. Bells, TV Camera etc.
- Switched output can be used to send a silent alarm through an auto-dialler circuit or similar.
- Full battery back up available via. 12V—1.2Ah battery
- Alarm will operate for approx.2 days with mains disconnected.
- Supplied in an attractive functional security case.

(See EA Jan.Feb'85)

Kit(Less Battery Back Up) **K 1900 \$149.50**

Back Up Battery 12V 1.2AH **\$ 5065 \$24.95**

**MULTI SECTOR BURGLAR ALARM**



**Fantastic New 500 Watt Sine Wave Inverter**

Due In Stock April '89



We are proud to announce a state-of-the-art DC-AC inverter with full 300VA rating at a price which directly competes with square wave models. Our design uses switchmode technology to achieve a precise 50Hz sine wave with less than 4% distortion. (AC mains can be higher than this). More importantly, we are achieving around 85% efficiency with the unit. This is better than many square wave types. The Altronic sine wave inverter has special housekeeping circuits which totally protects the power switching componentry from overload, short circuit, very bad power factors, etc! It also protects your batteries by monitoring their condition. Light but rugged. The Altronics sine wave inverter weighs less than many square wave inverters on the market at present, yet it is built to last many years.

Remember, many 240V appliances do not run properly on square wave inverters. Our unit gives them the power that they were designed for RMS.

We are proud to advise that this product is designed and made in Australia.

Automatically adjusts to either 12V or 24V DC input. Protected against incorrect polarity input.

**Specifications:**

- Power - 300W Continuous - 500W Intermittent
- 12V or 24V DC input 25-30 amps drain.
- Output 240V AC nominal 50Hz sine wave.
- Efficiency 80-90% depending on load, power available etc.
- Distortion less than 5% typical 3% resistive load.
- Dimensions 260(W) x 220(D) x 80(H)mm.
- Auto power on (can remain permanently on, will not draw current until load appears at 240V socket). In other words you can treat it like a normal power point!

**K 6760 \$399.00**

**Up To Now Similar Lamps Were Selling For \$1,000 And More**



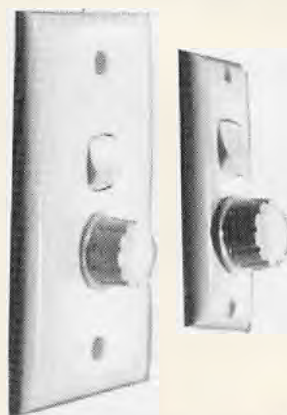
**Plasma Lamp Display**

Fantastic pulsating high voltage Plasma discharge continually changes shape and direction. Mode selectable to either fingertip control or sound activated e.g. from voice or sound system. Provides endless fascination as it sizzles and arcs. **Supplied complete with AC Mains Adaptor.**

Price Breakthrough For '89

**A 0120 \$199.00**

**NEW FOR '89**



**Room Light Dimmers**

500 Watt capacity - and that is an awfully bright room! Simply install in 5 minutes in place of normal wall or architrave switch. Fantastic for mood lighting the Dining room or for the nursery.

**Standard Wall Box Type**

**A 1400 \$13.95**

**Architrave Type**

**A 1410 \$13.95**

**100 Amp Jumper Leads**

These are the real McCoy. Extra heavy duty 100 amp capacity. Get a set for your car today.



**A 3011**

**\$17.50**

**vifa**

SPEAK

High Performance  
Loudspeaker Components

**TWEETERS**

**WOOFERS**



**VIFA D19TD-05-08**

19mm dome tweeter with polymer diaphragm. This dome tweeter is VIFA's biggest selling driver. Very smooth and versatile. Ferro Fluid cooled voicecoil ensures high power handling & perfect damping. Suited for any quality 2-, 3- & 4- way system with power handling up to 100 watts RMS.

C 3150 **\$55** ea



**VIFA C13WG-08-08**

5" sandwich coated woofer with rubber surround. High performance driver which can be used in 3- 15 litre bass reflex or sealed enclosures. Very smooth response useful up to 5kHz, & 50 watts RMS power handling capacity

C 3110 **\$99** ea



**VIFA D25TG-55-06**

25mm dome tweeter with polymer diaphragm. Larger and more powerful version of the D19TD. Smooth and detailed performance with low colouration. Ferro Fluid cooled voicecoil make this tweeter suited for high powered 2- & 3- way systems up to 150 watts RMS.

C 3155 **\$74** ea



**VIFA C20WG-09-08**

8" sandwich coated woofer with foam surround. One of VIFA's most successful drivers.. For use in 15-10 litre sealed enclosures. Very flat response with low distortion. Ideal in 2-way bookshelf systems. 50 watt power handling.

C 3120 **\$119** ea

**MIDRANGES**



**VIFA K10MD-18-08**

4" sandwich coated cone midrange with foam surround. High quality midrange for any 3-way system. Accurate & neutral performance with low colouration. Requires a 0.5 litre sealed & damped enclosure (e.g. VIFA's PC-K10 plastic cover). Ideal for systems up to 80 watts RMS.

C 3135 **\$79** ea



**VIFA P21W0-12-08**

8" Polycone woofer with large magnet & diecast magnesium basket for highest rigidity. This woofer has rubber surround. Can be used in 25-45 litre bass reflex enclosure. Ideal in both 2- & 3-way systems. 70 watts power handling capacity.

C 3125 **\$188** ea



**VIFA D75MX-30-08**

Unusual 3" dome midrange with a coated soft textile diaphragm. Very smooth & detailed performance with excellent dispersion & clarity. 75mm voicecoil ensures high power handling & superb transient response. Requires a 1.5L sealed & damped enclosure (e.g. VIFA's CC-D75 cover). Optimal midrange in 3- & 4- way systems with a power handling up to 150 watts RMS.

C 3140 **\$129** ea



**VIFA P25W0-00-08**

This 10" Polycone woofer is the largest in the Polycone range. Large magnet, diecast magnesium basket & rubber surround. designed for 3- way bass reflex systems with a volume of 50-100 litres. 75 watts power handling capacity.

C 3130 **\$220** ea

# LOUDSPEAKERS

**ALTRONIC**  
Components

## Quality Replacement Speakers



**Mini 57mm**  
**200 mW 8 Ohm**  
Large Ferrite Magnet  
**C 0610 \$2.30**  
10 Up **\$1.75**



**Mini Speaker**  
**82.5mm (3 1/4")**  
**3 Watt 8 Ohm**  
Mounting holes at 71mm centres.  
**C 0612 \$6.50**  
10 Up **\$5.95**



**100mm (4")**  
Dual Z 4/8 Ohm, 3 Watt RMS. Mounting hole centres at 82mm.  
**C 0616 \$6.50**  
10 Up **\$5.95**



**125mm (5")**  
Dual Z 4/8 Ohm, 3 Watt RMS. Mounting hole centres at 85mm.  
**C 0618 \$7.95**  
10 Up **\$7.25**



**165mm (6 1/2")**  
Dual Z 4/8 Ohm, 3 Watt RMS. Mounting holes at 112mm.  
**C 0620 \$8.95**  
10 Up **\$7.95**



**150 x 100**  
**(6" x 4")**  
Dual Z 4/8 Ohm, 3 Watt RMS. Mounting hole centres 57 x 146mm.  
**C 0622 \$9.95**  
10 Up **\$9.50**



**178 x 125**  
**(7" x 5")**  
Dual Z 4/8 Ohm, 3 Watt RMS. Mounting hole centres 110 x 110mm  
**C 0624 \$12.50**  
10 Up **\$11.20**



**Dual Cone (8")**  
200mm (8") 10 Watts Max. power input. Public Address Background Music. Ideal Hi Fi extension speaker. Includes transformer holes at 51mm.  
Mounting holes at 198mm  
**C 2000 \$16.50**  
10 Up **\$15.00**

## High Performance Wide Range Speakers



**100mm (4")** **NEW FOR '89**  
**15 Watt**  
High efficiency dual cone quality driver. Excellent midrange "presence". Roll edge cone suspension. 8 Ohm  
**C 0626 \$17.50**  
10 Up **\$16.00ea**



**125mm (5")**  
**15 Watt**  
High efficiency dual cone quality driver. Excellent midrange "presence". Roll edge cone suspension used with the Redford weatherproof sound column range. Two voice coil impedance models.  
**C 0630 4 Ohm** **C 0632 16 Ohm**  
Mounting holes at 120mm Centres.  
**Both \$19.50**  
10 Up **\$18.00**

New High Performance Model For '89



**200mm (8")**  
**30 Watt**  
Roll edge suspended cone. High mid range efficiency especially suited to use in vocal PA and sound column use. Superbly smooth high power speaker. Max. input power 30W 8 Ohm Z. Resonant Freq. 60Hz. Mounting holes at 198mm.  
**C 2001 \$27.50**  
10 Up **\$25.00**

## Piezo Ceramic Speakers

Piezo Ceramic Speakers offer several advantages over conventional speakers, such as -  
• No bulky magnet structure • No voice coil • No crossover network required  
• Excellent transient response  
• Extremely low distortion • High impedance as Piezo appears as capacitive rather than inductive load  
• Light weight • High power capability  
All speakers are capable of handling in excess of 150 watts and can be configured to handle much, much higher.

### Round Tweeter



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

**C 6100 \$19.50** 4 Up **\$17**



### Rectangular Hi Fi - PA Piezo

144.8 x 54mm Rectangular Piezo Horn Speaker - suitable for Hi Fi and Sound Reinforcement. Full 90 deg. horizontal dispersion angle. **Freq. Res: 3K to 40KHz**  
**Sens: 110db @ 2.8V.**

**C 6120 \$19.50** 4 Up **\$17**



### Motorola KSN 1025A

177.8 x 82.6mm Rectangular Piezo horn speaker suited to Hi Fi and P.A. and Sound Reinforcement 90 deg. Dispersion Angle **Freq. Res: 1.9 to 40KHz** **Sens: 100db @ 2.8V**

**C 6140 \$37.50** 4 Up **\$35**

## Tweeters

**NEW FOR '89**

### Dome Tweeter With Ferro Fluid

Superb West German made 19mm Dome Tweeter with polymer diaphragm. Very Smooth clean response to 20KHz. Ferro fluid cooled voice coil allows high power handling and excellent damping. Use with speaker systems to 70 Watts.

**C 3015 \$39.50**

4 Up **\$37.00**

### Dome Tweeter

**60 Watt Max. Power**  
Silky smooth frequency response 1.5KHz to 20KHz. Wide angle dispersion. Massive power handling capacity. Diam. 94mm High spectrum. Purity. Incredible low price!

**C 3010 \$29.50**

4 Up **\$27.00**



**Polypropylene Woofers — All With High Power Handling Capacity And Massive Magnets**

**High Quality At Low Cost**

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 & or 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 their counterparts.



**10" Woofer  
60 Watt RMS 100W Max**

Rated Input Power ..... 60W  
Max. Inpt Power ..... 100W  
Impedance (400Hz) ..... 8 Ohm  
Frequency Response .... fo - 3000Hz  
Resonant Frequency .. 30Hz (+/-5Hz)  
Sensitivly 1M/1Watt .. 92db (+/-2db)  
Voice Coll ..... 38mm  
Nett Weight ..... 2650 gm  
Electromagnetic Q ..... 0.23  
Magnet ..... 836 gm/30 oz.

**C 3065 \$69.00**

**6½" Midrange  
30 Watt RMS 50W Max.  
With Sealed Frame**



Rated Power Input ..... 30W  
Max. Power Input ..... 50W  
Impedance (400Hz) ..... 8 Ohm  
Frequency Response .. 400Hz-6000Hz  
Resonant Frequency .. 400Hz +/-5Hz)  
Sensitivly 1M/1Watt .. 98db (+/-2db)  
Voice Coll ..... 25mm  
Nett Weight ..... 770gm  
Magnet ..... 263gm/10 oz.

**C 3045 \$27.50**



**12" Woofer  
100 Watt RMS 150W Max.**

Rated Input Power ..... 100W  
Max. Input Power ..... 150W  
Impedance (400Hz) ..... 8 Ohm  
Frequency Response .... fo - 2000Hz  
Resonant Frequency ..... 23Hz  
(+/-5Hz)  
Sensitivly 1M/1Watt .. 93db (+/-2db)  
Voice Coll ..... 38mm

Nett Weight ..... 3620 gm  
Electromagnetic Q ..... 0.22  
Magnet ..... 1410 gm/50 oz.

**C 3070 \$99.00**

**6½" Woofer/Midrange  
30 Watt RMS 50W Max.**



Rated Power Input ..... 30W  
Max. Power Input ..... 50W  
Impedance (400Hz) ..... 8 Ohm  
Frequency Response .... fo - 3000Hz  
Resonant Frequency .. 36Hz (+/-5Hz)  
Sensitivly 1M/1Watt .. 87db (+/-2db)  
Voice Coll ..... 25mm  
Nett Weight ..... 900gm  
Electromagnetic Q ..... 0.45  
Magnet ..... 280 gm/10 oz.

**C 3055 \$29.95**



**15" Woofer  
120 Watt RMS 200W Max.**

Rated Input Power ..... 120W  
Max. Input Power ..... 200W  
Impedance (400Hz) ..... 8 Ohm  
Frequency Response .... fo - 2000Hz  
Resonant Frequency .. 24Hz (+/-5Hz)  
Sensitivly 1M/1Watt .. 92db (+/-2db)  
Nett Weight ..... 4120gm  
Voice Coll ..... 50mm  
Electromagnetic Q ..... 0.45  
Magnet ..... 1400 gm/50 oz.

**C 3075 \$129.00**

**8" Woofer  
60 Watt RMS 100W Max.**



Rated Input Power ..... 60W  
Max. Input Power ..... 100W  
Impedance (400Hz) ..... 8 Ohm  
Frequency Response .... fo - 3000Hz  
Resonant Frequency ... 33Hz (+/-5Hz)  
Sensitivly M/1Watt ... 90db (+/-2db)  
Voice Coll ..... 39mm  
Nett Weight ..... 2200 gram  
Electromagnetic Q ..... 0.4  
Magnet ..... 836 gm/30 oz.

**C 3060 \$49.95**

**Polypropylene Passive Radiators**

- 8" Model **C 3085 \$19.95**
- 10" Model **C 3090 \$29.50**
- 12" Model **C 3092 \$39.50**



## Weather Proof Speakers and Sound Columns By Redford.

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



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

### RUGGED EXTRUDED CONSTRUCTION

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

### EXCELLENT REPRODUCTION.

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

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

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

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



### Sound Column to Mic Stand Adaptor

Ideal for portable PA systems. Adaptor simply screws into column speaker & onto standard 5/8" 27 TPI microphone thread. Suits all speakers/sound columns. Suitable for use on C 0505, C 0510 type mic stands.

**C 0990 \$9.95**



### HI FI Extension Speakers for Home, Club, Hotels etc.

**15 Watt 4 Ohm**

Single dual doped cone driver 4 Ohm impedance. Ideally suited as main speakers for Cars, Boats, trucks etc.

**C 0932 White C 0934 Black \$99 ea \$190 per pair**

### MASSIVE 100 WATT INPUT RATING FOR THESE MODELS SIMPLY BRILLIANT AS HI FI EXTENSION SPEAKERS

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

### Single Driver 16 Ohm 10 Watt

single dual doped cone driver 16 Ohm impedance is employed to give generally correct volume balance with main speakers — an added bonus is your amplifier load is kept to respectable limits. Great for back Patio, Den, Boat Deck etc.

**C 0938 White C 0940 Black \$115 ea \$190 per pair**

### Dual Driver 8 Ohm 20 Watt

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

**C 0944 White C 0943 Black \$149 ea \$280 per pair**

### 10 Watt 100V Line

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

**C 0942 White C 0941 Black \$125 ea \$240 per pair**

### 20 Watt 100V Line

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

**C 0946 White C 0945 Black \$179 ea \$330 per pair**

### 40 Watt 100V Line

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

**C 0955 White C 0950 Black \$245 ea \$450 per pair**



Redford and Scan Audio have combined resources to develop this high performance weatherproof speaker system. The heart of the system is the now famous 5" VIFA Woofer/Midrange, computer optimised for use in a 5litre Bass reflex cabinet.

The classic VIFA 19mm ferro fluid Dome Tweeter is incorporated with the crossover network as employed with the SA-50 bookshelf system.

The system is fitted with a unique over drive protection device enabling amplifier input of up to 100 Watts without damage.

The combination of the Internationally acclaimed VIFA drivers with the rugged Redford extruded aluminium enclosure gives an overall performance and appearance that is superior to any competitive weatherproof speaker on the Australian market.

Each speaker is supplied complete with mounting brackets.

**C 0970 Black**

**C 0972 White**

**\$199.50 ea    \$399.00 pr**

Due for release April 1989

Audio Purists This Is For You!  
**VIFA 2 Way 100 Watt  
Weatherproof Speaker**



**NEW FOR '89**

Look for product review feature in  
Electronics Australia Magazine April/May '89

**Down Light Lookalike Ceiling Speaker**

Another fantastic innovation from Redford. The body of this fine loudspeaker has been designed to imitate the appearance of a "Down Light". Excellent for domestic use and architecturally sensitive situations from Office Buildings to Restaurants and Art Galleries.

Supplied with the superb Redford C 0626 Dual Cone wide range 100mm (4") 15 watt driver. Excellent reproduction. Easy to install.

Available in 8 Ohm or fitted with M 1110 transformer for PA/BGM applications.

**C 0980 8 Ohm 15W**

**\$29.50**

**C 0982 100V Line**

**\$35.00**

**NEW FOR '89**



Want a set of high grade extension speakers for the back patio, games room, den, workshop, kitchen? - This great little kit includes speakers, Grilles, wire, screws, controller - the works!

**Stereo Extension Ceiling Speaker Kit**

Complete system ready to install in your home. Redford wide range 100mm (4") 15 watt drivers comprise the heart of the system. The performance of these drivers when fitted to the ceiling is quite stunning.

**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.

**C 0988 \$99.00**

The perfect Gift for Mum or Dad.  
Beautifully Packaged and Presented



**Wall Mount Speaker**

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

• Box Enclosure..... **C 0900 \$29.95**

• Fitted with 8" 8 Ohm 10W Dual Cone Speaker (Ideal Hi Fi Extension) ..... **C 0910 \$39.95**

• Fitted with 8" dual Cone Speaker & 5W 100V Line Transformer (Suited PA/BGM System) ..... **C 0920 \$49.95**



**Fantastic HI FI or PA Speaker**

# LOUDSPEAKERS

**ALTRONIC**  
Components

## PA Speakers With Transformer

200mm (8") and 100mm (4") Models fitted with M 1110 grain oriented steel transformer. Transformer supplied with speed lugs and matching lead clip to facilitate power tap adjustment.

Primary: Tapped  
20K .5W (100V Line)  
10K 1W (100V Line)  
5K 2W (100V Line)  
2.5K 4W (100V Line)  
Secondary: 8 Ohm

C 2006 (4 in.) C 2008 (8 in.)

C 2006 100mm \$24.50 10 Up \$22.50 ea  
C 2008 200mm \$22.50 10 Up \$20.00 ea



## Redford Re-Entrant Horn Speakers With In-Built Line Transformer

Our superb Redford Paging Speakers are compact, high intelligibility, double re-entrant horn type speakers suited for indoor and outdoor use sound, signalling and intercom equipment. Constructed from sturdy weatherproof material, the loudspeakers are recommended for voice applications in Schools, Industry, Commerce and recreation. Screw terminals eliminate the need for soldering. 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 enamel.

The individual performance of each model is outstanding — We believe these will become the industry standard in the years to come.

Outstanding Performance and Efficiency



30 Watt  
C 2037

\$110

4 Up

\$104

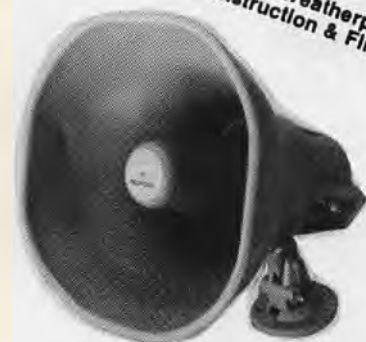
15 Watt  
C 2032

\$89.95

4 Up

\$85.00

Durable Weatherproof Construction & Finish



10 Watt  
C 2027

\$69.00

4 Up

\$66.00

Great Value



## Ceiling Speaker Grilles



NEW FOR '89

Ideal for PA/Background music systems, extension speakers etc. Colour White.

### 200mm Model

Traditional louvered ceiling grill. Includes mounting posts for standard 200mm (8") speaker.



C 0800 \$3.95 10 Up \$3.50

### 100mm Model

New attractive grill includes push in flush caps to hide fixing screw recesses. Ideal for architecturally sensitive applications eg. Office Buildings or domestic situations etc.

C 0810 \$3.95 10 Up \$3.50



## Economy Series Weatherproof Re-Entrant Horn Speakers

Both 8 Ohm

C 2015 10 Watt PVC \$15.95 5 Up \$14.80  
C 2025 15 Watt Alum. \$39.50 5 Up \$38.00

## 10 Watt Megaphone PA

Ranges: 300M approx. (up to 800M in ideal conditions)  
Power: 8 x AA cells not supplied (order separately 2 of Altronic S 4920)

A 1980 \$99.95



	C 2027	C 2032	C 2037
Power Rating	10/75/5/2.5/1.25	15/10/5/2.5W	30/15/10/5W
Frequency Response	300-12KHz	275-14KHz	225-14KHz
Dispersion	110 Deg.	110 deg.	100 deg.
Sound Level	110 db	121 db	125 db
Dimensions	15x15x20	20x20x23	25x24x27





**Mylar Stereo Phones With Dynamic Mic**

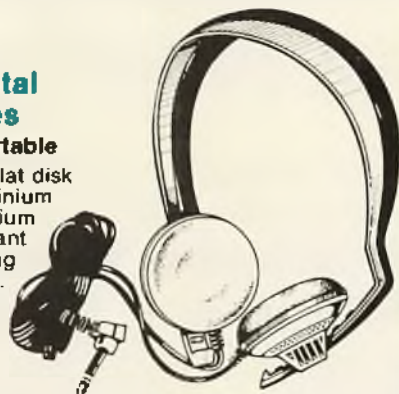
Simply brilliant Mylar Stereo headsets & dynamic mic combination.  
Headphone Specs. 20Hz - 20,000Hz, 32 Ohm, 102 db/uW, 3.5mm stereo jack, 6.35mm stereo jack, adaptor.  
Microphone Specs. Dynamic type, 300 Ohm, 100Hz-15,000Hz -80 db @ 1KHz, 3.5mm Mono Jack.

C 9055 **\$29.95**

**Brilliant Digital Headphones**

**Incredibly Comfortable**

Utilizes newly developed flat disk vibrator copper clad aluminium wire voice coil and Samarium cobalt Magnet. The resultant reproduction is outstanding Impedance 45 Ohms. Max. input 400mW. Freq. Res. 20Hz to 20KHz.



C 9010 **\$39.50**

**High Performance Mini Headphones**

Superb light weight High Fidelity Stereo phones. Super comfortable to use. **Samarium Cobalt Magnets.** Frequency response to 20KHz. Weight 42g.



C 9005 **\$19.95**

**Mini Headphones**

Fitted with 6.5mm Stereo plug light weight and comfortable. Amazing performance for low cost phones.



C 9001 **\$8.95**

**Magnetic Earpiece**

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

C 9000 **.95c**



**Two Station Intercom**  
Battery operated (9V S 4940) call tone from either station in 'Off' or standby mode. Clear crisp Audio. Ideal for Home or Office.

A 0470 **\$34.95**

**CROSSOVERS**

**2 Way**

Impedance 8 Ohm  
Crossover 5000Hz. 6db/Octave  
Input Power 60 Watts

C 4002 **\$8.95**

**3 Way**

Impedance 8 Ohm  
Crossover 800, 5KHz,  
6db/Octave.  
Input Power 80 watts.

C 4003 **\$19.50**



**L Pad Level Control**

Fully sealed type - for use with speaker crossover system.



**Midrange**

C 4010

**\$7.95**

**High**

C 4012

**\$7.95**

**Black Speaker Cloth**



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

C 3520 **\$14.50** per metre

**Innabond Wadding**

900mm wide, 25mm thick. A must for speaker box enclosure lining.

Bonus Extra Wide

1.5 Metre 40mm



C 3510 **\$9.95** per metre

**Redford**  
**Stereo Volume Controller**  
SEE PAGE 27

## Professional PA Amplifiers Designed By Altronic



### 30 Watt Line Output Public Address Amplifier With Balanced Mic Input & Muting

Developed right here in Australia by Altronic — the Altronic A 2000 utilizes balanced input, drive output and feedback circuitry to achieve performance and stability unheard of with low cost amplifiers. The A 2000 will operate happily into all sorts of capacitive and inductive loads. Long lines, speaker transformers etc. Eminently suited for use by **Schools, Sporting clubs, function centres** as well as with professional installations (paging systems — background music).

#### SPECIFICATIONS:

- Balanced Low Impedance Mic Input 200 — 600 Ohm. Input socket 5 Pin din (Line 1 and 3, 2 earth)
- Unbalanced Low Impedance Mic Input 200 — 600 Ohm (Line 1, 3, and 2 earth)
- **Mic Muting** on Pins 4, 5. Mutes auxiliary channel (or music programme) when operated
- **Auxiliary Input** 100K Ohm RCA
- **Treble and Bass Controls** individual boost and cut controls provided for auxiliary channel only
- **Low Z Speaker Output** 4 - 16 Ohm
- **Line Output** 100V line (balanced)
- **Power Output** Full 30 watts RMS into either 4 Ohm or 100V line
- **Distortion** typically less than 1%
- **Frequency Response** 40Hz to 15KHz

#### CONSTANT VOLTAGE DESIGN

Output power level will not audibly alter with wide variations in

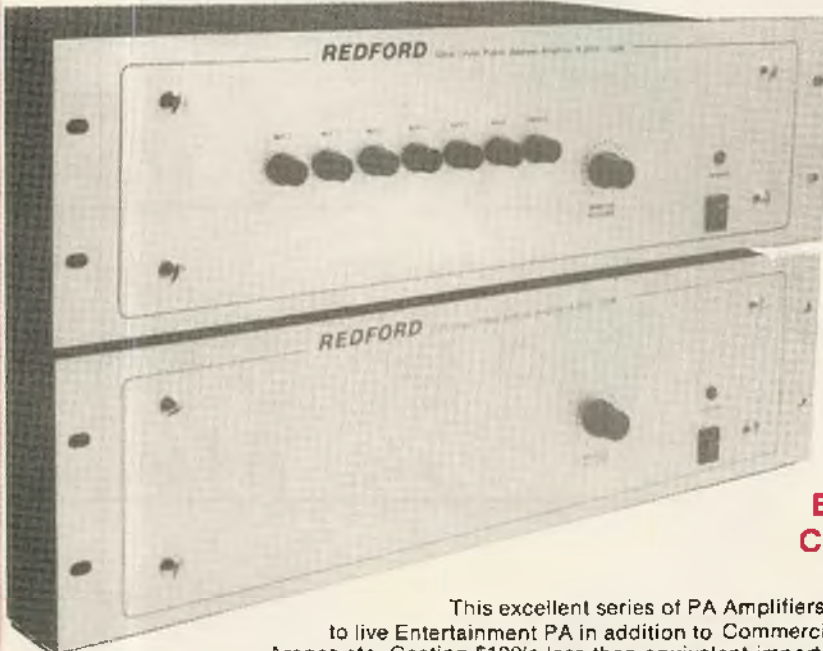


speaker (or output load) i.e. with several speaker circuits the operator may page to one or all together without the level audibly varying at any one circuit.

2 Year Warranty

A 2000 **\$279.00**

## New Generation Public Address Amplifiers Deliver Stunning Performance on 240V AC and 24 — 28V DC



### Four Models Deliver Up To A Massive 250 Watts

Amplifier Models A 2022 **125W** and A 2032 **250W**  
**3 Mic Inputs**, 200 - 600 Ohm, 5 Pin Din socket, earth Pin 2 Balanced Input pins 1 and 3 unbalanced input earth pins 2 and 3 line pin 1.  
**2 Auxiliary Inputs** 100K, 200mV sensitivity for full output, 5 pin din socket, earth pin 2 line pin 1.  
**Treble and Bass controls** on Auxiliary inputs only +/- 10 db at 100Hz and 10KHz **Output Terminals** Screwdriver terminal strip 100V, 4-16 Ohm, 24V DC input.

Power Amplifier Models A 2020 **125W** and A 2032 **250W**  
**Input** 3 pin XLR type socket earth pin 1 balanced line 2 and 3. Internal switch allows selection to balanced input 10K Ohm or unbalanced input 100K Ohm. **Input Sensitivity** 200mV **Output Terminals** screwdriver type 100V, 4 - 6 Ohm, 24V DC Input.

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

This excellent series of PA Amplifiers, **engineered right here in Australia** is eminently suited to live Entertainment PA in addition to Commercial Public Address Systems in Schools, Hotels, Sports Arenas etc. Costing \$100's less than equivalent imports, these amplifiers deliver full rated output on 24V DC making them ideal for use with emergency power back up installations i.e. Fire evacuation systems etc. Each is guaranteed for 2 years from date of purchase. **Housed in attractive 3 unit (132mm H) rack case, each is thus suited for rack mounting as well as bench mounting.**

	A 2020	A 2022	A 2030	A 2032
Output Power	125W	125W	250W	250W
Output Line	100V Line	100V Line	100V Line	100V Line
	or	or	or	or
	4-16 Ohm	4-16 Ohm	4-16 Ohm	4-16 Ohm
Inputs (Switchable)	100K Unbalanced or 10K Balanced	3 Mic Low Z Bal. or Unbal. Line	100K Unbalanced or 10K Balanced	3 Mic Low Z Bal. or Unbal. Line
Output Level regulation	Better than 2 db	Better than 2 db	Better than 2 db	Better than 2 db
Signal to Noise Ratio	Better than 75 db	Better than 65 db	Better than 75 db	Better than 65 db
Frequency Response	40Hz and 14KHz	40Hz and 14KHz	40Hz and 12KHz	40Hz and 12KHz
+/- 3 db Typical Distortion at Full Power O/P	(less than 1%)	(less than 3%)	(less than 1%)	(less than 3%)

**\$599**

**\$699**

**\$799**

**\$899**



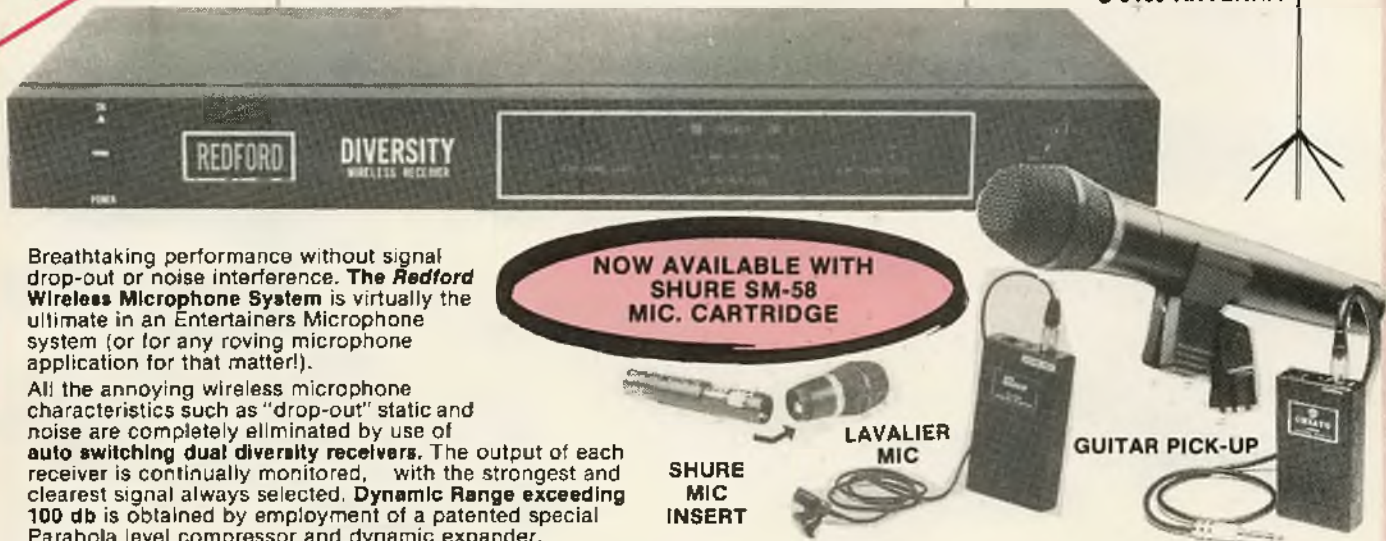
**DUAL DIVERSITY**

### Redford Wireless Microphone System

High Performance System on the 200MHz UHF band uses microprocessor switched Dual Diversity Receivers

Unique Microphone Design Completely Eliminates "Dangling" Antenna

C 0160 ANTENNA



Breathtaking performance without signal drop-out or noise interference. The **Redford Wireless Microphone System** is virtually the ultimate in an Entertainers Microphone system (or for any roving microphone application for that matter!).

All the annoying wireless microphone characteristics such as "drop-out" static and noise are completely eliminated by use of **auto switching dual diversity receivers**. The output of each receiver is continually monitored, with the strongest and clearest signal always selected. **Dynamic Range exceeding 100 db** is obtained by employment of a patented special Parabola level compressor and dynamic expander.

The **operating range is a minimum of 50 metres** (often this can be extended to 200 metres and more in normal circumstances).

**Several Frequencies are available** to alleviate cross interference when two or more systems are used in proximity.

#### FEATURES:

- No dangling Antenna on Microphone to get in your way.
- High Dynamic Range.
- Standard "AA" Batteries give long powerful operation.
- Advanced Technology — Automatic Switching Dual Diversity Receiving System.

Please note 3 different operating frequencies are available (you will need to specifically nominate desired frequency only if the equipment is being used in proximity with other **Redford** systems on the 200MHz band.

### The Famous Shure SM-58 Microphone is now available with the Redford Diversity System.

The choice of Internationally renowned vocalists is now available with the **Redford Diversity System**. The Shure Model is available as a complete microphone for each of the frequencies we carry or as a "plug in" adaption or replacement with the standard hand held series.

C 0112	Dual Diversity Receiver	202.1MHz	\$729.00
C 0114	Dual Diversity Receiver	202.5MHz	\$729.00
C 0116	Dual Diversity Receiver	203.7MHz	\$729.00
C 0122	Entertainment Mic	202.1MHz	\$349.00
C 0124	Entertainment Mic	202.5MHz	\$349.00
C 0126	Entertainment Mic	203.7MHz	\$349.00
C 0128	Shure SM-58 Wireless Mic	202.1MHz	\$575.00
C 0129	Shure SM-58 Wireless Mic	202.5MHz	\$575.00
C 0130	Shure SM-58 Wireless Mic	203.7MHz	\$575.00
C 0132	Lavalier Microphone	202.1MHz	\$349.00
C 0134	Lavalier Microphone	202.5MHz	\$349.00
C 0136	Lavalier Microphone	203.7MHz	\$349.00
C 0142	Shure Mic Cartridge SM-58		\$259.00
C 0152	Guitar Pick-Up	202.1MHz	\$159.00
C 0154	Guitar Pick-Up	202.5MHz	\$159.00
C 0156	Guitar Pick-Up	203.7MHz	\$159.00
C 0158	Guitar Pick-Up lead only		\$39.00
C 0160	Remote Receiver Antenna		\$63.50
C 0162	Antenna Base		\$9.50

For remote positioning of the rod antennas supplied with the receiver, The C 0162 economy base fits to any standard microphone gooseneck or male 27 TPI 5/8" fitting. PL 259 Input.

### REDFORD AUDIO CONTROLLERS

Each of these controllers has been designed to install to a standard Electrical flush box or HPM mounting block (Cat. P 8045). All components are neatly contained on a single PCB. Screwdriver terminals enable simple neat connection within minutes.

#### FAIL SAFE OVER-RIDE Models A 2325 - A 2335

The Controller PCB is fitted with a two position selector switch and Bypass relay. **Selector Switch to Normal** Energising the relay (24V DC to terminals 5,6) bypasses the controller i.e. Full Input Power is directed to speaker load. De-energising the relay configures the device to normal level control function. **Selector Switch to Fail Safe** Energising the relay is necessary for normal level control function. De-energising relay bypasses the controller i.e. Full Power is directed to speaker load.

### FOR 100V LINE PUBLIC ADDRESS AND BGM SYSTEMS

<b>PA 10 Watt 100V Line Resistive Control</b>		
A 2320	Standard Model without relay	\$29.95
A 2325	PA Override Model Inc. relay	\$35.00
<b>PA 40 Watt 100V Line Attenuator Control</b>		
Uses switched low loss transformer.		
A 2330	Standard Model without relay	\$39.50
A 2335	PA Override Model Inc. relay	\$44.50

### Redford Stereo 60 Watt Patio Loud Speaker Volume Control

For years most of us have covered countless miles dashing from the Patio into the lounge or family room to "Turn it down"! or "That's not loud enough"! etc.

Massive 100 watt music power capacity. Five volume settings plus "off". Includes P 8045 mounting block. **A 2300 \$49.95**

# MICROPHONES

**ALTRONIC**  
Components

## Quality Microphones From Altronics

From the Budget C 0368 to the silky smooth professional entertainers "Redford" series all have been carefully Performance Evaluated by us — All represent excellent value.

### Electret Microphones

#### Uni-Directional Cardioid

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



C 0360

**\$39.50**

#### Omni Directional

Recommended for recording & eminently suited for wide angle sound pickup, i.e. choirs, orchestras, etc. **Frequency response** 20Hz-18KHz.

**Impedance** 600 Ohm. incl. 6M lead with phone plug & wind screen. Uses 1.5V AA Battery. Looks similar to C 0360

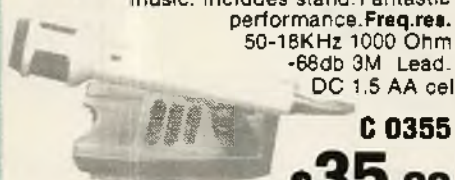


C 0365

**\$39.50**

#### Stereo Microphone

Superb for Stereo recording of vocal or music. Includes stand. Fantastic performance. **Freq.res.** 50-18KHz 1000 Ohm -68db 3M Lead. DC 1.5 AA cell



C 0355

**\$35.00**

#### Electret Tie Clasp Microphone

Omni Directional Quality Mic. Powered by 1 x 1.5V AA cell. **Frequency Response** 50-1 KHz. **Impedance** 1K Ohm **Sensitivity** -65db +/- 3db



C 0350 **\$27.50**

#### Mic Insert Electret

Great little replacement for tape recorders etc. Handy for hobby projects. Includes data sheet and application circuit. 50Hz - 15KHz.

C 0170

10 Up



**\$2.20**

**\$1.80**

## Wireless Microphones Receive on FM Band

### Two Function Cardioid Microphone

Wireless or Electret operation (simply swap over the antenna and output lead).

**Frequency** 88-108MHz 3M Lead supplied. Uses 2 x AA Penlight. **Super Handy Mic.**



C 0320 **\$32.10**

### Lavalier (Lapel)

Superb little microphone. Clips to tie, shirt etc. Ideal for Lecturers, Religious speakers stage work etc. Uses 1.5V alkaline manganese LR44 battery



C 0323 **\$36.50**

### High Performance ALC Wireless Microphone

Wireless mics suffer from overmodulation distortion when input levels are too high making them unsuitable for high grade vocal entertainment. Use of ALC (Automatic Level compressor) fixes all this.



Fantastic New Model Has Built-In Antenna C 0328 **\$129.50**

- SPECIFICATIONS:**
- Cardioid-Uni Directional Pick-up pattern.
  - Frequency Response: 50Hz-15KHz
  - Carrier Frequency: 88-108MHz adjustable.
  - Field Strength of Carrier: Within 50uV/m at a distance of 15M from the microphone.
  - Capsule: Electret condenser microphone
  - Current consumption: Less than 32mA
  - Battery Complement: 4 x AA
  - Weight: 235g.



New For '89

### Dynamic Remote Cassette Mic

- Low impedance - 200 to 600 Ohms
- for all portable cassette records
- Remote on/off switch
- Includes desk stand

C 0367 **\$7.95**

## Entertainers Microphones

### Uni Directional Low Z Budget Dynamic Mic

Sturdy "ABS" Body, Metallic appearance. Surprising voice quality for the price — **Frequency Response** 80-12KHz, 500 Ohm -77db On/Off switch 5M lead. Fantastic Value at this price



C 0368 **\$19.50**

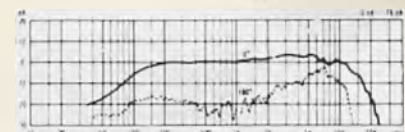
### Entertainers Cardioid Microphone

A fantastic Entertainers Microphone for such a low price - not quite in the league of the C 0385, but perfectly suited to general purpose entertainment, Live PA etc. Incredibly good feedback rejection. **Very Rugged.**

<b>Polar Pattern</b>	Cardioid
<b>Impedance</b>	600 Ohm
<b>Frequency Res.</b>	100-13,000Hz
<b>Sensitivity</b>	-75 + 3db
<b>Diaphragm Material</b>	Polyester Film
<b>Material of Housing</b>	Die-cast zinc
<b>Pop Filtr. Switch</b>	Off/On



Cannon Connector & 6M lead included C 0375 **\$79.95**



### Ultra Cardioid

With Laminated Metal Vacuum Evaporated Film diaphragm.

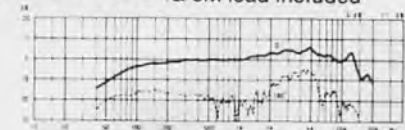
Simply superb entertainers microphone. Silky smooth response (useable to 18KHz). Extremely low feedback incidence. Inbuilt wind filter eliminated "Pops". Balanced line circuit enables long mic cable runs.

<b>Polar Pattern</b>	Cardioid
<b>Impedance</b>	250 Ohm
<b>Freq.Res.</b>	70-15,000Hz (useable to 18KHz)

<b>Sensitivity</b>	-77 + 3db
<b>Diaphragm Material</b>	Laminated metal vacuum evaporated film
<b>Switch</b>	On/Off with lock
<b>Pop Filter</b>	Built-In
<b>Sturdy Carry Case</b>	Included



C 0385 **\$119.95** Cannon Connector & 6M lead included



REFER TO PAGE 81 FOR MICROPHONE CABLE DETAILS

### Standard Communications Mic

Low impedance Dynamic mic. with curly cord (inc. switch pair) great for the CB Intercoms etc.

- Frequency Response 300-8KHz
- Impedance 500 Ohm
- Sensitivity -70db.

C 0302 **\$17.95**

For Professional 2 way Radios on Aircraft, Boats, Vehicles & also Industrial PA Systems.

### Noise Cancelling Microphone

Fantastic voice clarity and absence of feedback and background noise with this microphone. A great addition to the Altronic microphone range.

Frequency Response 400-8KHz Impedance 160 Ohms Sensitivity -65db (5cm from sound source).

C 0304 **\$29.80**

### Professional Paging Mic

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

**\$89**

**Polar Pattern** Cardioid  
**Impedance** 600 Ohm  
**Freq. Res.** 200 8KHz  
**Sensitivity** -70 + 3db  
**Dia. Material** Polyester Film  
**Switching** Electronic  
**Housing** Die cast zinc  
**Dimns.** 85 x 125 x 291mm

**Cable** Twin plus shield plus muting pair terminated in 5 pin din plug.

C 0372

### High Grade Paging Microphone With Tapered Low Frequency Roll Off

For very high quality PA systems or where acoustics are poor such as in shopping centres etc. we recommend the use of the C 0373. Purpose designed low frequency roll off of approx. 6db per octave. superb, Articulate Voice Quality.

**\$129**

**Polar Pattern** Cardioid  
**Impedance** 200 Ohm  
**Freq. Res.** 300 - 12KHz  
**Sens.** -70db  
**Switching** Electronic  
**Material** Die Cast zinc  
**Dimensions** 92 x 135 x 300

**Cable** 1.5M Twin Shielded plus muting pair terminated into 5 pin din plug

C 0373

### Microphone Accessories

#### 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.

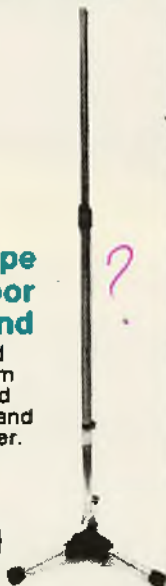
C 0500 **\$29.50**



#### Telescope Floor Stand

Quality, Stable floor stand single draw telescope stem fitted with friction grip and dual screw adaptor. 3/8" and 5/8" for microphone holder. **Height:** 96cm to 154cm **Weight:** 3.4Kgs.

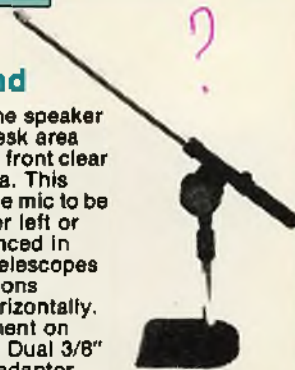
C 0510 **\$69.00**



#### Banquet Desk Stand

Great where the speaker requires the desk area immediately in front clear of paraphernalia. This stand allows the mic to be placed to either left or right or "distanced in front". Stand telescopes in two dimensions vertically & horizontally. Swivel adjustment on horizontal arm Dual 3/8" & 5/8" thread adaptor supplied. Heavy cast base

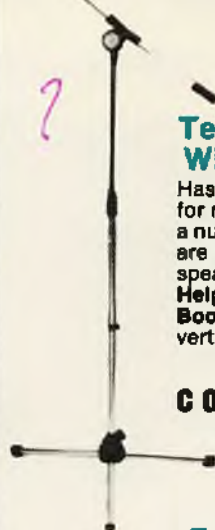
C 0505 **\$49.80**



#### Telescope Stand With Boom Arm

Has obvious applications for musicians & for where a number of microphones are employed with one speaker. **Height:** 96cm to 160cm **Boom** extends 70cm from vertical tube.

C 0515 **\$89.00**



#### Gooseneck Extension Arms

300MM Length C 0410 **\$9.50**  
450MM Length C 0412 **\$12.50**

C 0410 **\$9.50** C 0412 **\$12.50**

Gooseneck Bench Mount C 0420 **\$2.95**

Microphone Windscreen  
Three handy sizes — help eliminate outdoor wind noise and "Pops" caused by breath proximity.

C 0220 20mm for Pencil Mics **\$1.95**  
C 0221 27mm for Med. Mics **\$1.95**  
C 0222 41mm for Ball type Mic. **\$2.20**



5/8" Plus 3/8" Adaptor

Mic Holder C 0401

**\$4.50**



NEW FOR '89

#### Spring Loaded Microphone Holder

Powerful spring loaded jaws hold most sized microphones.

- Standard 5/8" x 27 thread
- Colour: Black.

C 0405 **\$5.95**



# AUDIO MIXERS

**ALTRONIC**  
Components

**Attention — Social Clubs, Schools, Churches, Disco Operators, Entertainers, Hotels, Night Clubs & Sporting Bodies.**  
With Altronics low prices - here is your opportunity to install one of these outstanding sound control mixers.  
Both models include microphone "Soundover" facility - making either ideal for live entertainment use.

## STEREO AUDIO MIXER



This brilliant little mixing console is absolutely packed with features. Allows blending of microphone, two phono inputs and either two tape or tuner inputs • Right and left VU meters • Separate bass and treble controls • 5 slide level controls • Fader control between phono pickups for professional cueing • Headphone monitor switch • Talkover facility.  
A very professional unit at an affordable price.

### SPECIFICATIONS:

- Input: Mic 0.5mV 600 ohms  
Phono 3mV 50K ohms  
Tape/tuner 150mV 100K ohms  
250mV
- Output: 20Hz to 20KHz (Plus or minus 1db)
- Frequency (Response): 10KHz (plus or minus 12db)
- Tone Control (Treble): 100Hz (plus or minus 12db)
- Tone Control (Bass): Less than 0.07%
- Distortion: More than 60db
- S/N Ratio: 4—16 ohms
- Headphone Impedance: 318 (L) x 217 (W) x 85 (H)
- Dimensions: 240V Mains Operated

**A 2550 \$199.00**

## PRO-QUALITY STEREO MIXING CONSOLE



**A 2570**

**\$499.00**

240V Mains Operated

Our sophisticated Audio Mixing Console is ideal for 'live' recording • PA mixing • Fantastic Tape Recordings • Even Stereo/Mono VCR recording. A truly professional deck that features separate R/L 5 band graphic equalisers • Echo and Peak LED level indicators Talkover facility • Separate H/Phone level control • Patch switch bank • Individual microphone, Phono 1, Phono 2, Aux/Line 2, and Master slide level controls. • Blend up to two magnetic or crystal turntables, two tape decks or tuners and two microphones all at once!!

### SPECIFICATIONS

- Input: Mic 1—0.5mV 600 ohms  
Mic 2—0.5mV 600 ohms (low imp.)  
2.5mV 10K ohms (high imp.)  
Phono 1 & 2 (Mag) 3mV 50K ohms  
Phono 1 & 2 (Cry) 150mV 100K ohms  
Tape/Tuner 1 & 2 150mV 100K ohms
- Equaliser: 5 frequency bands—60Hz, 250Hz, 1KHz, 4KHz, 12KHz—Boost  
Cut range—plus or minus 12db @ Centre frequency.
- Output: 1.5V/0.775V (Selectable)
- Frequency Response: 20Hz to 20KHz plus or minus 1db
- Distortion: Less than 0.05%
- S/N Ratio: More than 50db
- Headphone Impedance: 4—16 ohms
- Echo: B.S.D. System
- Delay Time: 30—200mS
- Echo Repeat Control
- Delay Time Control
- Dimensions: 480(L) x 240 (W) x 110 (H)

## Redford 8 Channel Mixer

- Housed in Stylish 1u 19" rack mount chassis.



### SPECIFICATIONS:

Inputs 6 microphone - balanced - 200-600 Ohm. 2 Auxiliary unbalanced 100K Ohm. Output 600 Ohm balanced 0db.  
Sensitivity Mic 1.25mV -Aux 100mV. Frequency Res. Mic 30Hz-15KHz, Aux (Flat) 18Hz-23KHz. Tone Controls Bass 100Hz +/- 10db, treble 10KHz +/- 10db. Signal to Noise All controls CCW -95db Distortion at 1KHz less than -3%.

All measurements measured in respect to 1KHz reference

**ULTRA  
LOW DISTORTION**

**A 2050 \$399**

**Famous Callmaster  
Phone Answering Machine**



With Callmaster you'll never miss a call again just because you weren't near the telephone when it rang. Callmaster answers for you, in your own voice if you wish, then records and stores the callers' messages for your convenience.

24 hours a day, 7 days a week, Callmaster is on the job. Your callers will appreciate the chance to communicate their information to you, without enduring the frustration of repeatedly dialing an unanswered number.

**Dual Cassettes**

This important feature is provided by both A 0510 non remote and A 0515 remote. One cassette delivers your outgoing announcement and the other records incoming messages.

**Monitoring Function**

Enables you to "screen" incoming calls, giving you the option of speaking with the caller personally or allowing your Callmaster to continue recording normally.

**Condenser Microphone**

Callmaster features a built-in microphone which records your outgoing messages.

**Large Incoming Message Capacity**

Up to 150 messages can be recorded, using a C60 leaderless cassette.

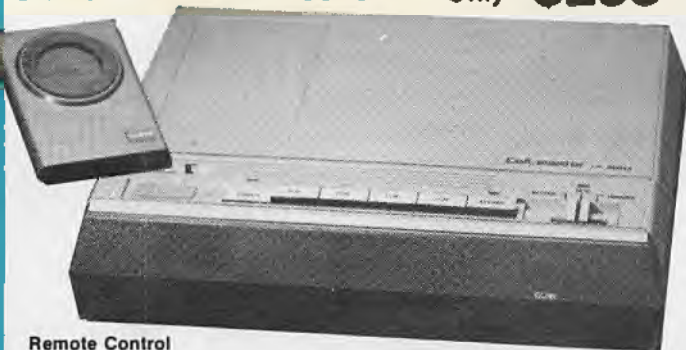
**Easy Change of Outgoing Messages**

Your Callmaster endless loop cassette gives a 20 sec. announcement.

**Calling Party Control**

Callmaster stops recording the instant your caller hangs up, eliminating annoying blank spots between incoming messages.

**Standard Model A 0510** Only **\$299**



**Remote Control**

(A 0515 only) — Receive your messages from any telephone, anywhere in the world! The decoder enables you to command playback of incoming messages from any telephone.

**Fast Forward**

(A 0515 only) — Whilst playing back your incoming messages, the convenient non-locking fast forward key may be depressed, advancing the incoming message cassette for the required duration.

**Precision and Quality**

Callmaster is designed especially for Australian Telephone conditions and precision manufactured in Japan, assuring unequalled performance and reliability.

**Telecom**

Callmaster A 0510 and A 0515 are both permitted for direct connection to the telephone network. You just plug it in!

**Remote Control Model A 0515** **\$399**

**Outgoing Message Tapes**

These don't last indefinitely — Why not buy a spare or two with your machine purchase.

All **\$13.50 ea**

- |        |            |        |            |
|--------|------------|--------|------------|
| A 0520 | 12 Seconds | A 0521 | 15 Seconds |
| A 0522 | 20 Seconds | A 0523 | 30 Seconds |

**Push Button Telephone**

With memory Re-Dial Great for use as a 2nd phone around the House or Office. This nifty little phone has all the features of units selling near twice the price! Last number Re-Dial memory and Mute Key, Rings On/Off switch and Dialing Indicator

A 0490  
**\$19.50**



Comes fitted with standard Telephone Plug

**Telephone Line Isolation Units**

All Telecom Approved

**Type 1.** Designed to interface paging output of PABX or Commander phone systems to Public Address Amplifier. Connects to Aux. Input.

**A 0610 \$99.00**

**Type 2.** Provides "Music On Hold" (M.O.H.) to your Commander phone system. Program input can be, radio, tape deck, landline etc. Max. output 800mV P-P.

**A 0615 \$99.00**

**Type 3.** Similar to type 2 (A 0615) excepting Max. Output is 2.8V P-P.

**A 0620 \$99.00**



**Telephone Double Adaptor**

Converts a single telephone socket into a double socket to allow you to plug in two phones.

P 0995..... **\$4.50**

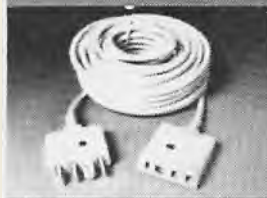


**Extension Cord**

Allows you to quickly extend your telephone cord length. Available in two convenient lengths.

5m P 0990..... **\$9.50**

10m P 0992..... **\$14.50**



**Conversion Cord**

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

2m P 0994..... **\$9.50**



**Adaptor Plug**

Converts an American modular plug into an Australian plug.

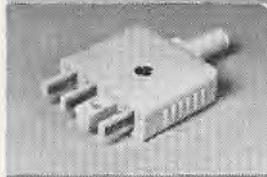
P 0998..... **\$4.95**



**Australian Telephone Plug**

Standard telephone plug for your own projects.

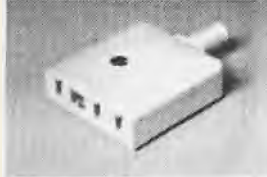
P 0985..... **\$3.85**



**Australian Telephone Socket**

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

P 0987..... **\$4.35**



## Microprocessor Controlled Detector Clips On To Sunvisor

Invisible from outside your vehicle — this fantastic high spec Radar Detector Detects X and K Band Radar up to an Amazing 13KM.

This super compact "Sunvisor clip on" Microeye Detector is virtually invisible from the outside of most vehicles at normal eye height hence its very unlikely yours would attract the attention of a thief (or the Gendarmes for that matter) However, please remember that use of Radar Detectors is not permitted in some states.

### MICRO EYE VECTOR

The First Detector with GaAs Diodes

Until now, GaAs diodes have only been used in sophisticated military radar equipment. The Microeye Vector is the first consumer electronics product equipped with this new technology.

#### Why GaAs Diodes Make The Difference

• Lower threshold allows for a better signal to noise ratio • Lower signal conversion loss • Higher barrier reduces noise.

Quite simply, GaAs diodes increase the sensitivity of the Microeye Vector.



A 1530  
**\$499.00**

21 Day  
Money Back  
Guarantee

#### Installation

An absolute Cinch! Clip it on the passenger side visor and plug the power lead plug into your cigar lighter socket and you're up and running. (I took a few more minutes to secrete the wiring behind the mouldings etc. and connected into the Ignition wiring, thus hiding all wiring).

• Simply plugs into your cigarette lighter socket or can be direct wired into your existing car wiring • Clips onto sunvisor, thus eliminating the shadowing effect of the bonnet area. Virtually eliminates the chance of theft, as unit is up out of sight • Features a quick release from the visor bracket to allow you to remove for safety • Using the latest digital processing technology the unit will filter out and ignore emissions from 80% of poorly designed Radar Detectors that emit microwaves.

• Detects Mobile Radar Equipment even monitors the pulse which is sent to the road from the Police vehicle to enable them to accurately calibrate their own speed • Not only picks up signals in straight lines but from just about any angle as well as around corners and over hills • Highway/City Modes switch allows monitoring of City or Highway conditions • Any Radar signal received by the unit whilst in the Highway Mode will instantly trigger the alarm.

#### Features:

• Separate audio alerts for X and K Band • Three operational switches: Power: On and Off RSD (Radar Signal Discriminator) to minimize extraneous signals with a LO (local) position and a LR (Long Range) position; Filter Mode designed for instant computerized analysis of incoming signals with LO and LR positions. • Alarm: Red LEDs will light up in sequence as signal strength increases. When all Red LEDs are lit and signal strength continues to increase, all Red Leds will flash simultaneously.

#### Accessories Included:

• Visor bracket • Velcro • Cigarette lighter plug.

#### Specifications:

Size: 3/4" H x 3-1/8" W x 4-1/2" L.

#### Operating Frequencies:

X Band: 10.525 GHz • K Band: 24.150 GHz

## Passive Infra-Red Lite Guard Floodlight Control

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



\$ 5350

**\$135.00**

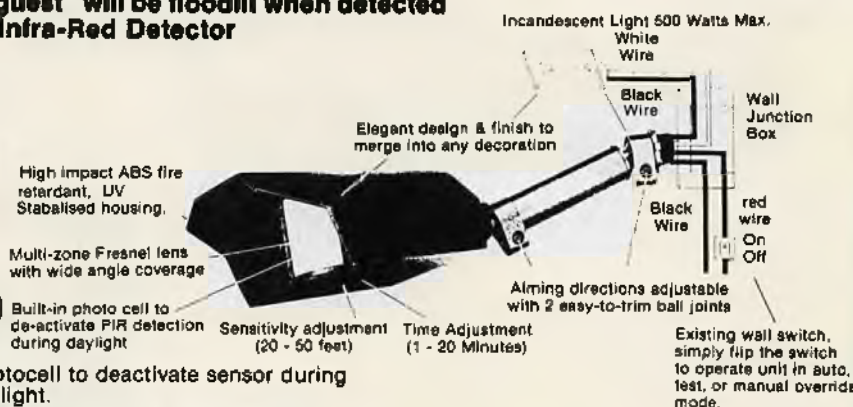
Please Note Floodlamps & Holders Not Supplied.

#### Important Notes

This unit is suitable for external installation, however, the following points should be followed (A) Unit must be located at least 2.5M above floor/ground level (B) Protection from direct weather by roof eaves or decking is preferred (C) Even 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 a licensed Electrician.

#### Specifications

- Detector: Dual element pyroelectric PIR sensor.
- Raintight outdoor all weather operation.



- Photocell to deactivate sensor during daylight.
- Operating Voltage: 240V AC, 50Hz
- Operation Time: Adjustable 1-20 minutes
- Sensitivity: Adjustable 20'-50', 30 beams.
- Aimable desired direction with 2 ball joints
- Switching Capability: 500W max. incandescent.
- Operation Modes: OFF, AUTO, TEST, MANUAL ON.

The Lite Guard detects a moving person or vehicle by comparing the background temperature with a rapid change of temperature across the detection beams. So when Lite Guard detects movement across the coverage area, it will turn on the floodlight(s) for 1-20 minutes as pre-adjusted.

**Security:** Prowlers are startled by a sudden unexpected blast of light when they enter the detected area.

**Convenience:** When approaching your home, the Lite Guard will detect your arrival and turn light on to welcome you home.

**Energy Saving:** Built-in photo cell deactivates unit in daylight. Timer can be adjusted so that light will go off in 20 minutes.

**Easy Operation:** Controlled by wall switch, the Lite Guard PIR light control has four settings: Off, auto, Manual and Test.



**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 305MHz Microprocessor Controlled Wireless Security System**

Commercial grade, quality alarm systems are expensive - Just phone one of the "Name" security firms and get a quote for your home - our estimate is that it will be anything up to \$1,000 just for the equipment - then there is the installation - countless holes punched through walls, miles of wiring and a day or two of installers labour and that's around \$35 per hour these days. Hardly worth the effort is it? After all what have you got to lose? Only the Video Player CD Player, Camera, Hi Fi, TV, Jewellery and so on!

Well all that is now changed - with our brilliantly engineered Home Guard Wireless Security System - Read On -

**Take It With You If You Move**

Apart from the flawless operation of the Home Guard System - One of the great features is its application with rented or leased premises - Lets face it, money spent on installing a wired system in your Home or Office, Factory etc. is irrevocably lost when you move on. With the Home Guard you simply take it with you.

This alarm system is a brand new design that features completely wireless connection to all accessories, even the reed switches. Think of how easy it is to install a "Wireless" alarm system. The benefits are endless, e.g. arming your Flat or Townhouse with an alarm you don't need to run wires through the roof or drill great holes through your walls. When moving house the alarm is simple to dismantle and re-install elsewhere.

The system divides protected areas into either perimeter zone or internal zone, programmable by dip switches in each transmitter/detector. **Pocket remote control** can simply arm or disarm your house perimeter from your bedside when retiring etc. this allows essential protection while cancelling internal zone as desired. Each transmitter/detector unit can be programmed into interior or perimeter zone. Zones can be programmed for instant or delayed trip. The system has a built-in ear piercing siren for intrusion and panic alarm signals

**System Is Comprised Of :  
Main Control Receiver**



\$ 5265 **\$349**

**Features:**

- Wireless reception of external or internal sensors or detectors
- Selectable home or away modes for selecting internal and external arming or just external to allow movement inside the building
- Built in Piezo electric siren gives different signals to indicate different functions

- Sends signal down power line to activate one or more remote sirens.
  - Programmable Arm/Disarm switch buttons
- The main control receiver runs on 240V AC with a 12V 1.2AH battery for emergency backup. All other units with the exception of the line carrier, run on a 9V battery each. The average life expectancy is approximately one year. System works around the 305MHz frequency where there is less chance of false alarm. The range of the unit is normally 80 metres in open space

**Alarm and Indication Sounds**

Intrusion Alarm - Panic Alarm - Arm Tone - Disarm Tone - Exit Click Tone - Monitor Tone - Tampering Alarm.

**Detector/Transmitter Unit (Reed Switch)**

**Suitable For Windows and Doors**

This consists of an enclosed reed switch and compact UHF transmitter and a removable enclosed magnet. The unit is at rest when magnet and reed are side by side (within 25mm or 1 inch). When the magnet is moved away more than approximately 1 inch the alarm signals to the Main Control Receiver and the alarm is sounded. In practise the Reed/Transmitter is mounted on the door or window frame with the magnet on the moving door or window



\$ 5270 **\$55.00**

**Passive Infra Red Movement Detector**

Ideal for the lounge room, family room or hallways e.g. anywhere where an intruder is likely to pass through. Mounts up on the wall or on top of bookshelves etc. Detects movement within an area of 9M by 9M by sensing intruder body heat movement through the protected area. Should not false trigger with the family cat or curtain movement etc. - as is the case with the cheaper Ultrasonic alarms



\$ 5280 **\$129.00**



**Remote Piezo Siren**

This unit is an optional line carrier receiver. Receives signal through 'AC' line i.e. it would ideally be located in, say, the roof space and plugged into mains power.

\$ 5290 **\$125.00**

**Complete System  
Special Package Price**

- One \$ 5265 Main Controller
- One \$ 5270 Reed Switch
- One \$ 5280 Passive I/R Detector
- One \$ 5285 Wall control unit.

**\$ 5260**

**Accessories**

**Note:** For larger installations your system may well require several Reed switches, movement detectors and 2 or more sirens. Also the remote door controller and or pocket remote controls could be very worth while accessories. The fantastic thing about the Altronic system is you simply add more detectors as you discover the need - no wiring, no expensive technicians, no modifications to equipment.



**Hand Held Control Transmitter Unit**

A real joy to use - keep it at the bedside table - allows you to, say, arm the house perimeters when retiring or you can take it with you when you go out, arming your system after you lock the door. Unit is a function control transmitter - to send 4 different signals.

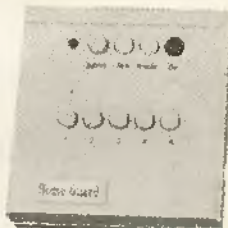
**Off** - To disarm the system before entering.  
**Home** - To instantly arm the system with 'Perimeter' detection only.  
**Away** - To arm complete system after a given exit delay time of about 40 seconds.  
**Panic** - To start an emergency signal whenever needed, in any mode.



\$ 5275 **\$59.00**

**Front Door Keypad Control Unit**

This handy accessory virtually duplicates the function of the Master Controller unit but at a more convenient location i.e. just inside your entry door etc. System can thus be armed or disarmed without the need to go to Master unit. Especially handy for larger homes or offices.



\$ 5285 **\$99.00**

## Two Position Single Pole Key Operated Switch



Zinc Alloy Die Cast housing & cylinder with weatherproof shutter, dive disc tumbler cylinder. Durable chrome/Nickel plated solid brass double fitted key. Silver plated contacts and terminals. 250V/3 Amps. Key removable in both positions.

### DIMENSIONS:

Panel hole 19mm, length from rear of front shroud 42mm, 52mm overall. Supplied with two keys.

<b>\$ 2500</b>	
1 - 9	<b>\$7.95</b>
10 - 24	<b>\$7.40</b>
25 Plus	<b>\$6.90</b>

## 4 Pole 2 Position Keyswitch With Weather/Splash Guard



Contact: Silver Plated Brass  
Max. Working Voltage: 300V  
Current Rating: 5A

Terminal	Connt.	Pos.1	Pos.2
A	1	3	
B	4	6	
C	7	9	
D	10	12	

Dimensions: Panel hole 19mm  
Depth 45mm from rear of front shroud, 60mm overall.

<b>\$ 2510</b>	
1 - 9	<b>\$11.95</b>
10 - 24	<b>\$11.00</b>
25Up	<b>\$9.80</b>



## MULTIPURPOSE KEY OPERATED SWITCHES

### Dimensions:

Panel hole 19mm  
Depth: 30mm from rear of front shroud, 36mm overall depth  
Diam: 22mm. Two keys supplied with each switch.

## Two Pole Two Position Key Removable In Position One Only

<b>\$ 2502</b>	<b>\$7.95</b>
10 Up	<b>\$7.40</b>

## Two Pole Two Position Key Removable In either position

<b>\$ 2504</b>	<b>\$7.95</b>
10 Up	<b>\$7.40</b>

## Two Pole Three Position Key Removable in Centre Position Only.

<b>\$ 2506</b>	<b>\$8.95</b>
10 Up	<b>\$8.25</b>

## Two Pole Three Position Key Removable In Any Position

<b>\$ 2508</b>	<b>\$8.95</b>
10 Up	<b>\$8.25</b>

## Blank Keys For \$ 2500/10

<b>\$ 2512</b>	<b>\$1.20</b>
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## Blank Keys For \$ 2502 - 8 Series

<b>\$ 2513</b>	<b>\$1.20</b>
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## Weatherproof Horn Speakers 10 Watt



<b>C 2015</b>	<b>\$15.95</b>
10 Up	<b>\$14.80</b>

## Tubular Key Lock Switch



Chrome plated brass cylinder in a zinc alloy die-cast housing. Key removable in 'on' or 'off' position. Radial 7 pin tumbler mechanism. Silver plated contacts & terminals. 250V/3.

Dimensions: Panel hole 19.2mm, overall length 37mm length from rear of front shroud 30mm, supplied with 2 keys.

<b>\$ 2515</b>	<b>\$9.95</b>
10 Up	<b>\$9.10</b>

## Flat Key Cam Lock



Zinc alloy die-cast housing with stainless steel cap. Key removable in either position. Disc tumbler cylinder. Solid brass keys (2 supplied).  
Dimensions: Panel hole 18.8mm, length from rear of front shroud to cam lever 16mm.

<b>\$ 2550</b>	<b>\$4.95</b>
10 Up	<b>\$4.50</b>

**\$ 2552** Spare Key Blanks

**\$1.20ea**

## Pressure Mats



Ultra thin switch mat for under carpet or mat etc.

<b>\$ 5184</b>	<b>\$26.50</b>
10 Up	<b>\$24.95</b>

## Reed Switch and Magnet Sets

3 Types (Surface Mount)



<b>\$ 5153</b>	SPDT	<b>\$7.95</b>
	Changeover Type	

<b>\$ 5155</b>	N/C SW	<b>\$4.95</b>
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<b>\$ 5156</b>	N/O SW	<b>\$7.95</b>
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## NEW Concealed Reed Switch and Magnet Set

Simply brilliant! Just drill recess your door or window and the magnet is flush mounted and thus 'invisible'. The Reed Switch segment is similarly mounted into the door frame or window frame and wired into your system.

**Can't be tampered with Professional Quality**

<b>\$ 5152</b>	<b>\$6.50</b>
10 Up	<b>\$6.00</b>

## High Energy Siren With Swivel Bracket As illustrated

Absolutely ear splitting SPL 120db. Handy Bracket for wall mounting etc. 12V 300mA.

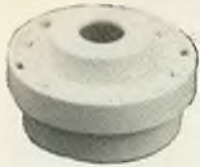
Ideal for industrial applications (or for home systems where the nearest neighbour is some distance removed!!)



Dimensions 100mm Diam. 125mm L

<b>\$ 5177</b>	<b>\$24.50</b>
10 Up	<b>\$22.50</b>

### Piezo Alarm



Similar to "Sonalert" type. Absolutely ear piercing sound. Recommended voltage 5 - 15V DC. Ideal for almost all audio signalling applications. i.e. Fire, water and gas signalling, computer alarms, etc.

**\$ 5166 \$7.95**  
10 Up **\$7.50**

### Two Tone Piezo Siren



Commercial/Industrial Type. High efficiency SPL/100db 12V DC 200ma. Two tone pulsating signal. Mounting flange allows wall or chassis mounting.

dimensions 85mm Diam.  
50 mm H

**\$ 5175 \$21.50**  
10 Up **\$19.50**

### Unobtrusive Indoor Wall Mount Piezo Siren

High energy/efficiency type with loud (SPL 102db) yet bearable 2 tone warble signal. Eminently suited to indoor/wall mount applications, e.g. security, gas warning, electrical, water alarm systems DC input 6-15V at 190mA.



Dimensions 105x 105  
x 45mm

**\$ 5178 \$23.50**  
10 Up **\$21.50**

### Mini Buzzer 5 - 15V DC



**\$ 5162 \$2.50**

Handy little solid state low current buzzer is ideal for use with signaling panels, alarm systems, in the car etc. Polarity conscious.

23mm L x 17mm H x 15mm W.

### PCB Mount Buzzer 5 - 15V DC

Solid state low current buzzer PC mount pins spaced at 8mm. 23mm L x 17mm H x 15mm W. Ideal for microprocessor and alarm circuitry etc. Polarity Conscious.



**\$ 5164 \$2.75**

### Panel Mount Piezo Buzzer

This highly efficient piezo buzzer delivers 95db and can be conveniently mounted on panels. Input voltage 5-15V DC 15mA. Dimensions 24.5 H x 29.5 D with 18mm panel hole for mounting

**\$ 5168 \$4.95**



### Micro Piezo Siren

Massive 110db from a micro size siren operates from 6-12V DC 150mA.



Dimensions  
39 x 43 x 59mm

**\$ 5170 \$17.95**

### Strobe Signal Lamps

Uses Xenon Strobe tube for High energy strobe flash output at a rate approx. 1 per second.

Fantastic light energy output for the DC power used. DC input 12V 320mA.



Dimensions 97 diam. 90H  
Two Colours Available

**\$ 5455 Blue \$27.50**  
10 Up **\$26.00**

**\$ 5450 Red \$27.50**  
10 Up **\$26.00**

### Alarm Tamper (Pin) Switch

Low cost spring loaded switches simply make to frame (or earth) when pin is released



**\$ 5145 .99** 10 Up **.90**  
52mm Overall 12mm Pin Travel



**\$ 5147 \$1.10** 10 Up **.99**  
65mm Overall 20mm Pin Travel

### Ultrasonic Transducers

Ultrasonic transmitter and receiver transducers operating at 40KHz +/- 1KHz. Perfect for security applications etc. i.e. alarm sensors counting sensors, remote control sensors and many other uses.

Sensitivity TX 106db RX-65db  
Dispersion angle 20 deg  
Max. Input Voltage 20V RMS  
Impedance TX 500 Ohms RX 30K ohm.  
Operating range up to 9M  
Please Note: Only sold as Matched pairs of RX, TX.



D = 16mm  
H = 12mm

**\$ 5110 \$11.50** pr



### Alarm Circuit Window Foil Tape

**\$ 5180 \$25.95**  
10 Up **\$24.50**

Tape Terminating Blks.

**\$ 5182 \$1.20**  
10 Up **\$1.10**

### WARNING

ALTRONICS SURVEILLANCE  
ALARM SYSTEM  
FITTED HERE

### Alarm Stickers

200mm x 75mm

**\$ 5400 \$1.95**

70mm x 25mm

**\$ 5410 .95**



### Infra Red Movement Detector

Pulse Count Type

Our 1989 Model IRD now includes pulse count circuitry with a specific time delay between pulse sensing. Three pulses of IR radiation are required to trigger the detector. Providing the detectors are sensibly positioned i.e. away from direct sunlight, log fires etc. false triggering, the bane of early design IRS's is completely eliminated.

#### FEATURES:

- Lens simply 'snaps' to either wide angle (range 40 ft) for normal use or Narrow angle (and 80ft plus) for corridor applications.
- Snazzy integral mounting bracket allows corner 90° mounting as well as normal surface mount.
- 12V DC Powered
- Built-in test lamp.
- Relay output SPST 30V 1a max.
- 9-18V DC

**\$ 5301 \$79.00**

**CB Radio Saves Lives  
Fit One To Your Off-Road  
Vehicle or 4 Wheel Drive Today**



**C 9610**  
**\$139**

**Uniden Budget AM 40 Channel**

Great for short range communications e.g. up to 10KM. A Deluxe super-compact CB Transceiver. Incorporating latest surface mount technology, superior dual conversion receiver and Uniden's own state-of-the-art PLL designed circuitry to assure ultra-crisp communications.

**SPECIFICATIONS**

**Channels:** 40 AM **Frequency Range:** 26.965 to 27.405MHz. **Input Voltage:** 13.8 VDC nom. (+/-ground) **LED Meter:** Indicates relative RF output and received signal strength. **Sensitivity:** 0.5uV for 10dB; (S+N)/N typical (limit: 1.0uV) **Image Rejection:** 80db typical I.F. **Frequency:** Double Conversion Superheterodyne - 1st 10.692MHz - 2nd 450KHz **Squelch:** Adjustable: threshold less than 1uV. **Internal Speaker:** 16 ohms, 3 watts round. **Power Output:** 4 watts **Output Impedance:** 50 ohms unbalanced



**C 9620**  
**\$369**

**Uniden Long Range  
Single Side Band/AM**

Range up to 80Km during daylight and many 1000's of Km's with "skip" skywave propagation.

Super compact Design. The Uniden SSB/AM represents the most advanced mobile type radio ever designed for use in the Citizens Band Radio Service. It will operate on any of the 40 AM frequencies and Upper and Lower Side Band Frequencies designated by the Department of Communications. It features a frequency synthesizing circuit with Phase lock loop techniques to assure precise frequency control.

**SPECIFICATIONS**

**Channels:** 40 AM, 40 USB, 40 LSB. **Frequency Range:** 26.965 to 27.405MHz **Input Voltage:** 13.8 VDC nom. (+/-ground) **Size:** 6"W x 7 1/2" D x 2" H **LED Meter:** Indicates relative power output and receive signal strength. **Sensitivity:** SSB - Better than .25uV for 10db; (S+N)/N @ greater than 1/2 watt of audio output, AM; Better than .5uV for 10dB; (S+N)/N @ greater than 1/2 watt of audio output. **Squelch:** Adjustable; threshold less than .5uV **Clarifier:** +/- 1.5KHz **Internal Speaker:** 16 ohms, round **PA System:** 3 watts in external 8 ohm speaker. **Power Output:** AM 4 watts, SSB 12 watts P.E.P.

**Glorious Noise free UHF CB**



**Uniden Sundowner UHF Mobile  
FM Transceiver**

**C 9630**  
**\$499**

Superbly engineered 40 channel UHF transceiver **Features:** Controls - volume, squelch, duplex repeater, tone squelch. Optional Selcal and CTCSS Facility and Tone Call.

**SPECIFICATIONS**

**Frequency Range:** 476.425MHz to 477.400MHz • Repeater use (CH-1 to CH-8, TX only) 477.175MHz to 477.350 MHz **Power Source:** 13.8V (DC) • **Carrier Power:** 5W • **Sensitivity for 20dB S/N** 0.5uV • **Maximum Audio Output Power:** 3W • **Squelch Sensitivity at Threshold:** 0.5uV

**27MHz CB Antennas and Accessories**

**5' WHIP**

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

L 3200 ..... **\$14.65**

**FULLY ASSEMBLED 5' WHIP,  
LEAD AND BASE**

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

L 3210 ..... **\$34.75**

**STANDARD BASE**

5/16" male fitting, low profile design.

L 3220 ..... **\$3.95**

**12' LEAD & PLUG**

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

L 3225 ..... **\$13.95**

**HEAVY DUTY TENSION SPRING**  
Ideal for use with the L 3200 and L 3205 Antennas 5/16" thread.

L 3230 ..... **\$15.40**

**BASE ANTENNA**

An extra wide bandwidth base antenna without ungainly size. Supplied with a fully pretuned and assembled DC grounded matching system and all mounting hardware. Waterproofed and usable with any length coaxial cable at any height above the ground, earthed or unearthed.

**Specifications:-**

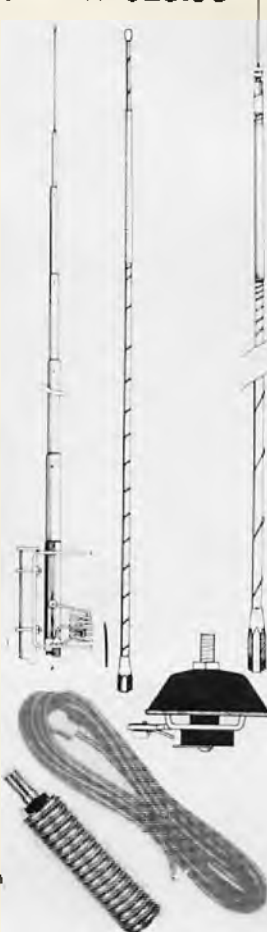
<b>Impedance</b>	50 ohm
<b>V.S.W.R.</b>	1.3:1
<b>Polarization</b>	Vertical
<b>Termination</b>	\$0239
<b>Height</b>	8,250mm
<b>Wind Survival</b>	130 km/H
<b>Power</b>	1kW

L 3215 ..... **\$119.00**

**UHF Antenna**

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

L 3212 ..... **\$34.75**





**Australia's Top  
Selling Marine Two Way Radio**

**27MHz Plus Seaphone RX Uniden  
Sea Wasp Marine Two Way Radio**

10 Channels 27 Meg. Marine Band Transmit and Receive. Plus Seaphone FM Channels 16 (emergency) and 67 (continuous weather and sea conditions reports) Receive Facility.

Designed for Australia our fantastic Uniden Sea Wasp Transceiver includes allocated 27 Meg. Marine channels for normal boat to boat and boat to shore communication and emergency calls. **The Big Bonus** is the inclusion of the Seaphone FM channels 16 (emergency 156.8MHz) and 67 (weather/sea reports 156.375MHz) receive channels. Now you can listen out for other craft in distress or get up to the minute sea and weather reports whilst fishing or relaxing in that bay 30KM from home. **Another Fantastic Feature** of this Radio is the simple "One Touch" emergency i.e. boat fire, capsiz etc. simply select the "88" (or 27.88MHz) override button and make that life saving call.

**Facilities:**

- In-Built Signal Meter indicates level of both incoming and outgoing transmissions
- **CB/PA Switch** with external horn speaker (C 2010) fitted, you now have a handy little Boat PA System
- WX1 (CH16) and WX2 (CH67) Selector switch independent of Main Channel Selector
- Noise Limiter
- RF Gain Control
- Mic Gain Control
- Digital Channel readout.

**C 5012**

**\$239.00**

**Helical Whip  
Antenna With  
Ground Plane  
Eliminator**

1.4m length suitable for horizontal mounting surfaces Angle bushing supplied allows mounting to sloping surfaces. Complete with lead and PL259 plug. Pretuned for 27MHz Marine band.

**Deluxe 9' Whip  
With Multiway  
Base Mount**

Superb pretuned 27MHz Marine Antenna with sturdy multiway mount. Will mount on horizontal, vertical or angled surfaces. **Very efficient**

**C 5110 \$89.00**

**C 5100 \$59.00**

**Why Risk Unnecessary Heart Attack?**

**Blood Pressure and Heart Rate Monitor**

Heart disease strikes down many people in their early 40's (or even 30's). The tragedy remains that had such victims been alerted, remedial medical, physical and dietary action could have been prescribed to avoid illness and in many cases restore full bodily health.



- Features:**
- Non-Microphone Measurement System.
  - LCD Readout
  - Blood Pressure Monitor
  - Pulse Rate Monitor



Monitoring the cardiovascular system of every member of your family is now an easy and affordable necessity with the X 3055 Digital Blood Pressure Monitor. A Built-in microcomputer and the microphone-free measurement system guarantee that all readings are highly accurate. The LCD panel shows readings in large numerals for confident measurements. Special symbols to guide you in operation and clear error messages make it easy for every member of the family to use the X 3055. A built-in miser circuit automatically shuts off power to conserve your battery if the unit is not switched off after use. Inflation by the conventional rubber squeeze bulb and deflation by the pre-settable valve make this unit familiar and easy to use daily. Put the X 3055 in your family's health plan - it's a modest investment in your invaluable health.

**SPECIFICATIONS**

Measuring Method	: Oscillo-Metric Method
Measuring Range	: 0-300mmHg Cuff Pressure
	: 40-150 Pulse/Min. Pulse Rate
Accuracy	: Pressure $\pm$ 3 mmHg (confirmed A.A.A.M.I.)
	: Pulse Rate $\pm$ 5% of Reading
Pressure Build-Up	: Squeeze Bulb
Deflation Method	: Pre-Settable Exhaust System
Exhaust	: Manual Valve

**Buy One For  
Dad or Mum**

**X 3055 \$119.00**

**Capacitor Noise  
Suppressor**

**C 9520 \$2.95**



**FM/AM Aerial  
Extension Lead**

1.2M

**P 0463 \$4.95**

**Coax Alternator Suppressor**

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



**C 9525 \$16.99**

**Hot Line Noise  
Suppression Kit**

For alternator and ignition noise suppression.



**C 9530 \$13.95**

**Lead Suppressor**

Connect anywhere in the HT to eliminate or reduce ignition noise. Simply cut centre (coil) distributor wire and screw cut ends into suppressor.



**C 9510 \$1.75**



**New Top Of The Range Car Radio Cassette Has CD Input**

## Auto Reverse Cassette Player With Electronic Tuning And Digital Display

The ultimate receiver for your Auto. Massive 25 watts per channel with pure audio fidelity. Pre-set push button electronic tuning with memory.

- Flat face with Night illumination.
- PLL Synthesizer Tuning
- L.C.D. Clock and frequency display
- Preset Tuning for 12 Station (16FM, 6AM)
- Auto Seek and Auto Scan Tuning
- Separate Treble Slide Control
- Separate Bass Slide Control
- Compact Disc Input Jack
- Max. Output Power: 25Wx2 (4 ohm Load)
- Dimension: 180(W) x 51(H) x 150(D)mm

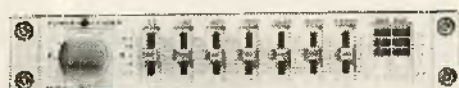
**C 9128 \$329**

## In-Dash Cassette Player With AM/FM-MPX Radio



**C 9110: \$79.95**

- Compact size/in-dash type
- Ultra sensitive AM/FM-MONO FM-STEREO
- Auto-Stop mechanism
- Tape running indicator
- FM stereo indicator
- Locking fast-forward and eject button
- Output power: 8W max
- FM sensitivity: 3uV for 30dB S/N
- Tape frequency response: 50-10,000Hz
- Wow & Flutter: less than 0.3% (WRMS)
- Weight: 1.5Kg.



## Economy 7 Band Graphic Equaliser

Ultra compact car sound graphic. Simply feed your car radio or radio cassette player through this great amplifier and be amazed at the difference. 30 watts max. per channel — frequency response to 20KHz.

**C 9132 \$65.00**

## Deluxe 7 Band Graphic Equalizer Amplifier

- Built-in left and right chan power level indicator
- Fader controller for 4 speakers system
- 7-Band graphic equalizer with centre click detent



**C 9135 \$89**

### SPECIFICATIONS:

- Output power: Total max. 60W
- Frequency response: 35-20,000Hz (-3dB)
- Equalization frequency: 60, 150, 400, 1K, 2.4K, 6K, 15KHz
- Equalization range: +/-12dB
- Speaker impedance: 4 — 16 Ohm
- Input impedance: 47 Ohm
- Power source: 11—16V
- Weight: 650g

## Stunning Performance - High Fidelity Polypropylene Car Loudspeakers from Sound Barrier Laboratories



### 40 Watt Flush 4" (100mm) 3 Way System

A compact yet high performance flush speaker system with attractive grills. Mount in kick panels, door, rear shelf etc.

**C 9327 \$59.95 set**



### 60 Watt Dual Cone 6 1/2" (160mm) Speaker System

Excellent reproduction from these quality drivers.

**C 9329 \$59.95 set**

### 100 Watt 6" x 9" Triaxials

6" x 9" Polypropylene cone woofer with separate mid range and silky smooth tweeter. Frequency Response 30Hz to 18KHz. Ideal for high grade sound systems for Car, Caravan, Boat For the discerning audiophile



**C 9331 \$119.95 set**

### 180 Watt 6" x 9" Triaxials

Super High Power version similar to C 9331 system with significantly increased power rating. Woofer magnets weight 567g. each!!



**C 9335 \$159.00 set**

## Fully Automatic Aerial

Extends automatically when ignition is turned on. Retracts similarly when turned off. Full Kit includes all accessories and fixings. Full instructions included.

**C 9420 \$49.95**

## Lock Down Aerial

Stainless Steel. 1.5mm extended length. Supplied with 2 keys.

**C 9405 \$9.95**

## Spring Base Aerial

Heavy Duty Stainless Steel 1.5M extended length.

**C 9410 \$12.95**



### Mains Lead

A 2400 1.8M \$3.95

### Mains Extension Leads

P 8105 5M \$13.95

P 8110 10M \$19.95

### Mains Plug

P 8210 \$1.80

### Piggyback Plug

P 8216 \$3.95

### Extension Lead Socket

P 8230 \$5.95

### Surface Mount Socket

P 8234 \$4.95

### IEC Mains Connector

P 8310 \$1.95

### IEC Mains Chassis Socket

P 8320 \$2.95

### IEC Mains Socket With Fuse Holder

Holds M205 fuse plus a spare!

P 8324 \$4.50

### Power Outlets

P 8240 Single \$7.25

P 8245 Double \$11.95

### Blank Plate

P 8040 \$2.25

### 38mm Deep Mounting Block

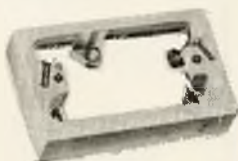
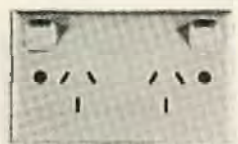
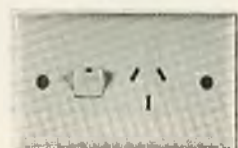
P 8045 \$2.95

### 13mm Deep Mounting Block

P 8047 \$2.50

### Double Adaptor

P 8290 \$3.75



### Micron Black Heavy Duty Zinc Carbon Batteries

### Micron Alkaline

4-6 Times the Life of normal zinc carbon batteries.

Cat.No.	Pack/Size	Price	Cat No.	Pack/Size	Price
S 4900	2 of UM1/D	\$1.95	S 4950	2 of UM1/D	\$4.95
S 4910	2 of UM2/C	\$1.85	S 4960	2 of UM2/C	\$3.50
S 4920	4 of UM3/AA*	\$2.50	S 4970	4 of UM3/AA	\$3.95
S 4930	4 of UM4/AAA	\$2.50	S 4980	4 of UM4/AAA	\$3.95
S 4940	2 of 216/9V	\$2.50	S 4985	2 of N/AM5	\$3.40
			S 4990	1 of 216/9V	\$4.50

Note that the AA and AAA size batteries are Zinc Chloride. These are a new breakthrough in battery technology—they deliver approx. 75% of the performance of Alkaline batteries - for only about 1/3 of the price!

At the time of this catalogue going to print, only these sizes were available in Zinc Chloride. However, it is anticipated that through 1989, the other popular sizes will become available.

### Nicad Rechargeable Batteries

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

Cat.No.		1-9	10-99	100 Up
S 5020	AA 1.2V 500mAh	\$ 3.99	\$ 3.25	\$ 2.95
S 5021	AAA 1.2V 180mAh	\$ 4.50	\$ 3.95	\$ 3.60
S 5022	C 1.2V 1.8Ah	\$12.00	\$10.50	\$ 9.50
S 5023	D 1.2V 1.2Ah	\$12.50	\$11.00	\$ 9.95
S 5024	216 9V .12Ah	\$18.95	\$17.85	\$16.10



### Button Calculator and Watch Batteries

		Hitech Maxell	Eveready	National	Price
S 5000	G13	SR44	396		\$3.45
S 5002	G12	SR43	392	WL1	\$2.75
S 5004	G10	SR1130	393	WL6	\$2.95
S 5006	G8	SR1120W	391	G8	\$3.45
S 5008	G5	SR48	289	WL10	\$2.95
S 5010	G3	SR41	386	WL11	\$3.45
S 5012	G2	SR726	357	WL14	\$3.95



### ALKALINE

S 5014	LR44	186	LR-43	\$2.25
S 5016	LR43	A76	LR-44	\$2.25
S 5018	LR1130	189	LR-1130	\$2.25



As used in Security Systems, Battery backup for Computers, Solar Power Systems etc.

Premium Grade Long Life (Typically in excess of 5 years) Easy to Charge.

### Sealed Lead Acid Batteries

S 5065	12V/1.2AH	\$24.50
S 5067	12V/2.7AH	\$36.50
S 5069	12V/4.5AH	\$49.50
S 5070	12V/6AH	\$55.00

### Battery Holders

S 5025	Battery Holder 2 x AA Cells	.80	.55
S 5028	Battery Holder 4 x AA Cells Long	1.00	.90
S 5030	Battery Holder 4 x AA Cells Flat	.90	.80
S 5031	Battery Holder 4 x AA Cells Square	.90	.80
S 5032	Battery Holder 6 x AA Cells	1.00	.90
S 5034	Battery Holder 8 x AA Cells	1.40	1.20
S 5035	Battery Holder 10 x AA Cells	1.75	1.60
S 5036	Battery Holder 4 x C Cells	1.50	1.25
S 5038	Battery Holder 4 x D Cells	1.60	1.45
S 5046	Battery Holder 1 x D Cell	.75	.85



10+

# Pin Point Ultrasonic Cleaner

A 0100  
**\$199.00**



Awarded the Good Product Design Award for CETDC in 1987. This fantastic Ultrasonic cleaner can earn its cost a hundred times over in cleaning Computer Connectors, PCB's, Switches, Relays, Jewellery, Glasses, Watches etc.



*Ideal for cleaning drafting Pens, watches, photographic filter even Dentures!*

## 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 & grime off surfaces, and deep into cracks and holes.

This personal ultrasonic cleaner won't scratch precious jewellery or glass. Comparison studies made by hospitals, commercial businesses and industry show ultrasonic cleaning proves better and safer than any conventional method.

But don't take our word for it. Test the Pin Point ultrasonic cleaner yourself. Pop your dirty watches, glasses, connectors etc. into the cleaners stainless steel basin, add a cup of tap water, and three minutes later see the difference. The results are instantly revealing

\*\*\*\*\*

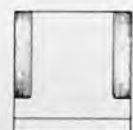
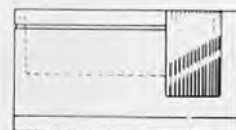


## SPECIFICATIONS

**Power Supply** : 240V 50Hz  
**Power Consumption** : 300mA  
**Frequency** : 40 +/- 2KHz  
**Dimensions** : 224 x 114 x 124mm  
**Capacity** : 570ml  
**Weight** : 1Kg  
**Body Material** : ABS Plastic  
**Tank Material** : Stainless Steel (SUS 304)  
**On/Off** : 3 Minute Auto Timer

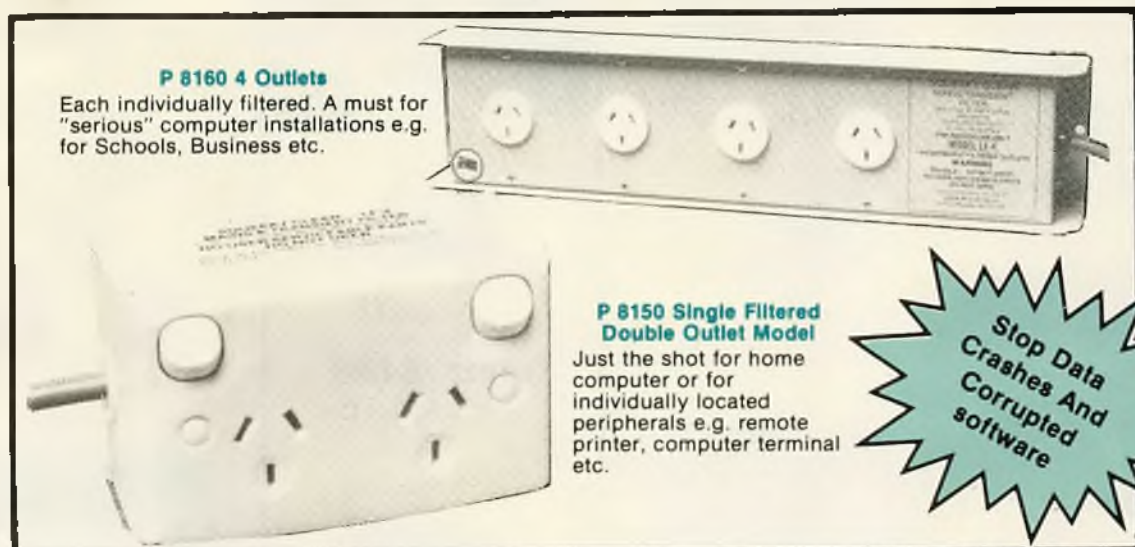


**Body**: ABS  
**Tank**: SUS 304 S/S  
**On/Off Switch**:  
 3-minute Auto Timer





# SQUEEKY CLEAN MAINS FILTERS



## SAY NO TO DIRTY POWER

Mains and transient filters are used in a variety of applications where any disturbance of the 240 volt power circuits could cause a malfunction or damage to a mains operated appliance as a result of voltage increases resulting from electrical storms causing lightning strikes to power lines and nearby transmitters, electric motors, welding machines etc.

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

The problems facing the personal computer user includes high levels of RF (radio frequency) interference, voltage spikes and FM modulation.

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 safeguard to both your hardware and software against RF noise, control tones and voltage spikes the equipment should be pre-filtered by a SQUEEKY CLEAN MAINS FILTER.

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

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

**SPECIFICATIONS: P 8160**

**Load Rating:** Continuous 10 Amps, with circuit breaker at 240V AC.

**Clamping Voltage:** 390V Peak or 275V RMS.

**Peak Impulse Current:** 2000A (8 x 12u)

**Protection Modes:** Active-Neutral — Active-Earth and Neutral Earth (on special order)

**Earth Leakage:** Will not trip a 20mA Earth leakage breaker.

**Outlets:** 4 GPO's individually filtered

**Cable Length:** 1m (approx.)

**Dimensions:** 435mm(L)x100mm(W)x65mm(D) Metal Case

**App. No.:** N10716

**SPECIFICATIONS: P 8150**

**Load Rating:** 10 Amps Maximum Load at 240V AC

**Clamping Voltage:** 390V Peak or 275V RMS.

**Peak Impulse Current:** 2000A (8 x 20u)

**Protection Modes:** Active-Neutral — Active-earth and Neutral-Earth (on special order)

**Earth Leakage:** Will not trip a 20mA Earth leakage breaker.

**Outlets:** 2 GPO's single filtered

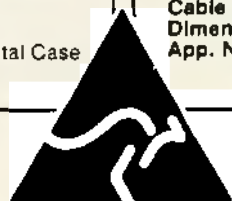
**Cable Length:** 1m (approx.)

**Dimensions:** 120mm (L) x 75mm (W) x 50mm (D)

**App. No.:** N10717

P 8160

**\$269**



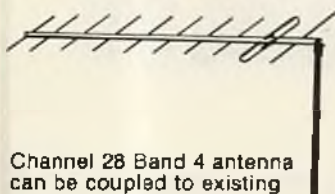
AUSTRALIAN MADE

Designed & Manufactured  
In Australia

P 8150

**\$99**

## UHF Antennas



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

**L 2020 \$45.00**

Band 5 UHF antenna for normal reception areas. Channels 36 to 69.

**L 2022 \$45.00**

## VHF & VHF/UHF TV Antennas



### Spiromatic Indoor Antenna

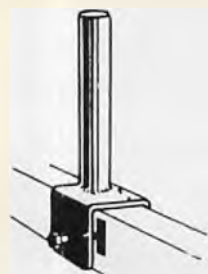
For good reception areas. Channels 0 to 11.

**L 2018 \$9.95**



**L 2004 \$43.00**

Economical VHF & UHF antenna for good reception areas. Channel 0 to 11 VHF, FM and UHF Band 4 (including Channel 28).



### TV Antenna Loft Mount

**L 2030 \$5.50**



### Antenna Facia Bracket

**L 2035 \$15.75**



**L 2008 \$59.95**

All new suburban antenna for average reception areas. Channels 0 to 11 VHF, FM & UHF Band 4 (including Channel 28)



**L 2012 \$84.50**

An excellent antenna for poor reception areas. Channels 0 to 11 VHF, FM & UHF Band 4 (including Channel 28) and also Band 5 UHF.



### New Ghostbuster VU

Extra UHF dipole added. Now has phase cancellation on UHF also. This unique design combines forward signals on both UHF dipoles whilst any signals from the rear are cancelled which provides a brilliant front to back ratio on VHF and UHF for bad ghosting areas.

**L 2016 \$110.00**



### TV BALUN - INDOOR

75 to 300 Ohms

**L 1010 \$2.98**

10 Up **\$2.80**



### TV BALUN

300 to 75 Ohm

**L 1012 \$2.30**

10 Up **\$1.99**



### OUTDOOR WEATHERPROOF BALUN

**L 1020 \$4.50**

10 Up **\$4.15**



### TV Outlet Single Way

**L 1030 \$2.95**

10 Up **\$2.40**

### Double Way

**L 1035 \$3.98**

10 Up **\$3.45**



Low Loss

### TV Splitters

Suitable for VHF/UHF TV & FM

- Spring loaded cable clamps enable super quick termination.
- PCB facilities good screening.
- High isolation leg to leg (40db min.)
- Silk screened circuit on PCB
- Insertion loss —  
L 1310 3.5db — L 1320 6.5db

75 Ohm IN 2 x 75 OUT

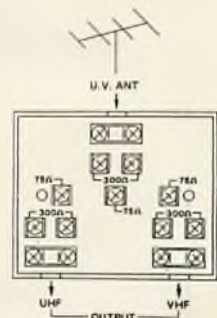
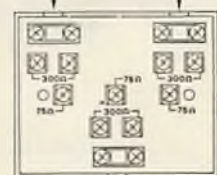
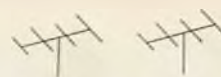
**L 1310 \$4.95**

10 Up **\$4.50**

75 Ohm IN 4 x 75 OUT

**L 1320 \$7.50**

10 Up **\$6.90**



### TV UHF/VHF Mixer/Splitter

Super handy mixer/coupler. Enables coupling of UHF to one lead or provides splitting function from a single antenna to separate UHF and VHF TV set input sockets.

**L 1400 ONLY \$14.95**



### Indoor Diplexer

Use for coupling UHF and VHF antennas into one lead to TV set.

Low Cost

**L 1402 \$7.85**



### Outdoor Diplexer

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

**L 1404 \$11.50**

### Solar Powered Solar Desk Top Calculator

New technology now allows powering of large desk top type display as used with our new X 1050. No more batteries to leak! No more Batteries!!



Perfect  
for Home  
or Office

**X 1060 \$19.95**

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

### Runs Forever Without Batteries!! A Calculator For The Pocket

With positive feel push button rubber keys & never needs batteries

• 8-digit calculator • Standard four function (+/-, x, .) • Full memory calculation • Chain multiplication and division • Auto-constant calculation • Square root key • Size: 56 x 84 x .5 x 4.6mm • Weight: 25g.



A delightful calculator to use - "Positive feel" keys allow quite rapid operation when compared to standard credit card size pocket calculators. **Should last you a life time.**

**X 1050 \$14.95**

### Solar Cell Module .4V at 450mA

Great experiments Solar Module. Connect in parallel or series as you wish. Terminal strap enables easy interconnection to other cells.

**A 0210 \$5.98**  
10 Cells or More **\$5.50**



### Solar Charger

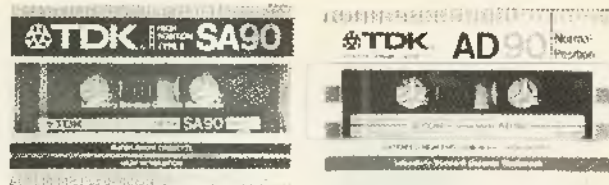
Charges up to 4AA Nicads by simply placing in sun light. (we recommend placing on the inside window ledge in the extreme heat of summer). Will charge from dead flat to fully charged in 8-10 hours average sunlight.

**Take Care** if charging inside car e.g. on dash board etc — ensure car inside is well ventilated - remember midsummer inside car temperatures can be extreme.

**A 0230 \$14.95**



### Famous TDK Audio Cassette Tapes



		1-9	10 Up
D60	A 4020	\$3.95	\$3.50
D90	A 4022	\$4.50	\$4.20
AD60	A 4024	\$4.95	\$4.55
AD90	A 4026	\$5.50	\$5.15
SA60	A 4028	\$6.50	\$5.98
SA90	A 4030	\$7.50	\$6.98

### Gentle Action Wet Type Head Cleaners

That Really Do A 100% Job

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



### Audio Cassette

**A 9200 \$3.95**

### Beta Video

**A 9300 \$12.50**

### VHS Video

**A 9310 \$12.50**

### Video Repair Kit VHS/Beta

A VHS/Beta Video Tape Repair Kit. No need to throw out your damaged tapes - this nifty splicing kit can save you a fortune (if you've got small children this kit will save you several fortunes!!)

All accessories included for joining tape and refixing leader ends etc.

**A 9315 \$8.50**



### Clock Movement

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

**X 1010 \$13.50**



### Dubbing Set

Any Video to  
Any Video

**P 0730  
\$21.95**



## AC ADAPTORS — LAMPS — BEZELS

### AC Adaptors

Our range of adaptors are each fitted with a 1.8M lead, in line socket and M 9014 2.5mm DC connector. Should your appliance require a different connector you may select from the adaptor plugs M 9012, to M 9015 illustrated. **Polarity** 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.



Cat. No.	Output Volts	Max Current	
<b>M 9000</b>	3,4,5,6,7,5,9,12	300mA	<b>\$19.95</b>
<b>M 9001</b>	6,	300mA	<b>\$15.95</b>
<b>M 9002</b>	12,	300mA	<b>\$15.95</b>
<b>M 9004</b>	9,	300mA	<b>\$15.95</b>
<b>M 9005</b>	6,9,12	500mA	<b>\$22.50</b>
<b>M 9020</b>	12V AC	500mA	<b>\$16.95</b>

### DC Output Adaptor Plugs Available

- M 9012** 1.3mm DC Plug
- M 9013** 2.1mm DC Plug
- M 9014** 2.5mm DC Plug
- M 9015** 3.5mm DC Jack



All **\$1.95**  
10 Up **\$1.75**

### Power Supply 1 Amp

240/6,7,5,9, 12V @ 1 Amp

**M 9030 \$29.50**



### 2 Amp Regulated Power Supply

Input Voltage: 240V AC -50Hz  
Output Voltage: 12V DC +/-0.5V  
Output Current: 2A DC  
Dimensions: 84 x 68 x 200mm/m  
Weight: 1.2kgs.



**M 9050 \$69.95**

### Multipurpose Nicad Battery Charger

Charges every conceivable battery from AAA through 9V.

**M 8010 \$32.50**



### Low Cost Nicad Battery Charger, Charges 4AA, 8AA or 9V Nicads

This charger is supplied with 4 and 8 way AA battery holders and 9V battery snap to allow charging of these 3 different configurations. A 3 way selector switch is provided on the charger pack to allow selection as desired i.e. 6V at 45mA, 12V at 45mA & 9V at 15mA.



**M 8005 \$19.95**

### 250V Neon Flush Mount Indicators

Single Red indicator. Panel cutout 13mm x 19mm.



Red

Single Red indicator. Panel cutout 13mm x 19mm

**\$ 4005 \$1.75**  
10 Up **\$1.50**



Green/Red

Dual indicator - Red & Green Panel cutout 19mm x 22mm. Complimentary to S 3230 Switch.

**\$ 4007 \$3.95**  
10 Up **\$3.50**



### Miniature Panel Neon 250V

Chrome Bezel Housing

**\$ 4020 \$1.15**

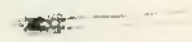


### Standard Neon 250V

Panel Mount (9mm Hole)

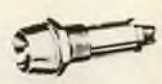
Red

**\$ 4015 \$1.25**  
10 Up **\$1.05**



### Pigtail Neon 90-250V

**\$ 4010 .45**  
10 Up **.40**

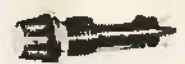


### Led Bezel 2 Volt Chrome Bezel Housing Red

**\$ 4030 \$1.40**  
10 Up **\$1.25**

Green

**\$ 4032 \$1.50**  
10 Up **\$1.35**

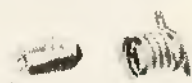


### 12V Panel Lamps Red

**\$ 4025 \$1.20**  
10 Up **\$1.10**

Green

**\$ 4026 \$1.20**  
10 Up **\$1.10**



### Filament Globes

10 Up

- \$ 4045** MES 6V .45 .40
- \$ 4047** MSE 12V .45 .40
- \$ 4051** Lilliput 6V .65 .60
- \$ 4053** Lilliput 12V .65 .60
- \$ 4055** MES Holder .45 .40



### Xenon Tube

**\$ 4040 \$4.20**  
10 Up **\$3.85**



### Trigger Transformer

For S 4040

**M 0104 \$1.95**  
10 Up **\$1.60**

Why Throw Out Perfectly Good Batteries

### All Purpose Battery Checker

Pocket size tester will check just about every Battery known to modern man!

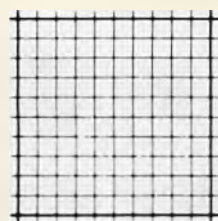
Get One For Home Now

**A 0930 \$13.50**



# Bishop Graphics

## Artwork Films Polyester



H 9959 8.5" x 11"

Pack of 2 \$4.95

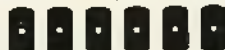
H 9960 11" x 17"

ACTUAL SIZE Pack of 2 \$8.95

### Pre-Spaced Pads

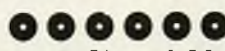
0.100" Pitch 2.54mm

H 9906 240 \$6.50



0.100" Pitch 2.54mm

H 9907 140 \$6.50



0.156" Pitch 3.96mm

H 9908 150 \$6.50



### Targets E-Z Circuit Targets

These are designed to simplify and improve photo reduction and registration (the accurate placement of symbols and circuitry) during all stages of printed circuit artwork and board production.

H 9928 32 Symbols \$6.50



(Illustration shown actual size)

**BISHOP GRAPHICS**  
The Leader In  
PCB Artwork



### Donut Pads

Type Symbols

H 9941 0.080" OD x 0.031" ID 96 \$4.95

H 9942 0.100" OD x 0.031" ID 96 \$4.95

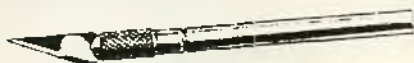
H 9944 0.125" OD x 0.031" ID 96 \$4.95

H 9945 0.156" OD x 0.031" ID 96 \$4.95

H 9947 0.200" OD x 0.031" ID 108 \$4.95

H 9948 0.250" OD x 0.062" ID 128 \$4.95

### Artwork Accessories



#### X-ACTO KNIFE

H 9955  
\$5.74



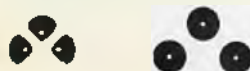
#### X-ACTO BLADES

H 9956 Trim pack of 5  
\$3.95



#### X-ACTO BLADES

H 9957 Art pack of 5  
\$3.95



### Transistor Patterns

H 9922 T0-5 (36 pads) \$6.50

H 9924 T0-18 (36 pads) \$6.50



### Edge Connector Patterns

H 9950 0.1" pitch (25 stripes) \$6.50

H 9952 0.156" pitch (5 stripes) \$6.50



### Dil Patterns

Type Symbols

H 9909 14Pin 32 \$6.50

H 9910 16Pin 32 \$6.50

H 9911 18Pin 28 \$6.50

H 9912 24Pin 12 \$6.50

H 9913 28Pin 12 \$6.50

H 9914 40Pin 8 \$6.50



### Dil Patterns Narrow Cut

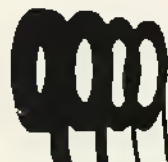
H 9918 14Pin 32 \$6.50

H 9919 16Pin 32 \$6.50

H 9920 40Pin 8 \$6.50

## WHY BISHOP GRAPHICS ARTWORK IS SUPERIOR

1. The artwork is very accurate. For example the D.I.L. patterns are made to a tolerance of 0.002".
2. The line tape is precision slit from large rolls under very low stress. Precise edges.
3. The line tape is very flat black. It will not reflect light and so the line will not blur due to reflected light. Result? Absolutely sharp edges to trackwork.
4. The benefits of Crepe. The tape is 'creped'. This allows tape to be curved, a saving on corner art. Once down the curve will stay where it is. Inferior tapes try to 'creep' back to straightness. Another advantage of crepe is that you can cut through a line by mistake, realise your error and burnish the tape down again. The Bishop tape will close again. Inferior tapes can leave a hairline crack of light and an open circuit track on your PCB! Finally, to state the obvious — the tape is extremely flexible!
5. The tape is only 0.005" thick. This means that the tape will not cast a 'shadow' because of its thickness.
6. The secret adhesive. You can lay Bishop art down, peel it up again and relocate it many times. PCB artwork necessitates this and this is a valuable feature. It stays sticky!
7. Another secret. The adhesive does not 'bleed'. By this we mean that the adhesive will stay where it should be — under the art. Inferior adhesives creep away in time and the edges lose definition as a result. You can come back to Bishop Graphics artwork after a year and find no adhesive anywhere except under the art.
8. Its the most cost-effective. Your labour is money. When you spend a lot of your valuable time on inferior artwork tape you — or your client — is losing money! More than the small difference between cheap artwork tape and value-for-money Bishop Graphics!



### Pressure Sensitive Copper Tapes

Ideal for repairing damaged or broken conductor traces on a PCB. Used to modify circuitry on existing PCB's.

H 9901 0.031" wide \$4.95

H 9902 0.05" wide \$4.95

H 9903 0.1" wide \$6.25

Packaged in 6 Foot Rolls

# COMPUTER ACCESSORIES

**ALTRONIC**  
Components

## HI-SPECIFICATION COMPUTER FANS

Durable Die Cast Aluminium Venturi PBT Plastic impeller of 94V-0 material. Shaded pole motor with ball bearings.

### 240V 50Hz Models



Air Flow 30 C.F.M.  
Input Power 16W  
Speed 2300RPM  
Noise Level 31 dbA

**F 1020 \$24.50**  
10 Up **\$22.50**

**80MM x 80MM x 32MM**



Air Flow 80 C.F.M.  
Input Power 25W  
Speed 2600 RPM  
Noise Level 43 dbA

**F 1030 \$28.95**  
10 Up **\$25.95**

**120MM x 120MM x 38MM**



Voltage 24V DC  
Current 330mA  
Speed 3100 RPM  
Air flow 23 C.F.M.  
Noise Level 32 dbA

**F 1040 \$29.98**  
10 Up **\$28.00**

**120MM x 120MM x 38MM**



### Fan Finger Guards

**F 1022** for 80MM Fan

**F 1032** for 120MM Fan

**\$1.95 ea**

### DC Brushless Fan

Brushless, Electronically Commutated DC Motor

## D25 LEADS AND ADAPTORS



**P 0758** D25 to Centronics (Use for IBM) 1.8M

**\$19.95**

**P 0759** D25 to Centronics (Use for IBM) 3.6M

**\$24.50**

**P 0762** D25 Male to D25 Male Lead 1.8M

**\$27.95**

**P 0764** D25 Male to D25 Female Lead 1.8M

**\$27.95**

D25 Female to D25  
Female Gender Changer

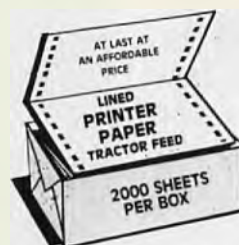


**P 0760 \$17.95**

## Altronics Printer Paper

Faintly ruled one side and pure white the other i.e.

Box of 2000 sheets



240MM Width

**D 1160**

**\$49.95**

380MM Width

**D 1165**

**\$69.95**

## RS 232 ACCESSORIES



### RS-232 Mini Tester

This Tester indicates the presence of all important interface lines by LED illumination when signal is active. All 25 pins are connected straight through.

**D 1500 \$22.50**

### RS-232 Surge Protector

Uses Metal-Oxide Varistors to protect pins 2,3 and 7. One Male & one Female connector with all 25 pins connected straight through. MOV's connected between pins 1 and 2 pins 1 & 7. The MOV's suppress any voltage above 26 volts without affecting the normal RS-232 voltage levels. The MOV's are capable of handling one joule of energy & 250 amps peak current.

**D 1510 \$19.50**



### RS-232 Jumper Box

Used to make custom RS-232 interfaces. By custom wiring, many different interfaces can be built: null modems, pin reversers, etc.

**D 1520 \$9.95**



### Null Modem

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

**D 1530 \$9.95**

## HIGH DEFINITION COMPUTER MONITOR

• Compatible with IBM, Apple  
Commodore Computers.

• 80 characters x 25 lines  
display.



CDT Non glare phosphor P31 amber  
Input composite video  
1V P-P Input  
Connector RCA Jack  
Input Impedance 75 Ohms or high impedance (switchable)  
Video Bandwidth 18MHz  
Horizontal Resolution 900 lines at centre  
External Controls brightness, contrast.

**D 1116 \$149.00**

**TTL Model**

With inbuilt pan and tilt stand

**D 1118 \$249.00**

**Universal Monitor Stand**

**D 1100 \$34.50**



### Floppyclene

The Worlds Leading  
Diskette Drive Head  
Cleaning System  
From Electrolube  
UK



Floppyclene has four major advantages over conventional head cleaners:-

**Disposability** - The innovative open-ended Floppyclene jacket enables a fresh cleaning disk to be used for each cleaning operation. This prevents recontamination and abrasion.

**Wet/Dry Efficiency** - Extensive OEM testing confirms that the most efficient results are obtained by moistening the cleaning disk.

**Non-Abrasive Action** - The cleaning disk material combines flexibility, softness and absorbency with surface stability, allowing it to conform to head profiles without risk of abrasion or wear.

**Single/Double-Sided Use** - The Floppyclene jacket has an ultra-thin conversion label for use with single-sided drives. It provides a vital protective barrier between the delicate pressure pad and the spinning disk enabling the pad to maintain full disk to head contact.

### 5-1/4" Diskette Drive Head Cleaner

1 Jacket, 1 Glove, 20 Disposable Cleaning Discs and 1 87ml aerosol of SAFECLENE Cleaning Fluid. Each kit is designed to maintain one drive for up to six months.

**D 1805 \$44.50**

### 3-1/2" Diskette Drive Head Cleaner

The kit contains one 3.5 in Floppyclene cartridge, an aerosol of Safeclene and ten disposable cleaning discs.

**D 1803 \$49.50**

### Ferrite Suppression Beads

Size OD 4.0 x ID 2.0 x L 5.0mm Material F8  
Part No. 35-032-28 Alternating Frequency  
Range 50KHz - 500KHz.



**L 5250 .15ea 10 Up .13ea**

### Transformer Pot Cores

Size OD x 25 ID 11.1 x H 16.9  
Material F4 Ferrite.  
Equivalent to Fx2240 pot core.  
As used in the Megohm Meter.



**L 5305 Bobbin .95**  
10 Up **.90**

**L 5300 Core \$5.95**  
10 Up **5.45**

### Sub Miniature Former With Core, Can and Base

5mm type 722/1 - use with 4mm slug or as open air type  
(as used in ET1750 Video Modulator)



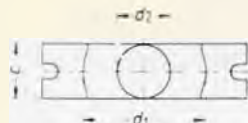
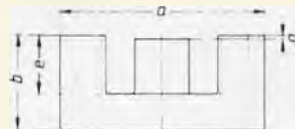
**L 5210 \$1.95**  
10 Up **\$1.75**

### Ferrite 'EC Cores and Formers

Siemens 'E' cores use Hi-quality N27 Siferit material, featuring an extremely high flux density and a frequency range of 0 to 0.1MHz. Ideally suited to super compact power transformers • Chokes • Pulse transformers • TV line transformers • Transducers • Ignition coils • Interference suppressors, etc.

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

### DIMENSIONS REFERENCE



### SIEMENS EC-35

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

A	34.5
B	17.5
C	9.8
D1	22.8
D2	9.8
E	11.9



**L 5050 \$14.75**  
10 Up **\$14.15**

### SIEMENS EC-52

Built Dims — 58mm x 61mm x 44mm  
Core Pair Inc. Former and Mount.

A	52.2
B	24.4
C	13.8
D1	33
D2	13.8
E	15.5



**L 5060 \$17.95**  
10 Up **\$16.95**

### Ferrite Aerial Rod

Diameter 9mm Length 200mm  
Material F16 Applicants Long-Medium-Short Wavelength up to 12MHz. Neosid Part No. 9.5x200/F16



**L 5240 \$3.95**  
10 Up **\$3.65**

### Toroidal Cores

Although Toroids are well known for their uses in pulse transformers and broadband transformers, you can also use them as interference suppression filters. Having the distinct advantage of **no air gaps**. They have little stray magnetic field, and a high permeability. Our toroids are 'Powdered Iron' type for excellent durability.



Size OD 14.8 x ID 8 x H 6.35  
Grade 1003 Part No. 17/632/22  
Saturation Flux density 15000 gauss  
Max. operating frequency 500KHz

**L 5110 \$2.25**  
10 Up **\$2.15**

Size OD 33 x ID 20 x H 10 Grade 1001  
Part No. 17/642/10 Saturation flux density 15000 gauss  
Max. operating frequency 500KHz.

**L 5120 \$5.95**  
10 Up **\$5.50**

Size OD 44 x ID 24 x H 16.5  
Grade 1001 Part No. 17/645/10  
Saturation flux density 15000 gauss  
Max. operating frequency 500KHz

**L 5130 \$9.40**  
10 Up **\$9.10**

### Balun Formers

Ideal for RF matching transformers and balanced mixers up to 250MHz in antenna feeders or in input circuits of VHF and TV receivers. i.e. 300 ohm to 75 ohm transformers or vice versa.



### Balun Core (Large)

7.4mm x 13.2mm x 13.5  
Part No. 1050/1/F14  
Operating frequency 40 = 220MHz  
Material = F14.

**L 5230 .75ea**  
10 Up **.65**

### Balun Core (Small)

7.4mm x 13.2mm x 6.8mm  
Part No. 1050/2/F14  
Operating Frequency 40 = 220MHz  
Material = F14

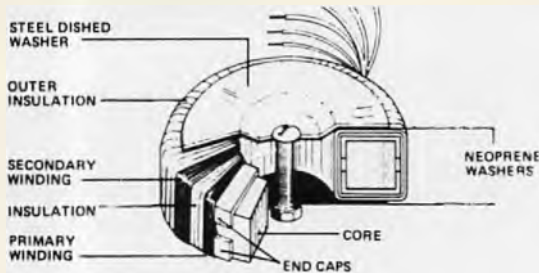
**L 5235 .60ea**  
10 Up **.55**

## TOROID POWER TRANSFORMERS

300 Watt  
Size



160 Watt  
Size



### Why a Toroid?

- Smaller size and weight to meet modern "Slimline" requirements.
- Low electrically induced noise demanded by compact equipment.
- High efficiency enabling conservative rating whilst maintaining size advantages.
- Lower operating temperature.
- 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, lower radiated field and, thanks to **Altronics** — **Low Price**.

### Dimensions and Weight

**160VA Models** 95mm Diam. 60mm H. 1.5Kgs Leads 200mm

**300VA Models** 110mm Diam. 60mm H. 2.4Kgs Leads 200mm

#### Note:

**SEC Current A** — current available where secondaries are connected in parallel.

**SEC Current B** — Current available where secondaries are connected in series.

### 160 VA Models

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	2.67
M 3070	35 + 35	4.6	2.3
M 3075	40 + 40	4.0	2.0
M 3080	45 + 45	3.56	1.78

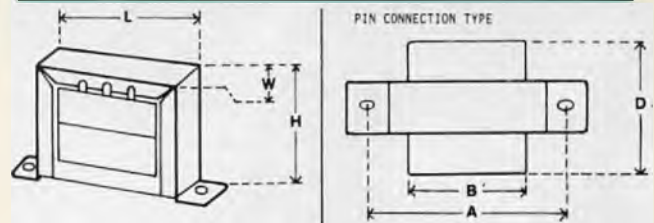
**All 160VA Models \$65.00 5 Up \$62.00**

### 300 VA Models

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

**All 300VA Models \$79.00 5 Up \$75.00**

## DIMENSION GUIDE



	A	B	D	L	W	H
M 1105	52	28	33	43	16	35
M 1110	52	28	33	43	16	35
M 1120	72	36	43	59	22	51
M 1122	72	38	50	59	27	51
M 2851	52	28	35	43	18	35
M 2853	60	31	43	50	24	42
M 2855	52	28	40	43	18	35
M 2154/55	73	37	42	59	24	51
M 2156	80	44	62	69	39	59
M 2165	80	42	60	69	29	60
M 2175	92	50	72	79	39	69
M 6672	80	43	62	69	39	59

## GENERAL PURPOSE MAINS TRANSFORMERS

All Mains Transformers  
Primaries 240V - Specifications  
listed refer to Secondary windings



	Ea	10 Up
M 2851 12.6V CT 150mA	\$ 5.95	\$ 5.50
M 2853 12.6V CT 500mA	\$ 7.95	\$ 7.50
M 2855 30V CT 150mA	\$ 6.95	\$ 6.50
M 2154 0, 12, 15, 18 at 1 Amp	\$12.50	\$11.50
M 2155 6V3, 7V5, 8V5, 9V5, 12V6, 15V at 1 Amp	\$10.95	\$10.25
M 2156 6, 9, 12, 15V at 2 Amps	\$17.95	\$16.50
M 6672 15, 17V5, 20, 24, 27V5, 30V at 1 Amp	\$16.50	\$15.00

### Multipurpose 60 VA Transformer

Output Two Simple  
Secondaries, each with just  
one tap, permit an amazing  
range of outputs.

240V to 9, 12, 15, 18, 21, 24  
volts at 60VA (60W).

Use of high grade  
Silicon steel has enabled  
surprisingly compact  
dimensions (70mm x 70mm x  
58mm High).

**Ea \$26.50 10 Up \$23.00**



M 2165

### Multipurpose 120VA Transformer

Another Quality Transformer  
from Altronics. The M 2175 is  
wound on expensive grain  
oriented steel. Look at the size!  
Just 110mm wide by 65mm  
High by 65mm Wide. Weight  
1.25Kgs.

**Primary: 240V**  
**Secondary:**

	Ea	10 Up
12V 10A	\$39.95	
15V 8A		\$35.00
24V 5A		
27V 4.4A		
30V 4A		



M 2175



## PCB MAINS

7/9 VA Rating. Super Compact wound on grain oriented steel core for high efficiency and low temperature rise.

**Power Rating:**  
**7VA Load** Full voltage +3%-0%  
**9VA Load** Full voltage +6%-8%

**\$12.95 ea**

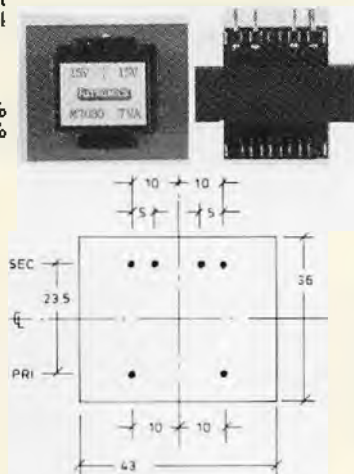
10 Up **\$11.50 ea**

### Model Prim/SEC's

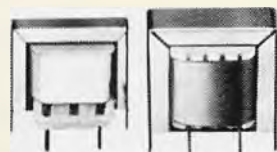
- M 7012 240/6+6
- M 7015 240/7.5 + 7.5
- M 7018 240/9+9
- M 7024 240/12+12
- M 7030 240/15+15

Overall Height 35mm  
 Length 43mm  
 Width 36mm

**PINOUT VIEWED FROM UNDERNEATH**



## AUDIO



**M 0710**

**\$7.50**

10 Up **\$6.90**

## Low Cost Miniature Transformers

Ideal for Hobbyist Projects. Intercoms Transistor replacements — 450mW rated

### Coupling Type

- M 0212 10K/2Kct
  - M 0222 3Kct/3K
- All **\$1.95 ea**  
 10 Up **\$1.70**

### Output Type

- M 0216 1Kct/8 Ohm
- M 0226 500ct/8 Ohm

## Low Cost Line Input

**Max. Input Level + 12dbm**

Ideal input coupling Transformer enables DC isolation of various modules therefore preventing hum pickup etc.

**Wide Freq. Res.** 30Hz - 30KHz  
**Nominal Imp. Ratio** 10K : 10K (1:1) Ideal for coupling from 600 Ohm lines to amplifier input stages etc.

## Line Isolating Transformer

May be used to provide isolation between Telecom Australia lines and mains operated equipment. Telecom approved to specifications 1053 and 1054.

**\$13.95**

10 Up

**\$13.00**



**M 1000**

**Impedance:** 600 Ohm line/600 Ohm equipment.

**Turns Ratio:** 1:1

**Max Level:** 0 dbm @ 300 Hz

**Insertion Loss:** 1db max @

0 dbm, 300 Hz-5KHz **Freq. Res:**

300 Hz-10 KHz +/- 1db, 0 dbm,

0 D.C. **Return Loss:** less than

15 db, 300 Hz - 5 KHz. **Max Un-**

**balanced D.C.** 60mA (200 mA

without damage). **Proof Test:**

4KV rms between windings &

windings to core. **Weight:** 150g

## SPEAKER & LINE AUDIO



**M 1105**

**\$7.50**

10 Up

**\$6.90**

## Super Versatile 4 Watt

For 70V or 100V Line

Professional grade grain oriented steel core for extended frequency response

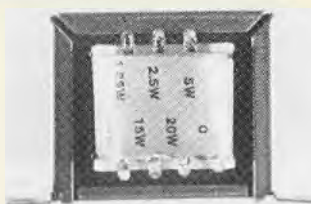
**Primary:** 2.5K, 5K Ohms

**Secondary:** 2,4,8,16 Ohms

**Freq. Res.** 30Hz - 17KHz

Mounting hole centres 51mm.

Ideal for high quality constant voltage PA Systems.



**M 1120**

## 20 Watt Transformer

High grade G.O. steel transformer for speaker columns etc.

### Primary Taps/Power

500	20W
666	15W
1K	10W
2K	.5W
4K	2.5W
8K	1.25W

**\$19.50**

**\$18.00** 10 Up

(Halve Power out for 70V Line)

**Secondary Taps** 2.4 & 8 Ohm



**\$8.50**

**M 1110**

10 Up **\$7.80**

**4 Watt**

With Tapped Primaries for 8 ohm speaker on 100V line

Professional grade grain oriented steel core for extended frequency response.

**Freq. Res.** 30Kz - 17KHz

**Mounting Hole Centres** 51mm

Designed for use with high grade constant voltage 100V

and 70V PA Systems. (Note

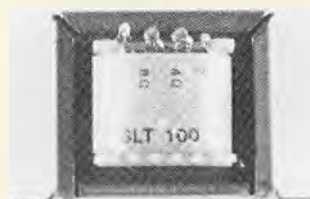
Power out is halved on 70V

Line).

### Primary Tap Power

20K	.5W
10K	1W
5K	2W
2.5K	4W

Common



**M 1122**

## 40 Watt Transformer

High Grade G.O. steel transformer for speaker columns etc.

### Primary Taps/Power

250	40W
500	20W
1000	10W
2000	.5W

**\$27.50**

**\$24.00** 10 Up

(Halve these for 70V Line)

**Secondary Taps** 4 & 8 Ohm

## MU METAL SHIELDED AUDIO

## Microphone Type

**Primary:** 200 Ohm **Secondary:** 50K Ohm. A high quality item eminently suited to mixers, PA amplifiers and where an ultra low "hum" pickup level is desired.

**M 0701**

**\$29.95**

**M 0702** 10 Up **\$27.75**

## Bridging/

## Isolating Type

Use for coupling audio modules—prevents earth loops, hum etc. Essential coupling device where DC isolating is required. **Nominal Impedance Ratio** 10K : 10K(1:1)

## HIGH POWER AUDIO 150W

Fantastic For —

(A) High Power Speaker Systems, sound columns

(B) Amplifier output line transformer.

Superb Quality Transformer wound on low loss Toroid Core

**Max. Power:** 150 Watt

**Frequency Response:** 20Hz to 20KHz

**Dimensions:** 125 Diam. 45mm H, 2.5Kg's Leads 200mm



### Connected in Series

100V

Input Windings

Output Windings

50V

4 Ohm

**M 1124**

**\$110.00**

10 Up **\$104.00**

**Notes:**

(1) The Role of Input and Output windings can be reversed.

(2) Input and Output windings can be configured differently i.e.

Input windings series connected for 100V and Output windings

paralleled for 4 Ohm.

## Hardware Packs

### Self Tapping Screws

		PACK	PRICE
H 1100	No. 4 x 6MM	25	\$ .95
H 1102	No. 4 x 6MM	200	2.95
H 1110	No. 4 x 12MM	25	.95
H 1112	No. 4 x 12MM	200	2.95
H 1116	No. 6 x 9MM	25	.95
H 1117	No. 6 x 9MM	200	2.95
H 1120	No. 8 x 12MM	25	.95
H 1122	No. 8 x 12MM	200	4.50

**UNIVERSAL HEAD SELF TAPPERS (PHILIPS AND FLAT TYPE) BLACK**

H 1130	No.6 x 9MM	25	\$ .95
H 1132	No.6 x 9MM	200	4.95

### Metric Round Head Bolts, Nuts Washers, Zinc Plated

		PACK QTY	PRICE
H 3110	3MM x 6MM	25	\$ .95
H 3115	3MM x 6MM	200	2.50
H 3120	3MM x 10MM	25	.95
H 3125	3MM x 10MM	200	2.95
H 3130	3MM x 15MM	25	1.20
H 3135	3MM x 15MM	200	3.50
H 3140	3MM x 20MM	25	.95
H 3145	3MM x 20MM	200	3.95
H 3150	3MM x 25MM	25	.95
H 3155	3MM x 25MM	200	4.95
H 3160	3MM x 32MM	25	1.25
H 3165	3MM x 32MM	200	5.95
H 3175	Nuts 3MM Hex	25	1.25
H 3177	Nuts 3MM Hex	200	3.95
H 3180	Washer 3MM Flat	25	.95
H 3182	Washer 3MM Flat	200	3.20
H 3185	Washer 3MM S/Proof	25	.95
H 3187	Washer 3MM S/Proof	200	3.95
H 3310	4MM x 10MM	25	.95
H 3315	4MM x 10MM	200	3.95
H 3320	4MM x 15MM	25	1.25
H 3325	4MM x 15MM	200	4.95
H 3380	Nuts 4MM Hex	25	.95
H 3382	Nuts 4MM Hex	200	4.50
H 3385	Washers 4MM Flat	25	.95
H 3387	Washers 4MM Flat	200	3.95
H 3389	Washers 4MM S/Proof	25	1.45
H 3391	Washers 4MM S/Proof	200	4.95

### Countersunk Socket Screw Allen Key Type

		PACK	PRICE
H 3410	Silver 4MM	25	\$ 2.50
H 3415	Silver 4MM	100	7.50
H 3420	Black 4MM	25	2.50
H 3425	Black 4MM	100	7.50

### Quality Nickel Plated Brass Spacers

#### UNTAPPED 3MM CLEARANCE

	Length	PRICE
H 1355	6	\$ 1.20
H 1359	6	9.80
H 1362	9	1.20
H 1365	9	10.50
H 1372	12	1.40
H 1373	12	12.00
H 1375	25	1.40
H 1376	25	17.50

#### TAPPED 3MM

H 1390	10	8	\$ 1.70
H 1391	10	100	10.50
H 1393	15	8	1.80
H 1394	15	100	14.50
H 1396	25	8	2.70
H 1397	25	100	21.50

### Solder Lugs

H 1500	Solderlugs PK 50	\$1.60
H 1501	Solderlugs PK 100	\$13.50

### Crimp Terminals and Lugs

Hobby Packs in handy re-sealable bags  
Bulk Packs in "See Through" PVC Box

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

#### FEMALE QUICK CONNECT

Cat.	Description	Wire Size	Stud Size	Pack	PRICE
H 2000	Kwik connect FEM.Red	A	6.3	8	\$ 1.50
H 2002	Kwik connect FEM.Red	A	6.3	100	9.95
H 2005	Kwik connect FEM.Blue	B	6.3	6	1.50
H 2007	Kwik connect FEM.Blue	B	6.3	100	9.95

#### MALE QUICK CONNECT

H 2020	Male Red	A	6.3	8	\$ 1.50
H 2022	Male Red	A	6.3	100	9.95
H 2025	Male Blue	B	6.3	6	1.50
H 2027	Male Blue	B	6.3	100	9.95

#### RING TYPE CRIMPLUG

H 2030	Red	A	3.5	8	\$ 1.50
H 2032	Red	A	3.5	100	9.95
H 2035	Red	B	4	8	1.50
H 2037	Red	B	4	100	9.95
H 2040	Red	A	5	8	1.50
H 2042	Red	A	5	100	9.95
H 2045	Blue	B	4	8	1.50
H 2047	Blue	B	4	100	9.95
H 2050	Blue	B	5	6	1.50
H 2052	Blue	B	5	100	9.95
H 2055	Blue	B	6	6	1.50
H 2057	Blue	B	6	100	13.95
H 2060	Yellow	C	5	4	1.50
H 2062	Yellow	C	5	50	8.50
H 2065	Yellow	C	6	4	1.50
H 2067	Yellow	C	6	50	9.95

#### SPADE CRIMPLUG

H 2070	Red	A	4	8	\$ 1.50
H 2072	Red	A	4	100	9.95
H 2075	Red	A	5	8	1.50
H 2077	Red	A	5	100	9.95
H 2080	Blue	B	4	6	1.50
H 2082	Blue	B	4	100	9.95
H 2085	Blue	B	5	6	1.50
H 2087	Blue	B	5	100	9.95

#### FEMALE BULLET CRIMPLUG

H 2120	Red	A	3.9	8	\$ 1.50
H 2122	Red	A	3.9	100	13.95
H 2125	Blue	B	3.9	8	1.50
H 2127	Blue	B	3.9	100	13.95

#### MALE BULLET CRIMPLUG

H 2150	Red	A	4	8	\$ 1.50
H 2152	Red	A	4	100	9.95
H 2155	Blue	B	4	8	1.50
H 2157	Blue	B	4	100	9.95

#### DOUBLE ADAPTOR

Connects 2 Females to 1 Male

H 2100	2M + 1F	A	6.3	6	\$ .95
H 2102	2M + 1F	B	6.3	100	9.95

#### PIGGYBACK "DOUBLE ADAPTOR"

Provides connection to male and allowing connection to additional female.

H 2010	Piggyback F to M + F Red	A	6.3	4	\$ 1.50
H 2012	Piggyback F to M + F Red	A	6.3	50	7.60
H 2015	Piggyback F to M + F Blue	B	6.3	4	1.50
H 2017	Piggyback F to M + F Blue	B	6.3	50	9.95

#### CABLE JOINER/SPLICER

H 2200	Splicer	B	—	4	\$ 1.50
H 2205	Splicer	B	—	20	4.50

## STANDARD 1/4 INCH SHAFT TYPE WITH GRUBSCREWS

**BLACK PVC 23MM**  
H 6050 .80  
10 Up .75

**ALUMINIUM CAP  
BLACK PVC 24MM**  
H 6060 \$1.35  
10 Up \$1.25

**ALUMINIUM CAP  
BLACK PVC 32MM**  
H 6066 \$1.50  
10 Up \$1.35

**ALUMINIUM CAP  
BLACK PVC 20MM**  
H 6080 \$1.40  
10 Up \$1.30

**COLOUR CAP  
SERIES 15MM**  
H 6001 RED  
H 6003 BLUE  
H 6005 GREEN  
H 6007 YELLOW  
All .80 10 Up .75

**COLOUR CAP  
SERIES 20MM**  
H 6021 RED  
H 6023 BLUE  
H 6025 GREEN  
H 6027 YELLOW  
All \$1.10 10 Up .99

**BLACK PVC FLUTED**  
15MM H 6040 .90  
10 Up .85  
20MM H 6042 \$1.10  
10 Up \$1.00

### Collett Knobs

(Note coloured caps purchased separately)



Ea 10 Up

H 6410 15mm Grey 6mm shaft \$1.40 \$1.30  
H 6415 21mm Grey 6mm shaft \$1.70 \$1.60  
H 6420 15mm Grey 6.4mm sht. \$1.40 \$1.30  
H 6425 21mm Grey 6.4mm sht. \$1.70 \$1.60

### Collett Knob Caps

H 6440 15mm Red .25 .22  
H 6442 15mm Blue .25 .22  
H 6444 15mm Yellow .25 .22  
H 6446 15mm Green .25 .22  
H 6460 21mm Red .30 .27  
H 6462 21mm Blue .30 .27  
H 6464 21mm Yellow .30 .27  
H 6466 21mm Green .30 .27



**POLISHED  
ALUM. 18MM**  
H 6305 \$1.60  
10 Up \$1.45



**NATURAL ALUM.**  
15MM H 6310 \$1.98  
10 Up \$1.80  
20MM H 6312 \$2.20  
10 Up \$2.00



**ANODISED BLACK**  
15MM H 6202 \$1.55  
10 Up \$1.40  
20MM H 6204 \$2.30  
10 Up \$2.10



**BRUSHED BLACK** 10 Up  
16MM H 6211 \$1.90 \$1.70  
22MM H 6213 \$2.20 \$2.00  
30MM H 6224 \$2.55 \$2.30  
40MM H 6228 \$3.95 \$3.60



**BRUSHED SILVER** 10 Up  
16MM H 6331 \$1.70 \$1.55  
22MM H 6333 \$1.95 \$1.80  
28MM H 6335 \$2.55 \$2.35



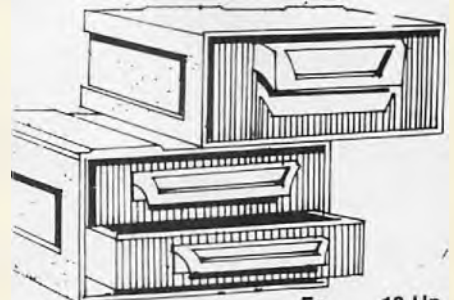
**CALIBRATED 1-10**  
H 6090 \$1.55  
10 Up \$1.40



**CALIBRATED LINE**  
H 6092 \$1.55  
10 Up \$1.40

## INTERLOCKING PARTS DRAWERS

Unique side and top/bottom keying system allows you to use just a few or build a whole wall of drawers as your parts expansion dictates. Quality designed drawer slides will not 'stick' or seize. Slide handle also takes ident. cards. Single or double drawers available.



H 0235 Single Way **\$4.95** 10 Up **\$4.50**  
H 0236 Dbl. Drawers **\$4.95** 10 Up **\$4.50**

## UTILITY PARTS CASE

Featuring a clear plastic lid so you can tell contents at a glance. Simple slide lock. 48 partition combinations. Very sturdy ABS plastic.



H 0249 **\$23.95**

## 16 WAY PARTS DRAWER SET

See through acrylic parts drawer. Slide-in Ident. card fronted drawers. Ident. cards supplied. Sturdy steel construction. Value Plus!



H 0240 **\$29.95**

## METRIC KNOBS FOR 18 TEETH SPLINED SHAFTS

### METRIC 22MM

**BLACK** H 6510 .99  
10 Up .90  
**WHITE** H 6512 .99  
10 Up .90



Both 22mm O.D.

### 15MM COLOUR CAP

H 6501 .80  
10 Up .75



### BLACK PVC FLUTED

15MM H 6540 .85  
10 Up .80  
20MM H 6542 .95  
10 Up .90





### Cordgrip Grommets

To suit cables 6.2-7.4mm and up to 2.5mm chassis thickness. Nylon.

**H 4250** PK 10 **\$1.50**  
**H 4252** PK 100 **\$13.95**

to suit cables 7.4-8.2mm and up to 1.6mm chassis thickness. Nylon.

**H 4270** PK 10 **\$2.70**  
**H 4272** PK 100 **\$19.50**

To suit cables 7.4-8.2mm and up to 3.2mm chassis thickness

**H 4280** PK 10 **\$1.95**  
**H 4282** PK 100 **\$15.00**



### Led Mounts

New one piece type - quick to install.

**H 1550** PK 20 **\$2.45**  
**H 1551** PK 1000 **\$65**



### Bezel/Holder

5mm Led Bezel/Holder with leg insulation (as shown) 9.5mm mounting hole required.

**H 1560** PK 10 **\$2.95**  
**H 1565** PK 100 **\$24.50**



### T03 Insulating Kit

Mica washers and bushes for T03 semi conductors.

**Mounts**  
**H 1580** 4 devices **\$1.75**  
**H 1582** 100 devices **\$19.95**



### T0220 Insulating Kit

Mica washers and bushes for T0220 or other flat Pack Semis.

**Mounts**  
**H 1585** 4 devices **\$1.50**  
**H 1587** 100 devices **\$11.95**



### T03 Insulating Cap

**H 1590** **.45c**  
 10 Up **.45c**

### Rubber Grommets

For chassis to 16 gauge



	Chassis Hole	Cable Hole	Pack Qty	
H 1450	9.5mm	6 mm	8	\$1.70
H 1452	9.5mm	6 mm	100	\$15.95
H 1456	12.7mm	9.5mm	8	\$2.50
H 1458	12.7mm	9.5mm	100	\$17.95

**Save 40% With Bulk Pack**

### Rubber Feet

With 3mm Mounting Hole



	Size (diam)	Pack Qty.	
H 0914	13mm	8	\$1.95
H 0913	13mm	100	\$11.95
H 0917	16mm	8	\$1.95
H 0916	16mm	100	\$14.95
H 0940	12mm Stickon	4	\$1.95
H 0942	12mm Stickon	100	\$19.50
H 0950	20mm Stickon	4	\$1.95
H 0952	20mm Stickon	100	\$19.50



### Pocket Handle

Just the shot for heavy amp enclosures and speaker boxes. Cutout 48mm x 102mm.

**H 1010** **\$2.95**



### Strap Handle

7" long all plastic matt black. Very strong, suitable for loads of over 300kg.

**H 1020** **\$4.95**

**NEW FOR '89**

### Velostat

TN 3M Co.  
 Non-static sheeting for storing CMOS IC's LS1's etc. 1000 times better than aluminium foil. Will store up to 150 IC's (14 Pin) on one 225mm x 150mm sheet.



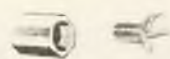
**H 0600** **\$5.95**

### Panel Mounting & Locking Hardware For D Connectors

(Spacers & Screws Packs of 100. Good for 50 D Connectors)

**P 3300** PK 10 **\$1.95**  
**P 3305** PK 100 **\$13.50**

Where fail proof locking of cable mount D connect to mating chassis connector is desired. This is simply achieved by use of this screw/spacer set. The screws protrude through the rear of the D connector and chassis and mate with the front mounting threaded spacers. The locking screws incorporated with most D connector's backshells will now screw into the threaded spacers thus permanently securing the two connectors together.



### Cable Clips

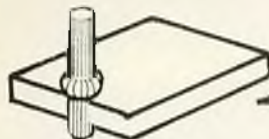
Save a heap on "Trade Packs"

SUITS CABLE TYPE	Ave. Pack Qty.	
H 1700 Fig B	50	\$4.50
H 1702 Fig B	200	\$12.50
H 1710 Tele cable	50	\$4.25
H 1712 Tele cable	200	\$12.40
H 1720 Coax cable	50	\$4.50
H 1722 Coax cable	200	\$13.80
H 1730 7-9mm cable	30	\$2.85
H 1732 7-9mm cable	200	\$15.20
H 1740 10-12mm cable	20	\$2.60
H 1742 10-12mm cable	200	\$17.95



## PCB ITEMS AND BREADBOARDS

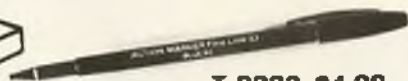
### Matrix Pins



- H 0805** 0.9mm Pk 50 \$ 2.10
- H 0806** 0.9mm Pk 1000 \$35.50
- H 0909** 1.2mm Pk 50 \$ 2.35
- H 0810** 1.2mm Pk 1000 \$38.50

### Dalo Pen

Etch Resistant Ink



**T 0033 \$4.20**

### Blank PC Board

Single Sided Copper Clad



Phenolic 250 x 250mm

**H 0752 \$16.50**

### Fibreglass Blank PCB

250 x 250mm

**H 0755 \$19.50**

### Ferric Chloride Beads

Makes 1 Litre of Solution



**H 0800 \$2.95**

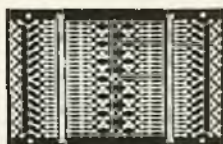
### Vero Type Strip Board

Alpha numeric grid. Pre-drilled .9mm 2.5mm spacing, 95mm wide.

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

### Design Breadboard

Silver plated. Takes all IC sockets to 40 pin. In-built buss bars.



**H 0706 \$3.25**

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

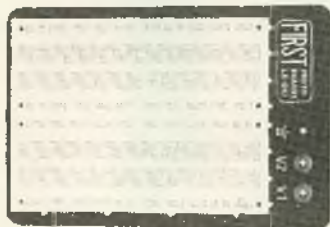
### 400 +1280 Holes

Accepts up to 16 x 16 pin DIL IC's Terminals for PS Connections.

**P 1012 \$39.95**

### 500 +1920 Holes

Accepts up to 24 x 16 pin DIL IC's Metal Backing Plate for Shielding of sensitive circuitry



**P 1015 \$65.00**

### Mini Strip 100 Holes

**P 1000 \$3.25**

### 640 Holes

**P 1005 \$11.50**

### 640 +100 Holes

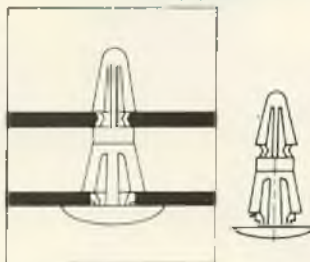
**P 1007 \$14.50**

### 640 +200 Holes

**P 1009 \$16.95**

## TRADE & HANDYMAN PACKS

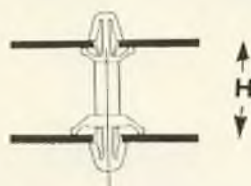
### PCB Supports



4mm PCB hole required. 4.8mm chassis hole required. Gives PCB 6.4mm clearance above chassis. Nylon 66 (UL 94V-2)

**H 1420 PK 10 \$ 1.50**

**H 1422 PK 100 \$13.50**



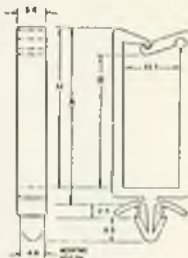
4mm PCB hole and 4.8mm chassis hole required. Nylon 66 (UL 94V-2)

**H 1430 6.4mm PK 10 \$ 1.40**

**H 1433 6.4mm PK 100 \$12.50**

**H 1440 12.7mm PK 10 \$ 1.50**

**H 1445 12.7mm PK 100 \$12.50**



### Locking Wire Saddles

For directing & gathering cables. Self adjusting to various panel thicknesses. 4.8mm chassis hole required. H= 14.4mm A= 17.9mm B= 8.6mm Nylon.

**H 4180 PK 10 \$ 2.00**

**H 4182 PK 100 \$17.50**



NEW FOR '89

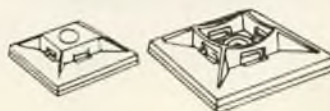
### Snap-In Bushings

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

Chassis hole 16mm

**H 4350 PK 10 \$ 2.50**

**H 4352 PK 100 \$15.00**



### Self Adhesive Cable Tie Mounts

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

21mm x 21mm (suits H 4010/12/14)

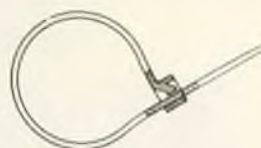
**H 4110 PK 25 \$ 6.50**

**H 4112 PK 100 \$19.50**

28mm x 28mm (suits H 4020/22)

**H 4120 PK 25 \$ 8.50**

**H 4122 PK 100 \$24.50**



### Cable Ties

All of Nylon 66 (UL 94V-2) Material. Natural colour.

100mm (L) x 2.5mm (W)

**H 4010 PK 25 \$ 1.65**

**H 4012 PK 100 \$ 5.95**

**H 4014 PK 1000 \$29.50**

200mm (L) x 4.6mm (W)

**H 4020 PK 25 \$2.50**

**H 4022 PK 100 \$6.95**



### Nylon Cable Clamps

Cat.No. Size Pack

**H 4210** 6.7mm 6 \$ .98

**H 4212** 6.7mm 100 \$8.95

**H 4220** 9.5mm 6 \$ .85

**H 4222** 9.5mm 100 \$9.75

## Rack Frames and Rack Cabinets

## Rack Frames for the Home Stereo System Rack Cabinets for Equipment Manufacturers

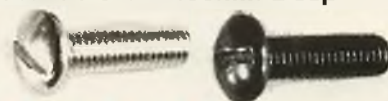
### Both at Low Low Altronics Prices

**Complete Equipment Cabinet** with the simple addition of the panel sets, you now have a series of professional equipment cabinets of appearance and ruggedness second to none.

**Assembly** Each Frame System is supplied complete with 12 Custom extruded Natural Anodised Aluminium sections, 8 ABS corner connector pieces, 6 clip in M6 captive nuts and 6 M6 mounting screws. The sections and corner pieces simply push-fit together. A rubber or wooden mallet is recommended to fit together the self aligning pieces. Further strength can be obtained by pop riveting the various overlapping extruded sections if desired, although we hardly feel this is necessary.

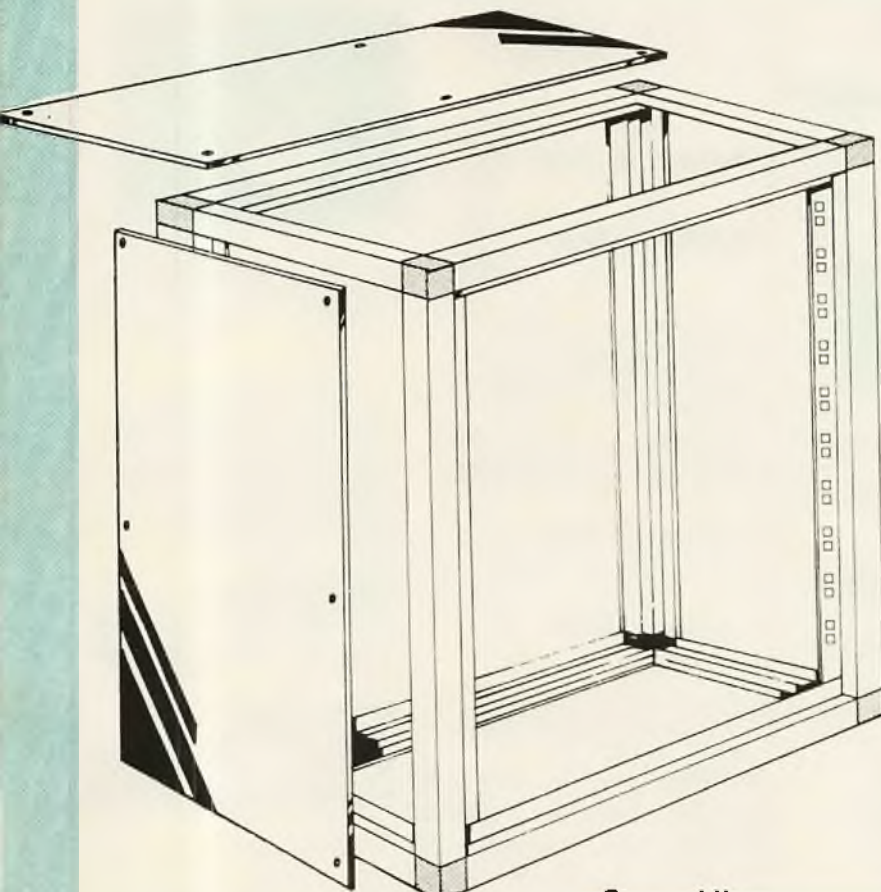
**Side and Top Panels** Tough powder coat medium grey gives a pleasing contrast with the natural anodised frame. The resultant product is extremely professional in appearance and well and truly strong enough for the heaviest of electronic equipment.

**4 Unit (280mm H) 6 Unit (370mm H) 12 Unit (545mm H) 18 Unit (907mm) 30 Unit (1450mm) and 38 Unit (1804mm) Racks available. All 450mm Deep**



### Rack Panel Screws

Nickel Plated and Black finish Rack Screws  
Dome Head, M6 Thread, 25mm overall length.



	Ea	4 Up		Ea	4 Up
H 0362 Rack Frame 4 Unit (280mm H)	\$119.00	\$112.00	H 0385 Rack screw M6 PK 12 Natural	\$ 2.95	\$ 2.65
H 0363 Panel Set for H 0362	\$ 49.00	\$ 45.00	H 0386 Rack screw M6 PK 100 Natural	\$ 19.95	\$ 17.95
H 0365 Rack Frame 6 unit (370mm)	\$119.00	\$112.00	H 0390 rack screw M6 PK 12 Black	\$ 2.95	\$ 2.65
H 0367 Panel Set for H 0365	\$ 49.00	\$ 45.00	H 0391 Rack screw M6 PK 100 Black	\$ 19.95	\$ 17.95
H 0368 Rack Frame 12 unit (545mm H)	\$135.00	\$127.00	H 0395 Rack captive nuts M6 PK 12	\$ 3.95	\$ 3.50
H 0369 Panel Set for H 0365	\$ 69.00	\$ 65.00	H 0396 Rack captive nut M6 PK 100	\$ 28.50	\$ 26.00
H 0370 Rack Frame 18 unit (907mm)	\$149.00	\$138.00	H 0398 Nylon Washer PK 12	\$ 1.50	\$ 1.40
H 0372 Panel Set for H 0370	\$ 89.00	\$ 84.00	H 0399 Nylon Washer PK 100	\$ 8.50	\$ 7.80
H 0375 Rack Frame 30 unit (1450mm)	\$189.00	\$177.00			
H 0377 Panel Set for H 0375	\$129.00	\$119.00			
H 0380 Rack Frame 38 unit (1804mm)	\$249.00	\$233.00			
H 0382 Panel Set for H 0380	\$149.00	\$139.00			

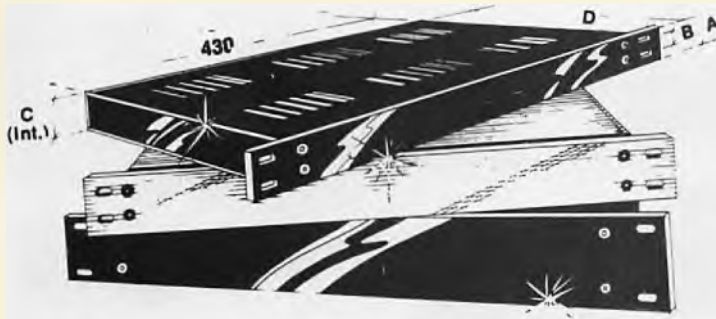
### Supplied in Flat Pack Form They Snap Together in Minutes

Extremely sturdy and beautifully finished with natural anodised Aluminium frames and super durable "Electron Grey-Blue" powder coat enamel panels.

#### DISPLAYED HERE IN SEQUENCE LEFT TO RIGHT ARE —

- (A) H 0365 with H 0367 370mm High (267mm of Panel Height)
- (B) H 0370 with H 0372 907mm High (800mm of Panel Height)
- (C) H 0375 with H 0377 1450mm High (1333mm of Panel Height)
- (D) H 0380 with H 0382 1804mm High (1590mm of Panel Height)





**Six Natural or Black Anodised Models to Choose From**

The Black or Natural finish cabinets are each available in 44mm, 88mm or 132mm high models. Mounting hole centres conform exactly to International Racking Specifications both vertically and horizontally.

**Blank Rack Panels**

NATURAL FINISH		EA	10 Up
H 0421	44mm	\$11.95	\$10.95
H 0422	88mm	\$14.95	\$13.50
H 0423	132mm	\$18.95	\$17.50
BLACK FINISH			
H 0426	44mm	\$11.95	\$10.95
H 0427	88mm	\$21.95	\$19.95
H 0428	132mm	\$29.95	\$27.50

**FEATURES:**

- These beautifully crafted rack cabinet boxes will give your equipment a real 1st class appearance.
- Aluminium construction with removable top and bottom steel cover panels
- All dimensioning conforms to the International Standard.
- Natural or Black finish
- Ventilated lid

- Deluxe finish front panel
- Individually cartoned
- Supplied in Flat Pack Form — Easily assembled in minutes

**Side Elevation:**

- D = 254mm C (Internal Chassis Height)
- B (Mounting Bolt Centres)

**Economy Rack Cabinet**

- Solid steel construction
- Black anodised front panel
- 3 unit (132mm)
- Conforms to International Standards
- Ventilated top and side panels



H 0440 ONLY  
\$69.95  
5 Up \$65.00

Cat.No.	Finish	A	B	C	EA	5 Up
H 0401	Natural	44	34	38	\$59.95	\$55.00
H 0402	Natural	88	57	82	\$69.95	\$65.00
H 0403	Natural	132	89	126	\$85.00	\$80.00
H 0411	Black	44	34	38	\$59.95	\$55.00
H 0412	Black	88	57	82	\$79.95	\$75.00
H 0413	Black	132	89	126	\$89.95	\$85.00

**High Energy Rack Case**

Yet another innovation from the Design Team at Altronics. The use of Super 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.

Fantastic for Stereo Amplifiers — Each Heatsink will accommodate an audio output stage of approximately 120W with normal efficiency and dissipation.

A Great chassis for Heavy Duty Power Supplies and Battery chargers. We suggest the mounting of Rectifier Bridge or diodes on one Heatsink and the Regulator devices on the other.

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. Fans are thus very cheap and easy to fit and provide very efficient cooling of the heatsink.



Vented Lid Not Shown

**ORDER WITH EITHER BLACK OR NATURAL ANODISED FRONT PANELS**



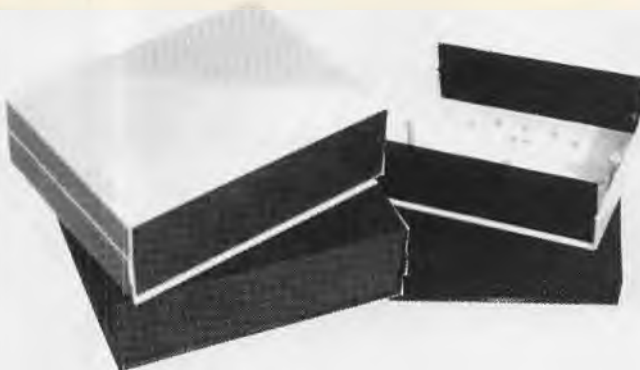
**SPECIFICATIONS**

Heatsinks Altronics H 0590 Front Panel 3 unit Rack size 480 mm x 132mm x 3mm Base 1.0mm steel, ventilation slots provided Top Cover 1.0mm steel, ventilation slots provided. Internal Dimensions 125 x 370 x 250mm External Dimensions 130 x 440 x 252mm plus standard front panel. Finish Black anodised aluminium plus powder coat black top/base.

H 0417	Natural Anodised Front Panel	\$119.95
	4 Up	\$114.00
H 0418	Black Anodised Front Panel	\$119.95
	4 Up	\$114.00

## BOXES/CASES

### 'ABS' INSTRUMENT CASES



H 0480/H 0481 Overall Size: 200 W x 160 D x 70 H  
H 0482/H 0483 Overall Size: 260 W x 190 D x 80 H  
(Vented Case)

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

	EA	10 Up	100 Up
H 0480 Light Grey with Black Panels	\$14.85	\$12.65	\$10.50
H 0481 Black Case with Black Panels	\$14.85	\$12.65	\$10.50
H 0482 Light Grey with Black Panels	\$19.95	\$17.98	\$13.95
H 0483 Black Case with Black Panels	\$19.95	\$17.98	\$13.95

### ACCESSORIES

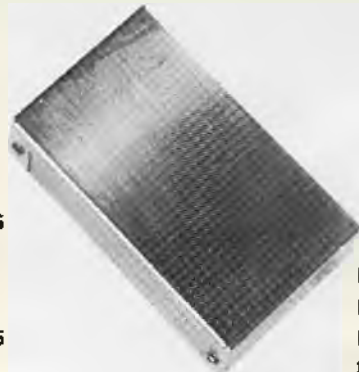


	1-9	10-99	100 Up
H 0484 Nat.Al. Panel for H 0480/1	\$3.95	\$3.65	\$2.90
H 0485 'ABS' PVC Panel for H 0480/1	\$1.65	\$1.60	\$1.45
H 0486 Black Al.Panel for H 0480/1	\$3.95	\$3.65	\$2.90
H 0487 'ABS' PVC Panel for H 0482/3	\$2.20	\$1.98	\$1.75
H 0488 Blk.Al. Panel for H 0482/3	\$4.50	\$4.15	\$3.90
H 0489 Nat.Al. Panel for H 0482/3	\$4.50	\$4.15	\$3.90

### Aluminium Boxes

Made from 20 gauge aluminium. Screws Inc. Two Handy Sizes

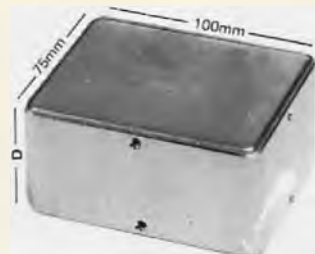
100 x 58 x 45			
H 0355	\$4.25	10 Up	\$3.85
150 x 100 x 70			
H 0358	\$7.95	10 Up	\$7.15



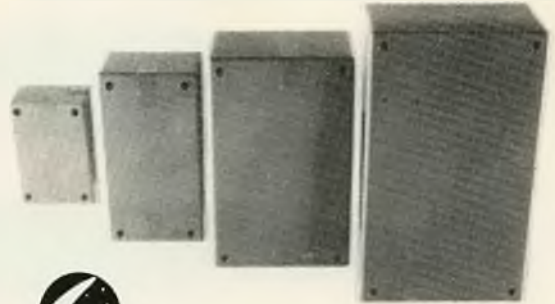
### Horwood Utility Cases

Sturdy Extruded Construction

D Dimension	EA	10 Up
H 0456 25mm	\$7.95	\$7.50
H 0457 50mm	\$8.50	\$7.85
H 0458 100mm	\$9.50	\$8.70
H 0459 150mm	\$12.50	\$11.50



### JIFFY BOXES



#### PCB Trimmed Width

Box	Colour	Dimensions	Vert.	Horiz.	Price	10 Up
H 0201	Black	150 x 90 x 50	90	87	\$3.60	\$3.25
H 0202	Black	195 x 113 x 60	106	103	\$5.50	\$5.10
H 0203	Black	130 x 68 x 41	62	60	\$2.95	\$2.75
H 0205	Black	83 x 54 x 28	50	47	\$2.25	\$2.10
					Price	10 Up
H 0151	Grey	150 x 90 x 50	90	87	\$3.95	\$3.60
H 0152	Grey	195 x 113 x 60	106	103	\$6.95	\$6.40
H 0153	Grey	130 x 68 x 41	62	60	\$3.30	\$3.00
H 0155	Grey	83 x 54 x 28	50	47	\$2.50	\$2.20

### Deluxe Cabinets

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



83 x 53 x 102			
H 0441	\$4.50	10 Up	\$4.00
150 x 61 x 103			
H 0442	\$7.70	10 Up	\$7.10
150 x 76 x 134			
H 0443	\$9.50	10 Up	\$ 8.50
184 x 70 x 160			
H 0444	\$9.95	10 Up	\$8.95





### TO3 Minifin

50mm x 50mm x 25mm H  
Prepared for TO3

Thermal Resistance 5° C/W

H 0500 **\$2.50**

10 Up **\$2.25**



### Thermalloy TO3

H 0503 **\$1.50**

10 Up **\$1.25**



### Universal U

Use with Flat Pack or TO3 Package

Ideal for PC Mounting

Thermal Resistance 6° C/W

H 0501 **\$1.50**

10 Up **1.35**



### Mini U

Low Cost — Suits Flat Pack Semis

Thermal Resistance 10° C/W

H 0502 **.95**

10 Up **.85**



### 'Clip On' Type For TO-220 Package

Multifin efficient design — simply push on over TO-220 Metal Tag

Thermal Resistance 25° C/W

H 0505 **.75**

10 Up **.68**



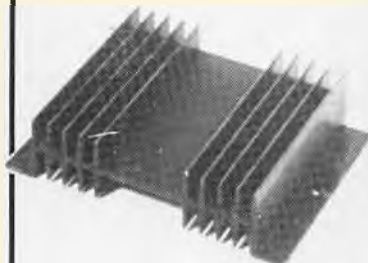
### TO5

High Efficiency Press On

Thermal Resistance 30° C/W

H 0512 **.60**

10 Up **.50**



### Economy Power

102W x 25H x 72D

Black Anodised

Thermal Resistance 2.7° C/W

Undrilled

H 0570 **\$4.95**

10 Up **\$4.50**

Drilled 2 TO3

H 0571 **\$5.95**

10 Up **\$5.50**



### Heatsink Compound

Heat conducting paste facilitates heat transfer from semi to Heatsink. One tube good for up to 30 TO3 package semiconductors.

*Fantastic Value*

H 1600 **\$3.20** 10g. PK

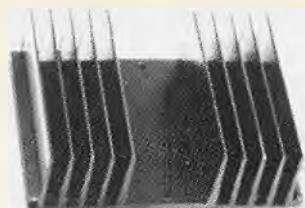
H 1610 **\$18.95** 150g PK

### Versatile Heavy Duty

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

Sizes: 110W x 33H x 72D

Thermal Resistance 2.2° C/W



Undrilled

H 0560 **\$6.95**

10 Up **\$6.25**

Drilled 2 TO3

H 0561 **\$7.50**

10 Up **\$6.90**

### High Efficiency Fan Type

Black Anodised — Undrilled

Five Handy Lengths

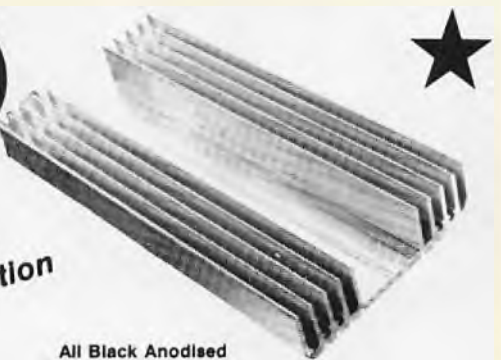


Cat.No.	L	Thermal Resist.	EA	10 Up
H 0520	55mm	2.5° C/W	\$ 5.50	\$ 5.00
H 0522	72mm	2.2° C/W	\$ 6.95	\$ 6.25
H 0524	135mm	1.1° C/W	\$ 9.95	\$ 8.95
H 0526	225mm	0.9° C/W	\$16.95	\$15.50
H 0530	300mm	0.7° C/W	\$19.95	\$17.50



New Generation

All Black Anodised



A brand new Altronics Designed Heatsink made right here in Australia. This innovative design incorporates a number of recessed "Channels" on the flat side to enable self tapper screw fixing from chassis etc. **with out the need to drill holes** Very heavy cross section (35mm x 125mm over all) Available in 5 handy lengths of 75mm (for 2 unit rack cases etc.) 125mm (for 3 unit) and 250mm. The 250mm length will easily sink the output stage of a 120 watt audio amplifier.

Other recesses are provided to mate with 1mm sheet metal thus allowing the construction of complete box enclosures with integral heatsinks with just 4 flat pieces of metal/aluminium etc.

**Note:** This extrusion can be ordered to your length requirements in 100 piece minimum quantities. Price on application. Delivery 6-8 weeks from receipt of order.

Cat.No.	L	Thermal Resist.	Ea	4 Up
H 0580	75MM	1.4° C/W	\$ 7.95	\$ 7.70
H 0582	100MM	1.3° C/W	\$ 9.50	\$ 8.95
H 0585	125MM	1.2° C/W	\$11.95	\$10.95
H 0590	250MM	0.7° C/W	\$19.50	\$17.95
H 0592	300MM	.9° C/W	\$24.50	\$23.00

## High Technology *Lelon* Electrolytic Capacitors

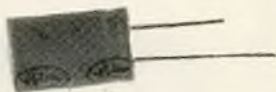
### PCB MOUNT (RADIAL) CAPACITORS



### AXIAL CAPACITORS

**Features:** • Low impedance characteristics • Case sizes are smaller than conventional general-purpose capacitors, with very high performance.  
• Can size larger than 8mm diameter has safety vents on rubber bun.  
• Temperature Range -40 to +85 deg.C • Tolerance -10% to +50%

**Features:** • Low impedance characteristics • Case sizes are smaller than conventional general-purpose capacitors, with very high performance. • Can size larger than 8mm diameter has safety vents on rubber bun. • Temperature Range -40 to +85°C • Tolerance -10% to +50%.



Cat. No.	uF	Working Voltage	Surge Voltage	Ripple * Current MA	Can Diameter MM	Lead Spacing MM	Ripple		
							7-9	10-24	25-
R 5018	1uF	63V	79	25	5	2	.27	.23	.20
R 5024	2.2uF	25V	32	37	5	2	.27	.23	.20
R 5028	2.2uF	63V	79	37	5	2	.27	.23	.20
R 5034	3.3uF	25V	32	46	5	2	.27	.23	.20
R 5038	3.3uF	63V	79	46	5	2	.27	.23	.20
R 5044	4.7uF	25V	32	59	5	2	.27	.23	.20
R 5048	4.7uF	63V	79	59	5	2	.27	.23	.20
R 5054	6.8uF	25V	32	71	5	2	.27	.23	.20
R 5058	6.8uF	63V	79	71	5	2	.27	.23	.20
R 5062	10uF	16V	20	86	5	2	.27	.23	.20
R 5064	10uF	25V	32	86	5	2	.27	.23	.20
R 5065	10uF	35V	44	86	5	2	.27	.23	.20
R 5068	10uF	63V	79	86	5	2	.27	.23	.20
R 5084	22uF	25V	32	87	5	2	.27	.23	.20
R 5088	22uF	63V	79	134	6.3	3.5	.35	.32	.29
R 5094	33uF	25V	32	108	6	2.5	.30	.27	.24
R 5098	33uF	63V	79	164	8	3.5	.38	.35	.32
R 5102	47uF	16V	20	120	5	2	.30	.27	.24
R 5104	47uF	25V	32	129	6	2.5	.32	.29	.26
R 5105	47uF	35V	44	108	6.3	2.5	.37	.34	.31
R 5108	47uF	63V	79	220	8	3.5	.42	.38	.35
R 5122	100uF	16V	20	176	6	2.5	.32	.29	.26
R 5124	100uF	25V	32	195	6.3	3.5	.45	.40	.36
R 5125	100uF	35V	44	246	8	3.5	.60	.55	.50
R 5128	100uF	63V	79	370	10	5	.75	.70	.65
R 5142	220uF	16V	20	272	8	3.5	.35	.30	.27
R 5144	220uF	25V	32	326	8	3.5	.60	.55	.50
R 5148	220uF	63V	79	570	13	5	.90	.85	.75
R 5154	330uF	25V	32	416	10	5	.85	.80	.55
R 5158	330uF	63V	79	766	13	5	.95	.90	.80
R 5182	470uF	16V	20	467	10	5	.60	.55	.50
R 5184	470uF	25V	32	548	10	5	.70	.65	.60
R 5185	470uF	35V	44	690	13	5	1.00	.90	.80
R 5188	470uF	63V	79	942	16	7.5	1.50	1.35	1.20
R 5182	1000uF	16V	20	751	10	5	.75	.70	.65
R 5184	1000uF	25V	32	830	13	5	.95	.90	.80
R 5185	1000uF	35V	44	1045	13	5	1.40	1.25	1.15
R 5188	1000uF	63V	79	1450	18	7.5	1.95	1.85	1.70
R 5202	2200uF	16V	20	1020	13	5	.95	.90	.80
R 5204	2200uF	25V	32	1180	16	7.5	1.40	1.30	1.15
R 5206	2200uF	50V	63	1650	18	7.5	2.80	2.65	2.40
R 5208	2200uF	63V	79	1680	22	10	4.70	4.30	3.90
R 5214	3300uF	25V	32	1288	18	7.5	1.95	1.75	1.60
R 5216	3300uF	50V	63	1680	22	10	4.70	4.30	3.90
R 5222	4700uF	16V	20	1471	16	7.5	1.60	1.50	1.35
R 5224	4700uF	25V	32	1614	18	7.5	2.75	2.50	2.25
R 5226	4700uF	50V	63	1938	25	12.5	4.98	4.60	4.10
R 5234	10000uF	25V	32	2617	25	12.5	5.98	5.50	5.00

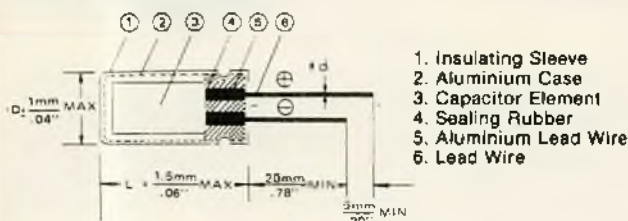
\* RIPPLE CURRENT AT 20° 100Hz



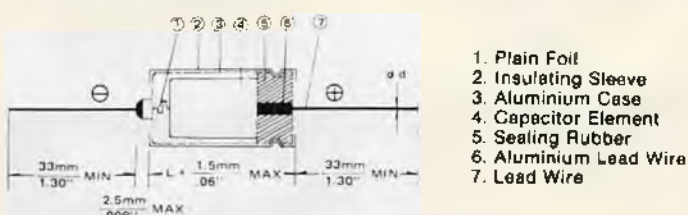
Cat. No.	uF	Working Voltage	Surge Voltage	Ripple * Current MA	Can Length MM	Ripple		
						1-9	10-24	25-
R 5518	1uF	63V	79	25	12	.35	.30	.27
R 5524	2.2uF	25V	32	37	12	.35	.30	.27
R 5528	2.2uF	63V	79	37	12	.35	.30	.27
R 5534	3.3uF	25V	32	46	12	.35	.30	.27
R 5538	3.3uF	63V	79	46	12	.35	.30	.27
R 5544	4.7uF	25V	32	59	12	.35	.30	.27
R 5548	4.7uF	63V	79	59	12	.35	.30	.27
R 5554	6.8uF	25V	32	71	12	.35	.30	.27
R 5558	6.8uF	63V	79	71	12	.35	.30	.27
R 5564	10uF	25V	32	86	12	.35	.30	.27
R 5568	10uF	63V	79	86	12	.35	.30	.27
R 5584	22uF	25V	32	87	12	.35	.30	.27
R 5594	33uF	25V	32	108	12	.45	.35	.30
R 5604	47uF	25V	32	129	12	.45	.40	.36
R 5608	47uF	63V	79	220	17	.80	.55	.50
R 5624	100uF	25V	32	195	16	.45	.40	.36
R 5628	100uF	63V	79	370	21	.70	.65	.55
R 5644	220uF	25V	32	326	17	.55	.50	.45
R 5648	220uF	63V	79	478	21	.95	.85	.75
R 5654	330uF	25V	32	416	21	.75	.70	.65
R 5658	330uF	63V	79	766	27	1.45	1.35	1.25
R 5664	470uF	25V	32	548	21	.80	.73	.65
R 5668	470uF	63V	79	942	28	1.95	1.82	1.75
R 5684	1000uF	16V	20	751	21	.85	.82	.75
R 5684	1000uF	25V	32	830	22	1.30	1.15	1.05
R 5688	1000uF	63V	79	1450	28	3.50	3.10	2.95
R 5702	2200uF	16V	20	1020	27	1.50	1.26	1.10
R 5704	2200uF	25V	32	1180	28	1.95	1.60	1.65
R 5708	2200uF	63V	79	1680	43	4.98	4.60	4.25
R 5714	3300uF	25V	32	1268	37	2.50	2.30	2.10
R 5716	3300uF	50V	63	1680	43	4.95	4.50	4.35
R 5724	4700uF	25V	32	1614	38	3.60	3.30	3.00
R 5725	4700uF	35V	44	1706	43	4.98	4.60	4.10
R 5744	10000uF	25V	32	2617	52	8.05	6.40	6.05

\* RIPPLE CURRENT AT 20° 100Hz

### INTERNAL STRUCTURE



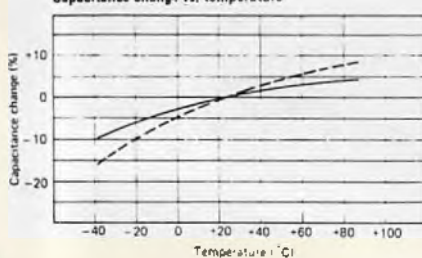
### INTERNAL STRUCTURE



### TEMPERATURE CHARACTERISTICS

R 5018 — R 5234    R 5518 — R 5744  
 ---1000uF 16V    ---1uF 50V

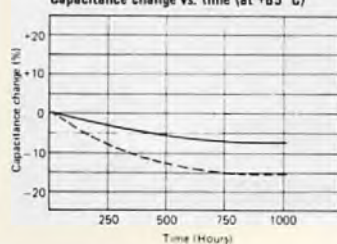
Capacitance change vs. temperature



### LIFE TEST

R 5018 — R 5234    R 5518 — R 5744  
 ---1000uF 16V    ---1uF 50V

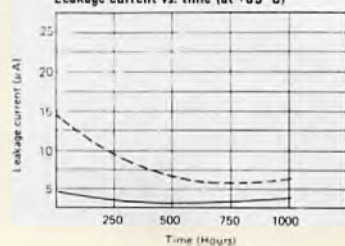
Capacitance change vs. time (at +85°C)



### LEAKAGE GRAPH

R 5018 — R 5234    R 5518 — R 5744  
 ---1000uF 16V    ---1uF 50V

Leakage current vs. time (at +85°C)



### PCB (RADIAL) LOW LEAKAGE CAPACITORS



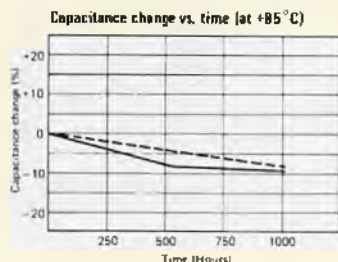
**Features:** Very low leakage current • Low impedance characteristics • Long life • Capacitance tolerance +/- 20% • Can be used as a replacement for tantalum capacitor • Temperature Range -40 to +85 deg.C •

Cat No.	uF	Working Voltage	Surge Voltage	Ripple Current MA	Can Diameter MM	Lead Spacing MM	ea	ea	ea
							1-9	10-24	25+
R 6006	1uF	50V	63	8	5	2	.35	.30	.27
R 6016	15uF	50V	63	9	5	2	.35	.30	.27
R 6026	22uF	50V	63	11	5	2	.35	.30	.27
R 6036	33uF	50V	63	14	5	2	.35	.30	.27
R 6046	47uF	50V	63	17	5	2	.35	.30	.27
R 6056	68uF	50V	63	21	5	2	.35	.30	.27
R 6066	1uF	50V	63	25	5	2	.35	.30	.27
R 6076	1.5uF	50V	63	31	5	2	.35	.30	.27
R 6086	2.2uF	50V	63	37	5	2	.35	.30	.27
R 6096	3.3uF	50V	63	46	5	2	.35	.30	.27
R 6106	4.7uF	50V	63	55	5	2	.35	.30	.27
R 6115	6.8uF	35V	44	66	5	2	.35	.30	.27
R 6125	10uF	35V	44	72	5	2	.35	.30	.27
R 6135	15uF	35V	44	89	6	2.5	.35	.30	.27
R 6145	22uF	35V	44	108	6	2.5	.35	.30	.27
R 6154	33uF	25V	32	121	6	2.5	.40	.35	.32
R 6155	33uF	35V	44	137	8	3.5	.40	.35	.32
R 6164	47uF	25V	32	150	6.3	3.5	.40	.35	.32
R 6165	47uF	35V	44	164	8	3.5	.40	.35	.32
R 6174	68uF	25V	32	180	8	3.5	.40	.35	.32
R 6175	68uF	35V	44	220	8	3.5	.45	.40	.35
R 6182	100uF	16V	20	219	6.3	3.5	.45	.40	.35
R 6185	100uF	35V	44	269	8	3.5	.45	.40	.35
R 6192	220uF	16V	20	329	8	3.5	.45	.40	.35
R 6195	220uF	35V	44	459	10	5	.65	.60	.55
R 6202	330uF	16V	20	456	10	5	.45	.40	.35
R 6205	330uF	35V	44	584	13	5	.80	.75	.70
R 6212	470uF	16V	20	613	10	5	.50	.45	.40
R 6215	470uF	35V	44	765	13	5	.85	.80	.75

#### LIFE TEST

R 6006 — R 6215

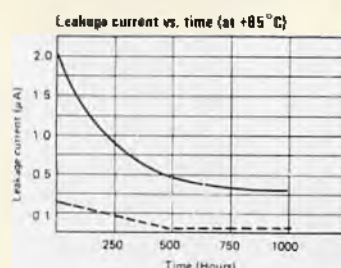
— 10uF 35V — 100uF 35V



#### LEAKAGE GRAPH

R 6006 — R 6215

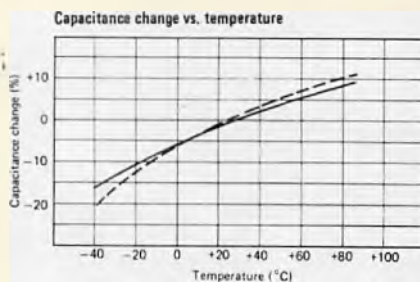
— 10uF 35V — 100uF 35V



#### TEMPERATURE CHARACTERISTICS

R 6006 — R 6215

— 10uF 35V — 100uF 35V



### RADIAL BIPOLAR CAPACITORS



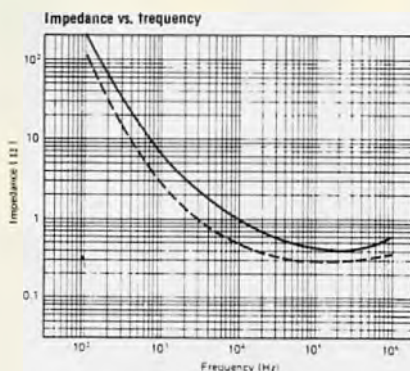
**Features:** Radial lead, Bi-polarized, suitable for crossover network of high-pitched and low-pitched sounds in high-fidelity sound systems • Have excellent frequency characteristics • Low leakage current and low dissipation factor • Temperature range -40 to +85°C • Tolerance +/- 20% at 20°C 1KHz.

Cat No.	uF	Working Voltage	Surge Voltage	Ripple Current MA	Can Diameter MM	Lead Spacing MM	ea	ea	ea
							1-9	10-24	25+
R 6510	1uF	50V	63	30	8	3.5	.45	.40	.36
R 6520	2.2uF	50V	63	44	8	3.5	.45	.40	.36
R 6530	3.3uF	50V	63	54	8	3.5	.45	.40	.36
R 6540	4.7uF	50V	63	65	8	3.5	.45	.40	.36
R 6550	6.8uF	50V	63	70	8	3.5	.45	.40	.36
R 6560	10uF	50V	63	88	10	5	.65	.60	.55
R 6570	22uF	50V	63	145	10	5	.75	.70	.65
R 6580	47uF	50V	63	220	13	5	1.15	1.05	.90
R 6590	100uF	50V	63	353	16	7.5	1.60	1.45	1.30

#### IMPEDANCE GRAPH

R 6510 — R 6580

— 4.7uF 50V — 22uF 50V



### CHASSIS ELECTROLYTICS — CAN TYPE WITH CLIP

**Features:** Fixes easily to PCB or Metal Chassis • Capable of passing high ripple current • High values of capacitance and voltage in a compact low profile package.

Operating Temperature Range -40 +85°C

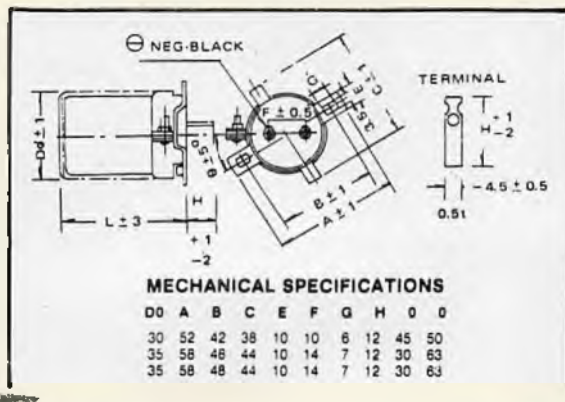
Capacitance Tolerance +/- 20% (at 20°C, 100Hz)

Cat No	uF	Working Voltage	Surge Voltage	Ripple Current MA	ea	ea
					1-9	10+
R 6710	4000uF	63V	80	1814	10.80	9.80
R 6720	8000uF	63V	80	2039	19.50	17.50
R 6730	10000uF	50V	80	2473	16.50	14.96

\*RIPPLE CURRENT AT 20°C, 100Hz



#### INTERNAL STRUCTURE



#### MECHANICAL SPECIFICATIONS

DO	A	B	C	E	F	G	H	O	O
30	52	42	38	10	10	6	12	45	50
35	58	48	44	10	14	7	12	30	63
35	58	48	44	10	14	7	12	30	63

## CAPACITORS

### TANTALUM (Values in uF)

R	Value	Ea	10 Up	100 Up
R 2620	.1 /35V	.70	.65	
R 2622	.22/35V	.70	.65	
R 2624	.33/35V	.70	.65	
R 2626	.47/35V	.70	.65	
R 2628	1 /35V	.70	.65	
R 2630	1.5 /35V	.75	.70	
R 2632	2.2 /35V	.80	.70	
R 2634	3.3 /35V	.70	.65	
R 2635	4.7 25V	.70	.65	
R 2636	4.7/35V	.95	.95	
R 2637	6.8/35V	.95	.95	
R 2638	10 /25V	1.10	.98	
R 2640	15 /16V	1.10	.98	
R 2642	22 /16V	1.10	.98	
R 2644	33 /10V	.95	.95	
R 2646	47 /6.3V	1.35	1.25	
R 2648	100 / 3V	1.50	1.35	



### 50V MONOLITHIC CERAMICS

(Values in uF)

R	Value	Ea	10 Up	100 Up
R 2910	.01	.22	.20	.18
R 2920	.033	.22	.20	.18
R 2925	.047	.24	.22	.20
R 2930	.1	.22	.20	.18
R 2935	.22	.55	.50	.45
R 2940	.33	.55	.50	.45
R 2945	.47	.70	.60	.55
R 2950	1uF	1.35	1.15	1.05



### VARIABLE TUNING CAPACITORS 60-160pF



R 2601	\$1.75
10 Up	\$1.40

## RF CHOKES



Cat.No.	Inductance uH ±10%	DC Reallance Ohm	Rated DC Current (mA) Max.
L 7010	1.0	0.19	920
L 7012	1.5	0.23	830
L 7014	2.2	0.28	750
L 7016	3.3	0.34	670
L 7018	4.7	0.39	620
L 7020	6.8	0.48	550
L 7022	10	0.58	500
L 7024	15	0.72	460
L 7026	22	0.84	410
L 7028	33	1.03	370
L 7030	47	1.22	340
L 7032	68	1.47	305
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	1,000	14.00	100

All \$1.20  
10 Up \$1.05

### CERAMIC 50V (Values in pF)

R 2800	1 PF	R 2822	100
R 2801	1.5	R 2823	120
R 2802	2.2	R 2824	150
R 2803	2.7	R 2825	180
R 2804	3.3	R 2826	220
R 2805	3.9	R 2827	270
R 2806	4.7	R 2828	330
R 2807	5.6	R 2829	390
R 2808	6.8	R 2830	470
R 2809	8.2	R 2831	560
R 2810	10	R 2832	680
R 2811	12	R 2833	820
R 2812	15	R 2834	001 UF
R 2813	18	R 2837	0022
R 2814	22	R 2840	0033
R 2815	27	R 2842	0047
R 2816	33	R 2843	0056
R 2817	39	R 2844	0068
R 2818	47	R 2845	0082
R 2819	56	R 2846	01
R 2820	68	R 2850	022
R 2821	82	R 2855	033
		R 2860	047
		R 2865	.1



All Above .....18  
Per Value 10 up .....15  
Per Value 100 up .....12

### 100V GREENCAPS (Values in uF)

R	Value	ea	10	100
R 2700	.001	.25	.20	.18
R 2701	.0012	.25	.20	.18
R 2702	.0015	.25	.20	.18
R 2703	.0018	.25	.20	.18
R 2704	.0022	.25	.20	.18
R 2706	.0033	.25	.20	.18
R 2708	.0039	.25	.20	.18
R 2710	.0047	.25	.20	.18
R 2712	.0056	.25	.20	.18
R 2714	.0068	.25	.20	.18
R 2716	.0082	.25	.20	.18
R 2718	.01	.25	.20	.18
R 2719	.012	.25	.20	.18
R 2720	.015	.25	.20	.18
R 2721	.018	.25	.20	.18
R 2722	.022	.25	.20	.18
R 2724	.033	.25	.20	.18
R 2726	.039	.25	.20	.18
R 2728	.047	.28	.25	.22
R 2730	.056	.28	.25	.22
R 2732	.068	.28	.25	.22
R 2734	.082	.28	.25	.22
R 2736	.1	.28	.25	.23
R 2737	.12	.39	.35	.31
R 2738	.15	.39	.35	.31
R 2739	.18	.50	.45	.40
R 2740	.22	.50	.45	.40
R 2742	.27	.50	.45	.40
R 2744	.33	.50	.45	.40
R 2745	.39	.50	.45	.40
R 2746	.47	.69	.60	.54
R 2748	1.0	1.40	1.25	1.10
R 2750	2.2	2.10	2.00	1.50
R 2752	3.3	2.95	2.75	2.45



### HIGH VOLTAGE GREENCAPS 630V

R	Value	Ea	10 Up	100 Up
R 2770	.01	.35	.30	.20
R 2772	.022	.35	.30	.20
R 2774	.033	.50	.45	.40
R 2776	.047	.40	.35	.30
R 2778	.1	.90	.80	.75
R 2780	.22	1.05	.95	.80
R 2782	.33	1.30	1.15	1.05
R 2784	.47	1.35	1.20	1.10

### AC Capacitor

As used in mains isolation applications e.g. Telephone line isolation equipment, Modems etc. Suitable for PCB or chassis mounting. 2uF 440V AC.



R 6900	\$4.95
10 Up	\$4.50
100 Up ea	\$3.97

NEW FOR '89

## COMPONENT BULK PACKS Convenient For Schools & 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.

R 3501 .25W RESISTOR PACK  
Average Contents: 300 \$12.00 value

Only \$5.95 10 Up \$5.50

R 3505 .25W RESISTOR PACK  
METAL FILM

Average Contents: 150

Only \$5.45 10 Up \$5.50

R 3510 GREENCAP PACK 100V  
Average contents: 50 \$12.00 value

Only \$5.95 10 Up \$5.50

R 3515 CERAMIC PACK 50V  
Average Contents: 100 \$14.00 value

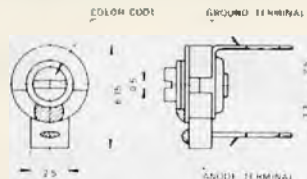
Only \$5.95 10 Up \$5.50

R 3520 ELECTROLYTIC PACK  
PCB TYPE

Average Contents: 40 \$14.00 value

Only \$6.50 10 Up \$6.20

### TRIMMER CAPACITORS



D Series, top adjust., 2 pin, 5mm pin spacing. Colour coded for capacitance range identification.

R 4001	2-7pF	Red
R 4003	3-11pF	White
R 4005	3.5-20pF	Blue
R 4007	5-30pF	Yellow
R 4009	8.5-40pF	Brown
R 4011	8.5-50pF	Green
R 4013	8.5-70pF	Black

All \$1.45  
10 Up \$1.30

## CRYSTALS



All Parallel Resonant HC25  
(Except Y 1000 - HC33 Style)

Y	Value	Ea	10 Up
Y 1000	1MHz	\$12.50	\$11.50
Y 1010	3.579545	\$ 3.95	\$ 3.65
Y 1012	4.0	\$ 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



# CONNECTORS



## Panel Mount Screw Terminals

	Ea	10 Up
P 2020 2 Way	.80	.75
P 2022 4 Way	\$1.30	\$1.15



## 12 Way Terminal Block

250V Rated

	Ea	10 Up
P 2100	\$1.99	\$1.85



## DC Jacks (Chassis Male)

	Ea	10 Up
P 0223 2.1mm Pin	.75	.70
P 0224 2.5mm Pin	.75	.70



## DC Jack (Female Line)

	Ea	10 Up
P 0134 2.1mm	.75	.70
P 0135 2.5mm	.75	.70



## Car Cigarette Lighter Plug

	Ea	10 Up
P 0158 Plug with Fuse	\$1.95	\$1.75
P 0155 Socket	\$2.20	\$1.98
P 0160 Plug	.95	.85

## Plug Adaptors

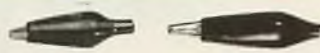
Plug	Socket
P 0330 6.35mm Mono	3.5mm Mono
P 0310 6.35mm Stereo	3.5mm Mono
P 0320 3.5mm Stereo	6.35mm Stereo
P 0340 3.5mm Stereo	3.5mm Mono
P 0350 3.5mm Mono	3.5mm Stereo
P 0360 3.5mm Mono	6.35mm Mono
P 0370 3.5mm Mono	6.35mm Stereo



ALL \$1.50 ea

## 25 Way Shielded Leads

D25M to Centronics 1.8M	
P 0758	\$19.95
D25 M to Centronics 3.6m	
P 0759	\$24.50
D25 Male/Male 1.8M	
P 0762	\$27.95
D25 Male/Female 1.8M	
P 0764	\$27.95



## Crocodile Clips

	Ea	10 Up
<b>Mini</b>		
P 0100 Red	.50	.45
P 0101 Black	.50	.45
<b>Medium</b>		
P 0110 Red	.55	.50
P 0111 Black	.55	.50



## 9V Battery Snap

	Ea	10 Up
P 0455	.30	.25



## 8 Pin Octopus (Octal)

	Ea	10 Up
P 0192 Plug	\$3.95	\$3.50
P 0193 Socket	\$3.95	\$3.50



## Car Battery Cable Clips

Good for connecting your inverter arc welder etc. to car battery.

	Ea	10 Up
P 0012 Red	\$1.65	\$1.40
P 0013 Black	\$1.65	\$1.40

# JACKS

## Miniature Jacks

	Ea	10 Up
P 0020 2.5mm (Jack Mono)	.55	.50
P 0026 3.5mm (Jack Red Mono)	.60	.55
P 0028 3.5mm (Jack Black Mono)	.60	.55
P 0030 3.5mm (Stereo Jack)	.95	.90

## Standard 6.3mm Jacks

	Ea	10 Up
P 0040 Plug 6.35mm (Mono Plastic)	.90	.85
P 0044 Plug 6.35mm (Stereo Plastic)	\$1.20	\$1.10
P 0050 Plug 6.35mm (Mono Metal)	\$1.40	\$1.30
P 0055 Plug 6.35mm (Stereo Metal)	\$1.80	\$1.65

## Right Angle Jack Plugs

	Ea	10 Up
P 0042 6.35mm Mono	\$1.60	\$1.40
P 0046 6.35mm Stereo	\$1.90	\$1.70

## Miniature Jack Sockets

	Ea	10 Up
P 0088 Socket 2.5mm (Mono Panel)	.55	.50
P 0090 Socket 3.5mm (Mono Panel)	.55	.50
P 0092 Socket 3.5mm (Stereo Panel)	.95	.85

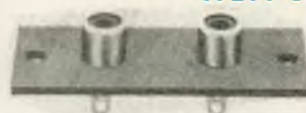
## STD 6.35mm Jack Sockets

	Ea	10 Up
<b>Quality Enclosed Type</b>		
P 0065 Mono Switched	\$1.90	\$1.70
P 0068 Stereo	\$1.90	\$1.70
P 0072 Stereo SW/DPDT	\$1.95	\$1.75
P 0074 Stereo DPDT Sw Ins	\$2.50	\$2.25
P 0076 Stereo PCB Mount	\$2.30	\$2.10

## Inline Jack Sockets

	Ea	10 Up
P 0078 6.35mm Mono	\$1.15	\$1.00
P 0080 6.35mm Stereo	\$1.15	\$1.00
P 0082 3.5mm Mono	.80	.80
P 0084 3.5mm Stereo	.95	.85

## RCA Connectors



## PCB Mount RCA

P 0237	.95	10 Up	.90
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## Chassis Mount RCA

P 0231	.65	10 Up	.60
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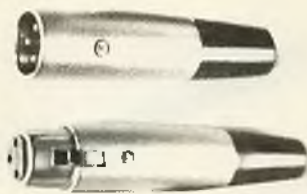
## Insulated RCA Sockets

	Ea	10 Up
P 0232 2 Way	.75	.70
P 0234 4 Way	\$1.30	\$1.20
P 0280 3 x 2 Way	\$3.50	\$3.35
PC Mnt.		

## RCA Connectors Line Type

	Ea	10 Up
P 0140 Plug Red	.50	.45
P 0141 Plug Black	.50	.45
P 0215 Socket Red	.50	.45
P 0216 Socket Black	.50	.45

## Cannon Type



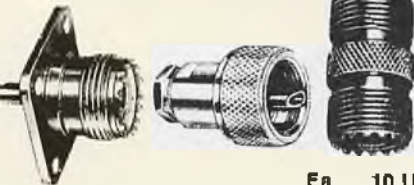
	Ea	10 Up
P 0960 3 Pin Line Male	\$5.50	\$4.95
P 0962 3 Pin Chassis Male	\$4.50	\$4.10
P 0964 3 Pin Line Female	\$5.95	\$5.50
P 0966 3 Pin Chassis Female	\$6.50	\$5.90

## Cannon to Cannon Type Adaptors 3 Pin



	Ea	10 Up
P 0972 Male/Male	\$ 9.95	\$ 8.95
P 0980 Fem/Fem	\$19.95	\$17.95

## UHF Sockets



	Ea	10 Up
P 0508 Fem/Fem Coupler	\$2.50	\$2.10
P 0509 Socket Sq. mount	\$1.75	\$1.55
P 0510 Socket round mt.	\$2.40	\$2.20

## Car Antenna Plug And Socket



	Ea	10 Up
P 0185 Plug	.80	.75
P 0236 Socket	.85	.80

## BNC Plugs & Sockets



	Ea	10 Up
P 0514 Plug (Solder)	\$2.50	\$2.30
P 0520 Plug (crimp)	\$1.95	\$1.80
P 0515 Socket	\$2.60	\$2.40
P 0516 Socket	\$2.70	\$2.50

(4 hole mount)

## D Series Computer Connectors. Gold Plated Professional Series

	Ea	10 Up
DB9		
P 3000 Male 9 Pin	\$2.95	\$2.70
P 3010 Female 9 Pin	\$3.25	\$2.95
P 3020 Male PCB Rt/L	\$3.75	\$3.50
P 3030 Female PCB Rt/L	\$4.50	\$4.30
P 3040 Male PCB mt.	\$2.95	\$2.70
P 3050 Female PCB Mnt.	\$3.95	\$3.60
P 3090 Backshell cover	\$1.95	\$1.80

	Ea	10 Up
DB15		
P 3100 Male 15 Pin	\$3.25	\$2.75
P 3110 Female 15 Pin	\$3.85	\$3.30
P 3120 Male PCB Rt/L	\$4.35	\$4.10
P 3130 Female PCB Rt/L	\$5.50	\$4.60
P 3140 Male PCB mt.	\$3.85	\$3.30
P 3150 Female PCB	\$4.85	\$4.35
P 3190 Backshell cover	\$2.20	\$1.95

	Ea	10 Up
DB25		
P 3200 Male 25 Pin	\$4.95	\$4.40
P 3210 Female 25 Pin	\$5.50	\$4.95
P 3220 Male PCB Rt/L	\$4.95	\$4.50
P 3230 Female PCB Rt/L	\$6.90	\$6.50
P 3240 Male PCB Mnt.	\$4.95	\$4.50
P 3250 Female PCB Mnt.	\$6.25	\$5.70
P 3290 Backshell cover	\$2.50	\$2.20



## White PVC Wall Plate With D 25 Cutouts

	Ea	10 Up
P 0766 Single	\$1.80	\$1.60
P 0767 Double	\$1.95	\$1.75

## UHF Connectors



	Ea	10 Up
P 0502 PL259 (Suit RG58 Coax)	\$2.15	\$1.95
P 0503 PL259 (Suit RG8 Coax)	\$1.95	\$1.75
P 0504 Reducer (For P 0503)	.65	.60

## Centronics Plug 36 Way

Used universally with computer printers etc. Two types available (both male)



	Ea	10 Up
P 0770 Solder Type	\$13.75	\$12.10
P 0772 IDC Cable Type Male	\$ 9.95	\$ 8.95
P 0774 IDC Cable Type Female	\$10.95	\$ 9.95

## BNC-UHF-RF Adaptors

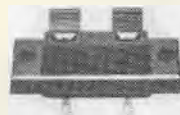
P 0378 PL259 F to BNC.M	\$3.95
P 0380 PL259.M to BNC.F	\$4.50
P 0385 BNC.M to RCA.F	\$1.95
P 0390 BNC.F to BNC.F	\$4.50
P 0392 BNC.F 3 Way "T"	\$4.50



## 75 Ohm Connectors

P 0227 Metal Plug	\$1.80
P 0228 Plastic Plug	.90
P 0229 Chassis Soc.	.95
P 0230 Line Soc.	\$1.50

## Spring Lever Terminals



	Ea	10 Up
P 2010 2 Way Red/Blk	\$1.65	\$1.55
P 2012 4 Way Red/Blk	\$1.95	\$1.75

## PCB Terminal Block

5mm Pin Pitch



	Ea	10 Up
P 2032 2 Way	\$1.10	.99
P 2033 3 Way	\$1.50	\$1.35
P 2042 45° 2 Way	\$1.10	.99
P 2043 45° 3 Way	\$1.50	\$1.35
P 2062 90° 2 Way	\$1.10	.99
P 2063 90° 3 Way	\$1.50	\$1.35

## PCB Mount Screw Terminals



	Ea	10 Up
P 2090 4 Way	\$1.70	\$1.55
P 2092 6 Way	\$2.50	\$2.30
P 2094 8 Way	\$3.50	\$3.20
P 2096 10 Way	\$4.20	\$3.80
P 2098 12 Way	\$4.95	\$4.50

## Thru Panel Barrier



	Ea	10 Up
P 2074 4 Way	\$2.45	\$2.20
P 2076 6 Way	\$2.95	\$2.70
P 2078 8 Way	\$3.50	\$3.20

## Tag Strips



	Ea	10 Up
P 2203 3 Way	.35	.30
P 2205 5 Way	.40	.35
P 2209 9 Way	.80	.75

## Din Connectors

### 2 Pin Din Connectors



<b>Cable Plug</b>			
P 1120	.60	10 Up	.55
<b>Chassis Socket</b>			
P 0222	.60	10 Up	.55
<b>Cable Socket</b>			
P 0221	.60	10 Up	.55

### Male Din Plugs

180 Degree Pin Displacement



	<b>Ea</b>	<b>10 Up</b>	
P 1145 3 Pin	.75	.70	
P 1148 4 Pin	.85	.80	
P 1150 5 Pin	.85	.80	
P 1151 5 Pin steel cover	\$2.50	\$2.30	
P 1152 5 Pin	.85	.80	
P 1156 6 Pin	\$1.10	.98	
P 1159 7 Pin	\$1.10	.98	
P 1162 8 Pin	\$1.40	\$1.20	

### Right Angle 5 Pin Din



P 1154  
\$2.40 10 Up \$2.20

### Universal 5 Pin Din

	<b>Ea</b>	<b>10 Up</b>	
P 0186 Plug	\$1.00	.90	
P 0190 Socket	.95	.90	

### Din Sockets

180 Degree Pin Displacement



	<b>Ea</b>	<b>10 Up</b>	
P 1170 3 Pin	\$1.20	\$1.10	
P 1175 4 Pin	\$1.95	\$1.75	
P 1178 5 Pin	\$1.20	\$1.10	
P 1180 6 Pin	\$1.40	\$1.25	
P 1182 7 Pin	\$1.60	\$1.45	
P 1184 8 Pin	\$2.50	\$2.20	

### PCB Mount Din



P 1188 5 Pin  
\$1.50 10 Up \$1.35

### Din Line Socket



	<b>Ea</b>	<b>10 Up</b>	
P 0220 5 Pin	\$1.20	\$1.10	
P 0225 6 Pin	\$1.10	.99	
P 0226 7 Pin	\$1.70	.99	



### Din 41612 2 Part "C Body" Edge Connectors

Moulded glass-filled polyester connectors to Din 41612 with gold-finished contacts for making up to 32, 64 or 96 individual connections to PCB's. The plug moulding houses single piece 90° angled pins on a 0.1 in pitch between rows, allowing horizontal mounting on eurocards whilst the mating sockets have flow solder (4mm) spills. 64-way AC plugs and sockets are 96-way shells without the centre row of contacts. Individual polarisation between plug and socket pairs is obtained by moulded polarising tabs.

#### Technical Specifications

Base of foot to row B. Centre line typical 3.5mm

**Proof Voltage** : 1000V DC min.

**Max. Current Per Contact** : 1.5A

**Contact resistance** : 15m Ohm max.

**Insulation Resistance** : 10<sup>12</sup> Ohm min.

**Temperature Range** : 55° C to + 125° C.

**Insertion Force per way** : 95 g.

**Extraction force per way** : 95 g

#### Plugs Right Angle PCB Mount

	<b>Ea</b>	<b>10 Up</b>	
P 4832 32 Way - Rows A + C	\$ 4.50	\$ 4.10	
P 4864 64Way - Rows A + C	\$ 9.65	\$ 9.15	
P 4896 96Way - Rows ABC	\$12.50	\$11.50	

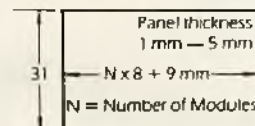
#### Sockets Straight Pins 4MM

	<b>Ea</b>	<b>10 Up</b>	
P 4932 32 Way - Rows A + C	\$ 7.50	\$ 6.95	
P 4964 64 Way - Rows A + C	\$13.95	\$13.15	
P 4996 96 Way - Rows ABC	\$17.50	\$16.00	

## New BCD Thumbwheel Switch



S 3300  
\$6.95 10 Up \$6.50



### Thumbwheel Switch BCD 0-9

Panel mount BCD coded units that simply slot together to produce switches of your required size. Each unit is engraved 0-9 (white or black) Output is coded in BCD with an 8-4-2-1 weighting.

Body and wheel made of Duracon resin. PCB's are gold

plated copper on epoxy fibreglass. continuous load 1A max. Panel cutout for one unit 16mm x 30mm. Allow further 8mm per extra unit.

S 3305 End Caps/pr  
\$1.75 10 Up \$1.60



## COMPUTER CONNECTORS

### PCB Mounting Headers With Locking Levers

#### 90 Degree Type



Ea	10 Up		
P 5210	10 Pin	\$2.50	\$2.25
P 5216	16 Pin	\$2.95	\$2.75
P 5220	20 Pin	\$3.50	\$3.25
P 5226	26 Pin	\$3.95	\$3.60
P 5234	34 Pin	\$4.50	\$4.20
P 5250	50 Pin	\$5.50	\$5.10

#### Straight Type



Ea	10 Up		
P 5110	10 Pin	\$2.50	\$2.25
P 5116	16 Pin	\$2.95	\$2.75
P 5120	20 Pin	\$3.50	\$3.25
P 5126	26 Pin	\$3.95	\$3.60
P 5134	34 Pin	\$4.50	\$4.20
P 5150	50 Pin	\$4.95	\$4.50

### Cable Mounting Socket With Strain Relief



Ea	10 Up		
P 5310	10 Pin	\$1.95	\$1.75
P 5316	16 Pin	\$2.25	\$2.00
P 5320	20 Pin	\$2.50	\$2.25
P 5326	26 Pin	\$3.95	\$3.75
P 5334	34 Pin	\$4.50	\$4.20
P 5350	50 Pin	\$4.95	\$4.50

### ZIF Sockets

(Zero Insertion Force)



Ea	10 Up		
P 0650	24 Pin	\$12.50	\$11.50
P 0655	26 Pin	\$14.50	\$13.10
P 0657	40 Pin	\$17.50	\$16.10

### PCB Mounting Headers



	Ea	10 Up	
P 5010	10 Pin	\$1.50	\$1.35
P 5016	16 Pin	\$1.95	\$1.75
P 5020	20 Pin	\$2.50	\$2.25
P 5026	26 Pin	\$4.50	\$4.10
P 5034	34 Pin	\$4.95	\$4.50
P 5050	50 Pin	\$5.50	\$5.10

### IDC Dill Plug Headers



	Ea	10 Up	
P 4200	14 Pin	\$2.45	\$1.95
P 4210	16 Pin	\$2.65	\$2.30
P 4220	24 Pin	\$3.95	\$3.70
P 4225	28 Pin	\$4.50	\$4.10
P 4230	40 Pin	\$6.50	\$5.95

### IDC 'D' Range Connectors



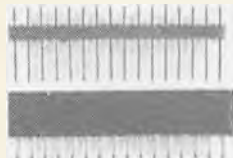
	EA	10 Up	
P 4140	25 P Male	\$7.95	\$7.15
P 4150	25 P Fem.	\$8.50	\$7.80

### Transition Connector

16 Way 2.5mm pitch

	Ea	10 Up	
P 2516	Male	\$1.50	\$1.35
P 2518	Female	\$2.50	\$2.30

Mating Pin Length 8mm  
Solder Tail Length 3.5mm



### DIL Header Plugs

Plug into standard IC Socket (Solder Tail Type)



	Ea	10 Up	
P 0614	14 Pin	\$3.95	\$3.45
P 0616	16 Pin	\$4.50	\$3.95
P 0624	24 Pin	\$4.95	\$4.40

### Multimeter Plug/Test Prods



	Ea	10 Up	
P 0165	Tip Plug Red	.70	.65
P 0166	Tip Plug Black	.70	.65
P 0167	Tip Prod Red	.80	.75
P 0168	Tip Prod Blk	.80	.75

### Banana Sockets



	Ea	10 Up	
P 0175	Red	.60	.55
P 0176	Black	.60	.55

### Captive Head Binding Posts with 4mm Crosshole



	Ea	10 Up	
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

### IC Sockets Dill

Low Profile



	Ea	10 Up	
P 0550	8 Pin	.30	.27
P 0560	14 Pin	.40	.35
P 0565	16 Pin	.45	.40
P 0567	18 Pin	.45	.42
P 0568	20 Pin	.50	.45
P 0570	24 Pin	.67	.59
P 0572	28 Pin	.75	.70
P 0575	40 Pin	.95	.80

### Wire Wrap

	Ea	10 Up	
P 0578	8 Pin	\$2.50	\$2.15
P 0580	14 Pin	\$3.85	\$3.50
P 0585	16 Pin	\$4.50	\$4.25
P 0590	18 Pin	\$4.95	\$4.65
P 0595	24 Pin	\$5.95	\$5.45
P 0598	40 Pin	\$10.95	\$10.00

### 34 Way Double Sided Edge Connectors



For Disc Drives etc. 0.1" Pitch  
P 0780 \$7.95  
10 Up \$7.45

### Molex Pin Sockets

For use with single pins up to .5mm diam.



Make your own sockets for IC's displays, LSI's etc.  
P 0680 Pack of 100 \$ 4.95  
P 0681 Pack of 1000 \$44.00

### IC Test Clips

57mm Overall Length



	Ea	10 Up	
P 0180	Red	\$1.10	\$1.00
P 0181	Black	\$1.10	\$1.00

Probe type IC Test clips that slip on to the end of your meter leads.

	Ea	10 Up	
P 0182	Red Probe	\$1.20	\$1.10
P 0183	Blk. Probe	\$1.20	\$1.10

### Banana Plug Solderless



	Ea	10 Up	
P 0170	Red	.80	.75
P 0171	Black	.80	.75

### Binding Posts

With 4mm Banana Socket



	Ea	10 Up	
P 0238	Red	.80	.75
P 0240	Black	.80	.75

### Machined Pin IC Sockets

Gold Plated Sockets



For applications demanding 100% long life contact reliability.

	Ea	10 Up	
P 0530	8 Pin	\$1.10	\$1.00
P 0532	14 Pin	\$1.45	\$1.35
P 0534	16 Pin	\$1.65	\$1.50
P 0536	18 Pin	\$1.80	\$1.70
P 0538	20 Pin	\$1.99	\$1.90
P 0540	24 Pin	\$2.45	\$2.30
P 0542	28 Pin	\$2.80	\$2.60
P 0544	40 Pin	\$3.25	\$2.95

### 16 Pin IC Test Clip



Makes connection to DIL IC's easy without the danger of shorting out pins. Use on 8, 14 or 16 pin IC's. Spring loaded.  
P 0670 \$8.50

# SWITCHES

**ALTRONIC**  
Components

## SLIDE SWITCHES

### Sub-Miniature DPDT

Plastic Handle

**S 2010 .45**

10 Up .40



### Mounting Screws For S 2010

**S 2015 \$1.95**

Pack of 100

### Sub-Miniature DPDT

Aluminium Handle

**S 2020 .60**

10 Up .55



### Miniature 3 Pos. 2 Pol.

Aluminium Handle

**S 2030 .90**

10 Up .80



### Miniature DPDT

Plastic Handle

**S 2035 .80**

10 Up .75



### Miniature 4 Pos. 2 Pol.

Plastic Handle

**S 2040 \$1.10**

10 Up \$1.00



## PCB SLIDE SWITCHES

### PCB Mount DPDT

Pitch between Pins 4.25mm

Pitch between Pin rows 3mm

**S 2060 .45**

10 Up .40



### Ultra Miniature DPDT

Pitch between pins 3mm

Pitch between pin rows 5mm

**S 2063 .95**

10 Up .85



## Lamp Switches

SPST 2.5A/250V

**S 1075 \$1.20**

10 Up \$1.10

DPDT 2.5A/250V

**S 1076 \$1.75**

10 Up \$1.60



## Mini Reed Switch

N/Open

**S 5150 \$1.30**

10 Up \$1.20



## Mini Reed Coil

**S 5151 \$1.15**

10 Up \$1.05



## Micro Switch

250/3A

Single pole change

over contacts

**S 3250 \$2.25**

10 Up \$1.95



## Micro Switch With Push Button Actuator

**S 3255 \$5.50**

10 Up \$5.00



## Pin Switches

Make to Earth

Similar to car courtesy light switches. Can be mounted under the bonnet or in the boot to operate when opened etc. 10 Amp Rating.



**S 5145 .99** 52mm L

10 Up .90



**S 5147 \$1.10** 65mm L

10 Up .99

## Standard Rocker Switch With Indicator Dot



Compatible with S 4007  
Neon Indicator

250V 6A DPST. Panel cut-out  
19 mm x 22mm

**S 3230 \$2.75**

10 Up \$2.50

## Miniature Rocker Switch With Indicator Dot



Compatible with S 4005  
Neon Indicator

Low cost snap action rocker  
switch - ideal as mains switch  
etc. 250V 6A rating. Panel cut-  
out required 19 x 13mm.

**S 3210 \$1.80** SPST

10 Up \$1.65

**S 3215 \$2.20** SPDT

10 Up \$1.95

## Illuminated Rocker Switch

SPST 250V/6A  
Panel Cutout 18.6 x 13mm



**S 3217 \$2.95**

10 Up \$2.70

## MC Murdo Rocker Switch

DPDT Illuminated Red

250V Neon lamp in-built.  
Contact rating 250V AC 15A.  
Panel cut-out 27 x 22mm.  
Positive "snap in" mounting.



**S 3240 \$5.50**

10 Up \$4.95

## High Grade Toggle & Pushbutton Switches

### Standard Solder Tail Type

	EA.	10 Up
S 1210 SPDT	\$2.95	\$2.70
S 1230 SPDT Centre Off	\$2.95	\$2.70
S 1240 SPDT Ctr. Off Mom+Loc	\$3.50	\$3.25
S 1245 DPDT	\$3.10	\$2.85
S 1265 DPDT Centre Off	\$2.95	\$2.75
S 1275 DPDT Ctr. Off Mom+Loc	\$3.90	\$3.60
S 1285 4PDT	\$6.95	\$6.20
S 1290 Centre Off	\$6.95	\$6.50

### Straight Terminal PCB Mount T

	EA.	10 Up
S 1215 SPDT	\$2.95	\$2.70
S 1250 DPDT	\$3.95	\$3.70

### Right Angle Terminal PCB Mount Type

	EA.	10 Up
S 1220 SPDT	\$2.95	\$2.75
S 1235 SPDT Centre Off	\$4.25	\$3.90
S 1242 SPDT Ctr. Off Mom+Loc	\$4.75	\$4.35
S 1255 DPDT	\$3.95	\$3.70
S 1270 DPDT Centre Off	\$2.95	\$2.75
S 1280 DPDT Ctr. Off Mom+Loc	\$5.25	\$4.80

### Horizontal Lever Action Type Switch

	EA.	10 Up
S 1225 SPDT	\$3.75	\$3.50
S 1260 DPDT	\$4.95	\$4.55





### Economy Mini Toggle

Sturdy - Reliable

250V 3A 10 Up  
 S 1010 SPDT \$1.90 \$1.70  
 S 1020 DPDT \$2.50 \$2.25



### Standard Toggle

Sturdy - Reliable  
 125V/3A Rating

10 Up  
 S 1040 SPST \$1.75 \$1.50  
 S 1050 DPDT \$2.30 \$2.10



### 15 Amp Toggle Switch

250V 15A SPDT  
 10 Up  
 S 3220 \$2.70 \$2.50



### Heavy Duty Toggle DPDT Centre Off

125V/10A (250V AC/5A)

Ideal for car antenna switch, automotive and marine electrical use.

10 Up  
 S 1055 \$2.95 \$2.70



### DIP Switches

Gold Plate Self Wiping Contacts

	EA	10 Up
S 3045 2 Way	\$1.80	\$1.65
S 3050 4 Way	\$1.95	\$1.75
S 3055 6 Way	\$2.25	\$2.05
S 3060 8 Way	\$2.50	\$2.25
S 3065 10 Way	\$2.90	\$2.70



### Snap Action Key Board Switches

PCB Mount. Super handy for custom keyboards, security switches etc.

Ultra Long Life Design  
 Choose from 5 Colours

S 1095 Red  
 S 1096 Black  
 S 1097 Yellow  
 S 1098 Green  
 S 1099 White  
 All .85 10 Up .80

### Rotary Wafer Switches

6.3mm (1/4") by 32mm plain shafts. OEM Quality

	Pos.	Pole
S 3002	2	6
S 3003	3	4
S 3004	4	3
S 3005	5	2
S 3006	6	2
S 3012	12	1
All \$2.20		10 Up \$1.99



### Sealed PCB Mount Rotary switches

Suitable for Solder tail or PCB Connection



These quality switches are enclosed to keep the switch contacts free from airborne contaminants. The contact points are silver plated for low contact resistance and the connection points finish in PCB style pins to allow direct insertion into circuit boards or normal hardwiring as desired. A real plus feature is the ability to set the number of stops to suit your own distinct requirements. e.g. A 1 pole 9 position is easily implemented using our S 3021.

All \$2.95 10 Up \$2.70

S 3021 ..... 1 Pole  
 Configure from 1 pole 2 position through to 1 pole 12 position.  
 S 3022 ..... 2 pole  
 From 2 pole 2 position to 2 pole 6 position  
 S 3024 ..... 4 Pole  
 From 4 pole 2 position to 4 pole 3 position  
 S 3025 ..... 3 Pole  
 From 3 pole 2 position to 3 pole 4 position

## PUSHBUTTON SWITCHES



### Miniature Push Button

6mm Mounting Hole  
 125V/3A Rating

Push to make Contact

S 1060 .60 10 Up .52

Push to Break Contact

S 1070 .99 10 Up .95



### Momentary Push Model

250V/3A SPST  
 125mm Mounting Hole

	EA	10 Up
S 1080 Red	\$1.95	\$1.75
S 1081 Black	\$1.95	\$1.75
S 1090 ALT ACT	\$1.80	\$1.60



### Double Pole Push Button

Two Models 250V/1.5A Rating

DPDT Alternate Action

S 1091 \$4.95 10 Up \$4.50

DPDT Momentary Action

S 1092 \$5.50 10 Up \$4.95

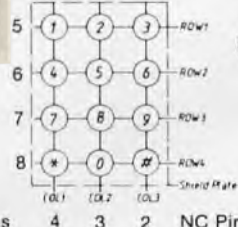
### Mercury Switch

Glass Encapsulated  
 125V/3 Amp AC

S 3070 \$1.80  
 10 Up \$1.60

### Telephone or Security Keyboard Switch Matrix Type

Specifications: Contact Conductive rubber. Rating DC 24V 5mA Contact Resistance 200 Ohms Max. Withstand Voltage 250V AC Bounce 5m sec. max.



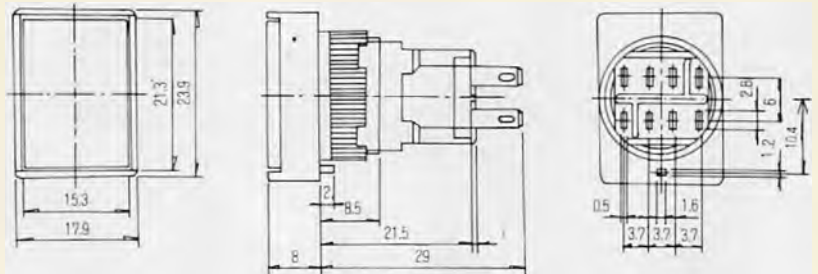
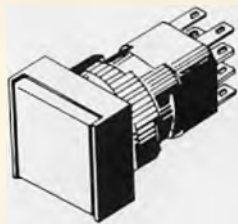
CIRCUIT DIAGRAM

S 5380 \$9.90  
 10 Up \$8.90

NEW FOR '89

## Professional Switches For Industry All Listed By Underwriters Laboratory USA

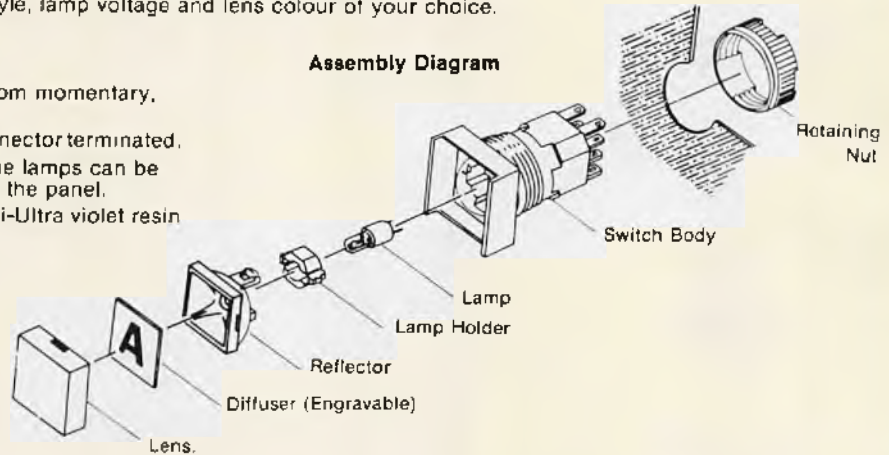
### Illuminated Push Button Switches And Displays



These professional quality Illuminated Switches are now available in a wide range of combinations. You simply select the body style, lamp voltage and lens colour of your choice.

- Snap action ensures soft touch switching.
- Any desired action type can be selected from momentary, alternate action and display only types.
- Switch terminals can be solder or crimp connector terminated.
- No tools required for maintenance, even the lamps can be changed without removing the switch from the panel.
- The lenses are moulded from UL 94V-0 Anti-Ultra violet resin to prevent colour fading.

#### Assembly Diagram



#### Momentary Switches

			10 Up
S 1510	Red Lens	\$16.00	\$15.00
S 1512	Green Lens	\$16.00	\$15.00
S 1514	Yellow Lens	\$16.00	\$15.00
S 1516	White Lens	\$16.00	\$15.00

#### Alternate On/Off Switches

			10 Up
S 1530	Red Lens	\$16.00	\$15.00
S 1532	Green Lens	\$16.00	\$15.00
S 1534	Yellow Lens	\$16.00	\$15.00
S 1536	White Lens	\$16.00	\$15.00

#### Illuminated Display Only

			10 Up
S 1550	Red Lens	\$7.95	\$7.25
S 1552	Green Lens	\$7.95	\$7.25
S 1554	Yellow Lens	\$7.95	\$7.25
S 1556	White Lens	\$7.95	\$7.25

#### Lamps

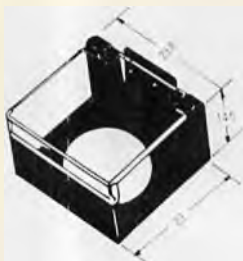
			10 Up
S 1580	12V Lamp	\$2.50	\$2.25
S 1585	24V Lamp	\$2.50	\$2.25

#### Safety Cover

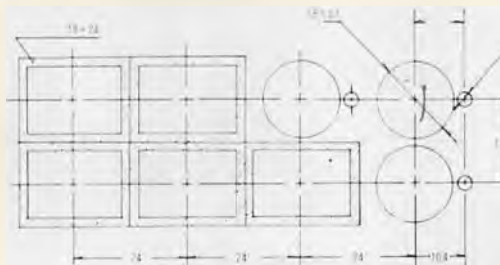
			10 Up
S 1595	Safety Cover	\$3.95	\$3.50

#### SPECIFICATION:

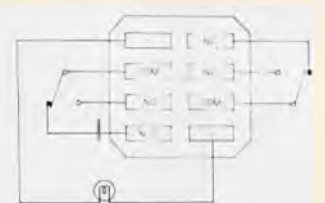
<b>Rated Current/Voltage</b>	3A/250V AC
<b>Insulation Resistance</b>	100M Ohm/500V DC
<b>Dielectric Strength</b>	
Between Switch Terminal	AC 1,000V 1 Min
Between Switch Terminal and Lamp Terminal	AC 1,500V 1 Min.
<b>Operating Force</b>	300 - 350g
<b>Stroke</b>	3MM
<b>Service Life</b>	
Electrical	3A/250V AC 50,000 operations Min 1A/250V AC 100,000 operations Min
Mechanical	Momentary 1,000,000 operations Min Alternate 100,000 operations Min.



#### Panel Layout



#### Pin Out (When viewed from rear)



### FUSES & FUSEHOLDERS

#### Fuse Holder 3AG

Standard



**\$ 6000 \$1.20**  
10 Up **\$1.10**

Safety type



**\$ 5995 \$1.90**  
10 Up **\$1.75**

In Line Type



**\$ 6001 \$1.10**  
10 Up **.99**

#### Fuse Holder M205



**\$ 5990 \$1.25**  
10 Up **\$1.15**

#### M205 PCB Fuse Holder

With Cover



**\$ 5985 .60**  
10 Up **.50**

#### PCB Mount Fuse Clips

For 3AG Size



EA. 10 Up

Pack 8 **\$ 5980 \$1.60 \$1.45**  
Pack 100 **\$ 5981 \$15.95 \$13.50**

### 30 AMP PANEL MOUNT 5AG FUSE HOLDER



Simple One Hole Mounting

Panel hole size 15/16 Inch.  
(24mm)

Remember the hassle in providing high current circuit protection? Well here is the answer - our nifty panel mount fuse holder. It's like a big, big brother to the 3AG style. The 10mm x 38mm fuses are an industry standard of course - naturally though ours cost somewhat less than industry standard prices.

	EA.	10 Up
<b>\$ 6030</b> Holder	<b>\$3.40</b>	<b>\$3.10</b>
<b>\$ 5975</b> Fuse 20A	<b>\$1.75</b>	<b>\$1.60</b>
<b>\$ 5976</b> Fuse 25A	<b>\$1.75</b>	<b>\$1.60</b>
<b>\$ 5977</b> Fuse 30A	<b>\$1.75</b>	<b>\$1.60</b>

### FUSES

#### Handyman Fuse Wire Card

Selection of fuse wire gauges 8 & 15 Amp.

**\$ 5890 \$1.25**

All fuses

1 - 9	<b>.25</b>
10 - 99	<b>.20</b>
100 per value	<b>.15</b>
500 Mixed	<b>.12</b>

#### 3AG

**\$ 5940** 100MA

**\$ 5942** 150MA

**\$ 5944** 250MA

**\$ 5946** 500MA

**\$ 5948** 800MA

**\$ 5950** 1A

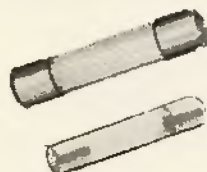
**\$ 5952** 1.5A

**\$ 5954** 2A

**\$ 5956** 3A

**\$ 5958** 5A

**\$ 5960** 7.5A



**\$ 5962** 10A

**\$ 5964** 15A

**\$ 5966** 20A

**\$ 5968** 25A

**\$ 5970** 30A

#### M205

**\$ 5910** 250MA

**\$ 5912** 500MA

**\$ 5914** 1A

**\$ 5916** 2A

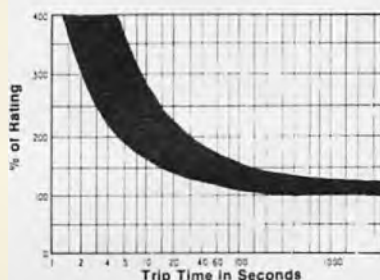
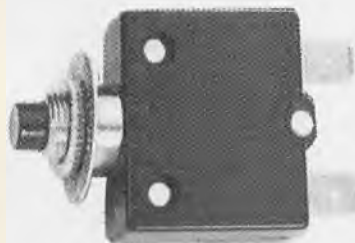
**\$ 5918** 5A

### Low Cost Resettable Circuit Breaker

Now there's no need to pay \$10 or more for a circuit breaker. Altronics product is USA Underwriters Laboratories listed (and that speaks for itself) and once again is an Altronics Price Breakthrough.

#### Performance Data:

- Will hold 100% of rated current indefinitely at 25 deg. C.
- Will trip within 1 hour at 125% of load at 25 deg. C.
- will trip within 4-40 seconds at 200% rated load.



	EA.	10 Up
<b>\$ 5503</b> 3 Amp	<b>\$4.50</b>	<b>\$4.20</b>
<b>\$ 5505</b> 5 Amp	<b>\$4.50</b>	<b>\$4.20</b>
<b>\$ 5510</b> 10 Amp	<b>\$4.50</b>	<b>\$4.20</b>
<b>\$ 5515</b> 15 Amp	<b>\$4.50</b>	<b>\$4.20</b>
<b>\$ 5520</b> 20 Amp	<b>\$4.50</b>	<b>\$4.20</b>

**Cradle Relays** — Pinout compatible with ITT and Siemens high sensitivity, high reliability, gold flashed contacts. Operate time 15 ms (max.) release time 10 ms (max.). Insulation resistance 100M. Ohm at 500V DC. Dielectric Strength 1000V AC (1 min.).



## Heavy Duty Relay

12V coil 10 amp DPDT contacts. OEM Quality. Heavy Duty Relay. Ideal for power supply and control circuit switch.

S 4074 **\$11.95**  
10 Up **\$10.95**

## Screw Terminal Octal Socket to Suit

Socket allows easy chassis mounting and quick cable connection to screw terminals.

S 4075 **\$5.95**  
10 Up **\$5.50**



## Horn Relay

Super handy high capacity relay. Great for power supplies, car horns, etc. 12-16V Coil 20 amp contacts.

S 4130 **\$4.95**  
10 Up **\$4.50**

## Lamp Relay

12-16V Coil. Two separate make contact sets 30 amp capacity each.

S 4135



S 4135 **\$13.50**  
10 Up **\$12.25**

	Coil Voltage	Coil Resistance	Contact Set	Contact Current Max.	Contact Power Max.	Price 1-24	25 Up
S 4067	12	325	DPDT	2A	120VA	<b>\$ 8.98</b>	<b>\$ 8.15</b>
S 4068	24	1600	DPDT	2A	120VA	<b>\$ 8.98</b>	<b>\$ 8.15</b>
S 4070	12	170	4PDT	1A	60VA	<b>\$ 9.95</b>	<b>\$ 9.25</b>
S 4071	24	700	4DPT	1A	60VA	<b>\$10.95</b>	<b>\$ 9.95</b>

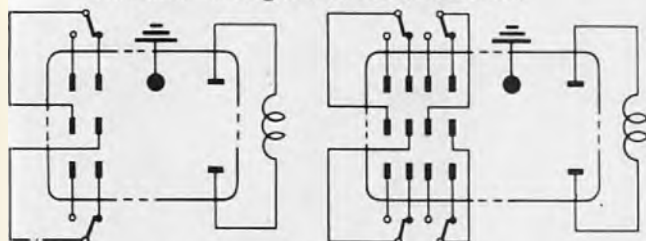
*Huge Savings with our Direct Import Price!*

## Cradle Relay Socket

Includes Retaining Clip

			Price	10 Up
S 4058	for DPDT Relays	(S 4067/8)	<b>\$2.40</b>	<b>\$2.20</b>
S 4059	for 4PDT Relays	(S 4070/1)	<b>\$2.40</b>	<b>\$2.20</b>

Terminal arrangement (Bottom view)

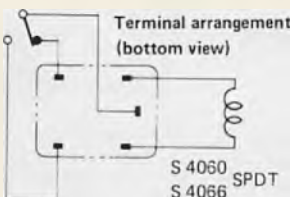


## Mini PCB Relays

Low Profile 14H x 20W x 12D

12V DC Bobbin  
1 Amp Contact Rating

S 4060 SPDT	<b>\$2.50</b>	10 Up <b>\$2.25</b>
S 4061 DPDT	<b>\$3.95</b>	10 Up <b>\$3.70</b>



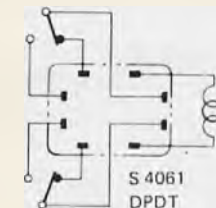
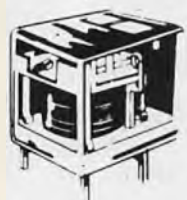
S 4060 SPDT  
S 4066

## Mini PCB Relay H/D

Low Profile 15mm (H)

12V DC Bobbin 5 amp  
Contact Rating

S 4066 SPDT	<b>\$3.15</b>	10 Up <b>\$2.70</b>
-------------	---------------	---------------------



S 4061 DPDT

## Extra Heavy Duty PCB Relays

Low profile 25mm (H) 12V DC Coil, 10A contact rating 240V AC or 24V DC SPDT.

S 4080 **\$5.50** 10 Up **\$5.10**

Low Profile 25mm (H) 12V DC Coil, 5A Contact rating 240V AC, DPDT.

S 4085 **\$5.95** 10 Up **\$5.50**

Low profile 25mm (H) 24V DC Coil, 5A contact rating 240V AC, DPDT.

S 4087 **\$5.95** 10 Up **\$5.50**



**MU 45 Panel Meters**  
**Quality Class 2.5**

Overall dimensions 58W x 52H  
Bolt mounting centres 38mm x 38mm  
Hole required 44mm  
Nuts and washers provided



**MU 52E Panel Meters**  
**Quality Class 2.5**

Overall dimensions 80W x 66H  
Bolt mounting centres 64W x 48H  
Hole required 50mm  
Nuts and washers provided



**MU 65 Panel Meters**  
**Quality Class 2.5**

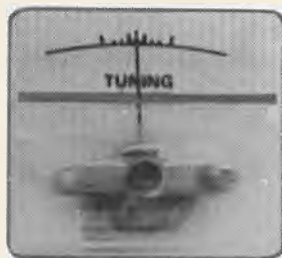
Overall dimensions 100W x 82H  
Bolt mounting centres 80W x 64H  
Hole required 63mm  
Nuts and washers provided



Cat. No.	Size	FSD	RES	Price	10 Up	Cat.No.	Size	FSD	RES	Price	10 Up
Q 0500	MU45	1mA	200	\$15.95	\$14.95	Q 0530	MU52E	1mA	200	\$17.50	\$17.00
Q 0505	MU45	50uA	3500	\$15.95	\$14.95	Q 0533	MU52E	5A	.02	\$17.50	\$17.00
Q 0510	MU45	5A	.02	\$15.95	\$14.95	Q 0540	MU65	1mA	200	\$21.50	\$19.95
Q 0520	MU45	20V	2000	\$15.95	\$14.95	Q 0550	MU65	100uA	3500	\$21.50	\$19.95
Q 0525	MU45	30V	3000	\$15.95	\$14.95						
Q 0528	MU45	VU	NA	\$15.95	\$14.95						

**Tuning Meter**  
**Centre Zero**

Sensitivity (half scale) 250ua



Q 0600 **\$5.95**  
10 Up **\$4.95**

**Signal Strength**  
**Meter**

250ua FSD Scale Labelled 1-10



Q 0605 **\$8.45**  
10 Up **\$7.45**

**Edge Panel Meter**

250uA Sensitivity. Suitable for Signal Strength Indication etc. Graduated 1-10. Panel cutout 35 x 15 Mounting Hole centres at 49mm.



Q 0400 **\$6.95**  
10 Up **\$6.40**

**Logic Probe**



Max.Input Frequency 20MHz. Input Impedance 1M Ohm.  
Operating supply Range 4 Volt minimum. TTL logic 1 Hi LED greater than 2.3 Volts. Logic 0 Lo LED less than 0.8 volts. CMOS Logic 1 Hi LED greater than 70% Vcc. Logic 0 Lo LED less than 30% Vcc. Minimum Detectable pulse width 30 nano seconds. Maximum signal input protection 220V AC/DC (for 15 secs.)

Q 1272  
**\$37.50**

**Sensational Labtech**

**Full 12 Months Warranty**

**Dual Trace 20MHz Cro With Component Tester**

\*\*\*\*\*

**DESCRIPTION:**

This model is a dual-trace 20 MHz Oscilloscope using a high brightness CRT. The vertical amplifiers have high sensitivity of 5mV/Div and a frequency characteristic response with smooth roll off exceeding 20MHz. The highest triggering sweep speed is 0.2 usec/Div. For component tests, a special circuit is designed, with which a single component or components in or out of actual circuit board can be easily tested, requiring no power to drive the circuit. The display shows fault of component value, characteristics of component, and half-dead components under dynamic test.

**FEATURES:**

- Component Tester • 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.

\*\*\*\*\*

**Highly Recommended For:**  
Service Workbench, Design Laboratory,  
Manufacturers, Universities and the dedicated  
Enthusiast.

**Probe Sets**

1:1 or 10:1 Attenuation

Q 0175 **\$49.95**



**SPECIFICATIONS**

**VERTICAL DEFLECTION**

Deflection Factor	5mV to 20V/DIV on 12 ranges in 1-2-5 step with fine control.
Bandwidth	DC: DC to 20MHz(-2db) AC: 10Hz to 20MHz(-3db)
Risetime	Less than 17.5nsec
Overshoot	Less than 3%
Input Impedance	1M Ohm shunted by 20pF+3pF (Max input: 600Vp-p or 300V DC + AC peak)
Operating Modes	CH-A, CH-B, DUAL and ADD
Chop Frequency	200kHz approx.
Channel Separation	Better than 60db at 1kHz
CH-B Polarity	CH-B can be inverted

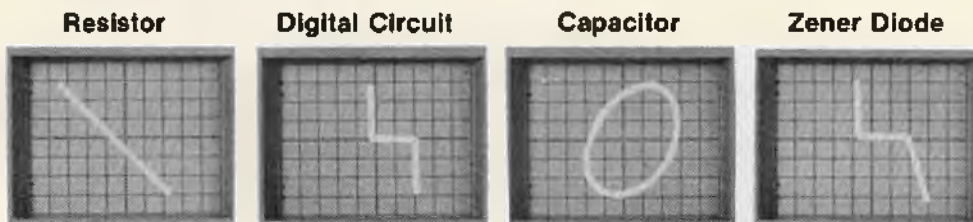
**TIME BASE**

Type	Automatic and triggered. In automatic mode, sweep is obtained without input signal.
Sweep Time	0.2usec to 0.5sec/DIV on 20 ranges in 1-2-5 step with fine control and X-Y
Magnifier	X5 at all ranges
Linearity	Less than 3%

**TRIGGERING**

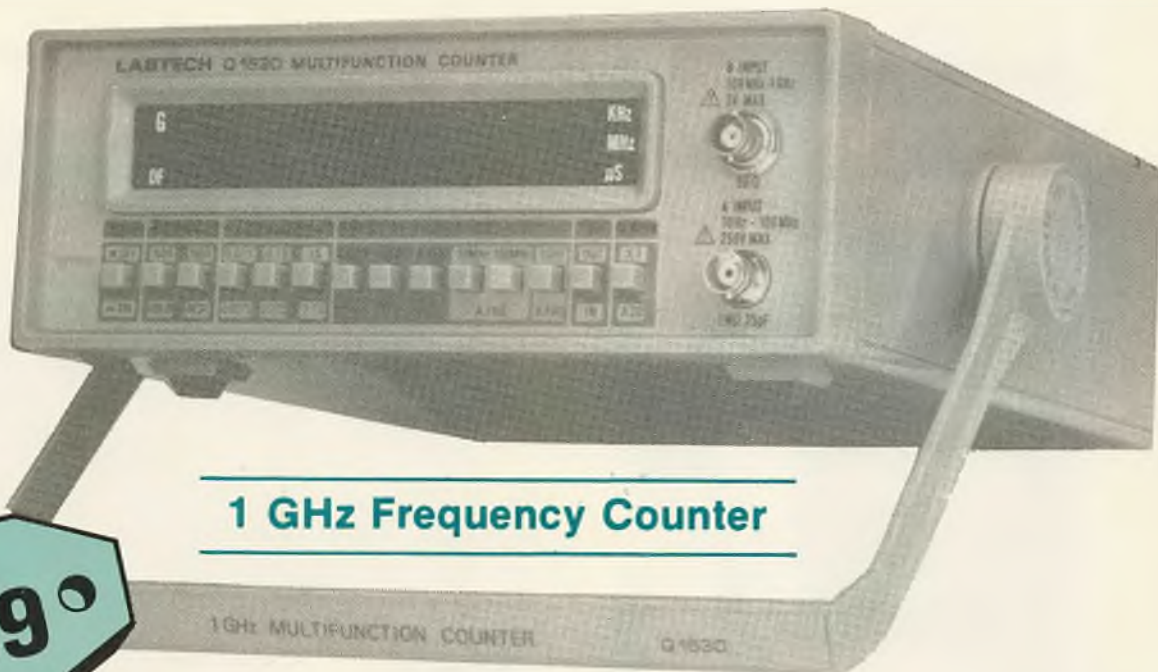
Sensitivity	INT: 1 DIV or more EXT: 1 Vp-p or more
Source	INT, CH-B, LINE or EXT
Triggering Level	Positive and Negative, continuously variable level control Pull for AUTO
Range	20Hz to 20MHz or more
Sync	AC, HF Rej, TV (each + or -) At TV Sync TV-H(Line) and TV-V (Frame) sync are switched automatically by SWEEP TIME/DIV switch. TV-V: 0.5sec/DIV to 0.1msec/DIV TV-H: 50usec/DIV to 0.2usec/DIV

**Typical Component Test Status Patterns**



**Labtech** Test Equipment for Life





**1 GHz Frequency Counter**

This new addition to the LABTECH range will astound you with its high accuracy and stability. A truly professional Instrument that will perform brilliantly in the workshop, laboratory, university etc.

**SPECIFICATIONS**

**1. MEASURING MODE**

**Frequency Measurements**

**CHANNEL A.**

- Range: 10Hz to 10MHz direct counter  
10MHz to 100MHz prescaled by 10
- Resolution: Direct counter: 1, 10, 100Hz switch selectable  
Prescaled: 10, 100, 1000Hz switch selectable.
- Gate time: 0.01S, 0.1S, 1S switch selectable.
- Accuracy: +/- 1 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: +/- 1 count +/- time base error x frequency.

**Period Measurements (channel A)**

- Range: 10Hz to 2.5MHz.
- Resolution: 10-nS, 10-uS, 10-mS switch selectable.
- Accuracy: +/- 1 count +/- time base error x period.

**Totalize measurements (Channel A)**

- Range: 10Hz to 10MHz
- Resolution: +/- 1 count of input.

**2. INPUT CHARACTERISTICS**

**CHANNEL A.**

- Input sensitivity: 25mV RMS sine wave or 70mV p-p
- Attenuation x 1, x 20 fixed.
- Impedance: approx. 1M ohm, less than 35pF
- Maximum voltage without damage: 250V (DC+AC rms)

**CHANNEL B.**

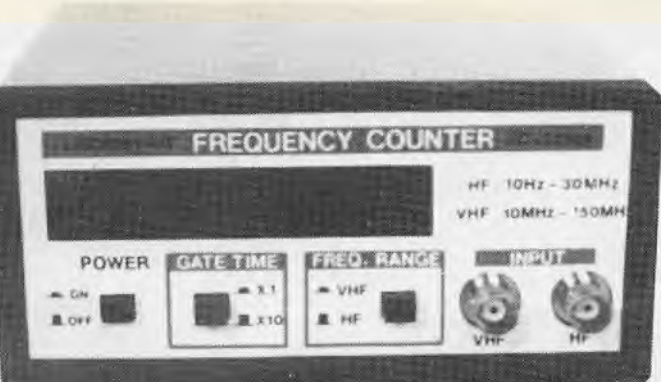
- Input sensitivity: 15mV RMS sine wave or 50mV p-p
- Impedance: approx. 50 ohm
- Maximum voltage without damage: 3V

**TIME BASE**

- Frequency: 10MHz, 3.90625 MHz
- Aging Rate: +/- 3 x 10<sup>-7</sup>/month
- Temperature: +/- 1 x 10<sup>-6</sup>, 0°C to 40°C
- Line voltage: +/- 1 x 10<sup>-7</sup> for 10% change
- Warm-up time: 20 minutes when cold started at 25°C

**4. GENERAL**

- Display: 8 digits. 7mm red LED display with decimal point, gate, overflow, KHz, MHz and uS indication.
- Check: Counts internal 10MHz time base oscillator.
- Power requirement: Line: 115/230V +/- 15%, 45Hz - 70Hz
- Temperature: Rated range of use: -5°C - +50°C  
Storage and transport: -40°C - +60°C
- Humidity: Operating: 10- 90% RH. Storage: 5 - 95% RH.



Q 1520  
**\$199.00**

**150MHz Frequency Counter**

A frequency counter is invaluable for the accurate alignment and testing of many modern electronic circuits.

**SPECIFICATIONS:**

- |                        |               |
|------------------------|---------------|
| <b>Frequency Range</b> | 10Hz - 150MHz |
| <b>Gate Time</b>       | 1 sec, 6 sec. |
| <b>Accuracy</b>        | +/- 1 count   |
| <b>Max. Input</b>      | 20V P-P       |
| <b>Sensitivity:-</b>   |               |
| • 10Hz - 30MHz         | 25mV - 100mV  |
| • 10MHz - 150MHz       | 100mV - 300mV |
| • Power requirement    | 9V DC @ 100mA |

Use our 9V Plug Pack M 9004



Q 1075

**\$99.95**

## LCD Multimeter With Autoranging & Memory function

This popular 3.5 digit Multimeter is simplicity itself. Full autoranging on voltage and resistance measurements, and overload protection make this quality Multimeter so easy and safe to use. The large LCD digits allow reading measurements quick and efficient.

### FEATURES:

- Auto-Range Operation for Voltage & Resistance measurements. Two User Selected Current Ranges: 20mA or 10A • 3 1/2 Digit Resolution in Auto-Range Mode: 1/2000 • Extended Resolution in Manual Operation: 1/3000 • Triplex (1/3 Bias) LCD Display Decimal Point & Function Annunciator Drive • 5DC Voltage & Ohm Range: 200mV to 1000V/200 ohm to 2M Ohm • Four AC Voltage and Low Power Ohm Range: 2V to 750V/2K Ohm to 2M Ohm • AC/DC Voltage and current measurements with On-Chip AC to DC, Operational Amplifier • Low Power Ohms Model Limits Open Circuit Voltage for In-Circuit Resistance Measurements • Visual Overrange Indication-Plus Audio Tone in Current/Voltage Measurements • CMOS Technology Limits Power Dissipation: 7mW • Low Drift Voltage Reference: 50 PPM/Deg C • Low Leakage Inputs: 10 pA • Low Linearity and Rollover Error: 1 Count • Dimensions: 75 x 150 x 34mm • Weight: 230g (8.1oz)

### SPECIFICATIONS

#### DC Voltage

- Ranges: 5 (200mV, 2V, 20V, 200V, 1000V)  
Accuracy: 0.5% +1DGT  
Input Impedance: 100M Ohm on 200mV range.  
10M Ohm on other ranges.  
Overload Protection: 1100V DC max. (50 sec.) or DC, AC Peak Max.  
Resolution: 100uV

#### AC Voltage

- Ranges: 4(2V, 20V, 200V, 750V)  
Accuracy: +/- (0.75% + 0.5dgr) 40Hz to 500Hz  
Input Impedance: 10M Ohm  
Overload Protection: 1100V DC max. (60 sec.) or, DC, AC Peak Max.  
Resolution: 1mV

#### DC Current

- Accuracy: 20mA = +/- (1% + .5dgr) 40Hz to 500Hz.  
10A = +/- (2% + .5dgr)  
Overload Protection: 20mA=0.2A 250V Fuse, 10A=12A max. (60 sec.)  
Resolution: 10uA

### Carry Case



Q 1076

**\$9.50**

### Holster



Q 1077

**\$9.50**

## Portable Multimeter With Bench Stand

### Includes Continuity Buzzer

20,000 Ohms/volt DC • 8,000 Ohms/Volts AC, Mirror backed scale • Overload protected, 10 amp DC current range. Unique carry handle doubles as a bench stand.

### RANGES:

- DC Voltage 2.5, 10, 50, 250, 1000V  
AC Voltage 10, 50, 250, 1000V  
Decibels -8db to -62db  
DC Current 5, 50, 500mA +10 Amps  
Ohm Meter Rx1, Rx10, Rx1k, 3 ranges  
50 Ohms centre scale  
135 x 91 x 39mm

### Size Includes Battery Tester

Carry Case Q 1018 **\$39.95**  
Q 1019 \$4.95



## Economy Pocket Tester

2000 Ohms/Volt sensitivity • Overload protected • Dimensions 90 x 60 x 30mm • Mirror back scale helps prevent parallax error • Complete with test leads & instructions • Uses 1 x AA Battery (supplied). Ranges: DC and AC 0-10 50, 250, 1000V Decibels: 10 to +22db Current: 0-100mA Ohms: 0.1 Meg. in two ranges.

Carry Case Q 1014 \$4.50

Q 1013 **\$19.50**

## Medium Sensitivity Low Cost Multimeter



### EXCELLENT VALUE!

• 10,000 Ohms/Volt DC • 4,000 Ohms/Volts AC • Fuse and diode overload protection • A total of 19 ranges • Uses 1 x AA cell (included) Mirrored scale  
Ranges: DC Voltage 0.25, 2.5, 25, 250, 1000  
DC Current 0.1, 10, 500mA Resistance 0-10K in 3 ranges • safety off position to protect the meter movement. Feature packed.

Q 1015 **\$29.50**

### Audio Frequency Generator



In testing audio circuitry it is necessary to have an accurate audio signal source. It even allows you to test 455KHz IF stages!

**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 fine adjust.

Q 1540 **\$249.00**

### RF Signal Generator



An absolute necessity for radio servicing. With provision for both internal & external modulation.

**SPECIFICATIONS:**

**Frequency Range** 100KHz - 150MHz  
 In 6 Ranges  
**RF Output Level** 100mV RMS  
**Accuracy** +/- 3%  
**Modulation:-**  
 • Internal (30% depth) 1KHz  
 • External 50Hz - 20KHz  
 • Crystal Locked Oscillator

Q 1550 **\$225.00**

### Digital Multimeter With Built-In Capacitance Meter

Not only do you get all the normal ranges of current, resistance and voltage - but also a convenient and simple to use capacitance meter in five ranges. And as if that's not enough, you also get a transistor tester. Check the features of this top quality digital multimeter from the Labtech range.



Q 1085 **\$139.00**

**CONTINUITY TEST**

Buzzer Sound: Less than 200 ohm  
 Response time: Less than 100m Sec.

**CAPACITANCE**

Range	Resolution	Accuracy
2000pF	1pF	
20nF	10pF	
200nF	100pF	± (2% F.S. + 5d)
2uF	1nF	
20uF	10nF	

**CONDUCTANCE**  $S = \frac{1}{\Omega} \times 10^{10}$

**TR hfe**  
 Test Condition: Approximately 10uA  
 2.8V hfe Range NPN, PNP Gain 0-1000

**DC VOLTAGE** .2, 2, 20, 200, 1000V

**DC CURRENT** 200uA, 2mA, 20mA, 200mA, 2A, 10A

**AC VOLTAGE** .2, 2, 20, 200, 750V

**AC CURRENT** 200uA, 2mA, 20mA, 200mA, 2A, 10A

**RESISTANCE** 200, 2K, 20K, 200K, 2M, 20M

**RESISTANCE** 200, 2K, 20K, 200K, 2M, 20M

**GENERAL**

**DISPLAY:** 3 1/2 digit LCD, 0.5" height, with polarity and LO-BAT indication

**OVERRANGE INDICATION:** 3 least significant digits blanked.

**MAXIMUM COMMON MODE VOLTAGE:** 500V peak.

**OPERATING ENVIRONMENT:** 0° to 50°C; less than 80% relative humidity up to 35°C, less than 70% relative humidity from 35°C to 50°C.

**POWER:** 9V alkaline or carbon-zinc battery

**BATTERY INDICATOR:** Display indicates "LO BAT" when less than 20% of life remains

**DIMENSIONS, WEIGHT:** 170mm x 87mm x 42mm, 350 grams

**SPECIFICATIONS**

**Input Impedance:** 10M on all ranges

**Normal Mode Noise Rejection:** 46db at 60Hz (1K unbalanced)

**Common Mode Noise Rejection:** 100db at 60Hz

**Overload Protection:** 1000V dc or peak on all ranges

**Response Time:** less than 1 Second.

**Carry Case**



Q 1086

**\$12.50**

**Holster**



Includes Waist Belt

Q 1087

**\$12.50**

### Electronic FET Laboratory Multimeter

Centre Zero Pointer Setting Allows + and - Readings  
 The Q 1050 breaks new ground for an advanced, precision analogue meter of this quality below \$100. The Q 1050 has the advantage of digital multimeters i.e. significant circuit loading, high accuracy etc. without the misleading and erroneous readings that DVM's are famous for.

- 10 Meg Ohm input
- 12 amp DC & AC Current Ranges
- Centre zero Pointer Adjust for + and - readings
- Single Range & Polarity Reversing switch
- Power on LED indicator
- P-P calibrated scale.



Q 1050 **\$89.95**

Q 1055 **Carry Case \$12.50**

**DC VOLTS**  
 Ranges—0-0.3 1.2 12 30 120 300 1200V—0-0.15 0.8 8 15 60 150 600V at Centre 0.  
**Input Impedance**—Approx 10M Ohm, 3M Ohm at 300mV range  
**Rated Accuracy**—±2.5% DC and 3.5% AC full scale on all ranges

**AC VOLTS**  
 Ranges—RMS 0-3 12 30 120 300 1200V—Peak-peak 0-8 4 33 64 330 840 3300  
**Input Impedance**—Approx 1M Ohm 80PF, 2.5M Ohm on 1V Range

**Rated Accuracy**—±0.5%—5MHz ±3%—dB—±10dB—±63dB at all AC ranges  
**DC CURRENT**  
 Ranges—0-0.1 uA 0.3 3 30 300mA 12A  
**Potential Drop**—300mV  
**Rated Accuracy**  
 Within ±2.5% full scale all ranges  
**AC CURRENT**  
 Ranges—0-12A  
**DC RESISTANCE**  
 Ranges—Rx1 0-1K Ohm  
 Rx10 0-10K Ohm  
 Rx100 0-100K Ohm  
 Rx10K 0-10M Ohm  
 Rx1M 0-1000M Ohm

# SERVICE ITEMS

**ALTRONIC**  
Components

## Service Aids



### Permagard

This is a modern multi-purpose maintenance fluid which will de-water, penetrate lubricate and protect from rust and corrosion. It can be used to dry out damp electrical connections, penetrate corroded nuts, bolts and locks, to lubricate and protect metal surfaces such as garden tools, electrical tools, locks, bikes etc. 200g.

T 3040 **\$7.50**



### Air Duster

Pure, compressed inert gas for cleaning very delicate or inaccessible areas of computer equipment, photographic lenses and equipment, keyboards etc. The direct jet of air ensures dust is transferred away from the equipment. A special valve allows you to control the flow of air. 400g.

T 3095 **\$14.50**



### PVC Tape

Quality Tape. Heat resistant 20M x 18MM

T 3001 **\$1.40**

T 3015  
**\$7.50**



### Silastic

150g pack Adhesive/Sealant provides tough, non-brittle seal or joint. Corning 762RTV

### Instant Super Type Glue

New patented easy flow. Dispenser carry tube dispenses only when tube body is depressed - ensures no leaks. Many times the number of bonds over conventional tubes.

Sticks in Seconds - 1000's of uses.

T 3010 **\$2.95**



### Five Minute Epoxy

Similar to "Araldite" this multipurpose super strong epoxy is supplied in handy dual syringe.

T 3005 **\$8.50**

### Desk Mounted Magnifier Lamp

Find Circuit Faults In A Jiffy

This unit magnifies any object under a clear, cool, fluorescent light. The magnification is the maximum obtainable (lens 127mm diameter biconvex 4 dioptries focal length 254mm) consistent with minimum distortion and eyestrain and good off-angle viewing.

A 0980 **\$279.00**



### Chemwick De-SolderBraid

World Famous Chemwick brand braid available in 3 different widths to suit any de-solder job.

4MM Blue T 1232  
3MM Green T 1234  
2MM Yellow T 1236

**\$2.95 ea**



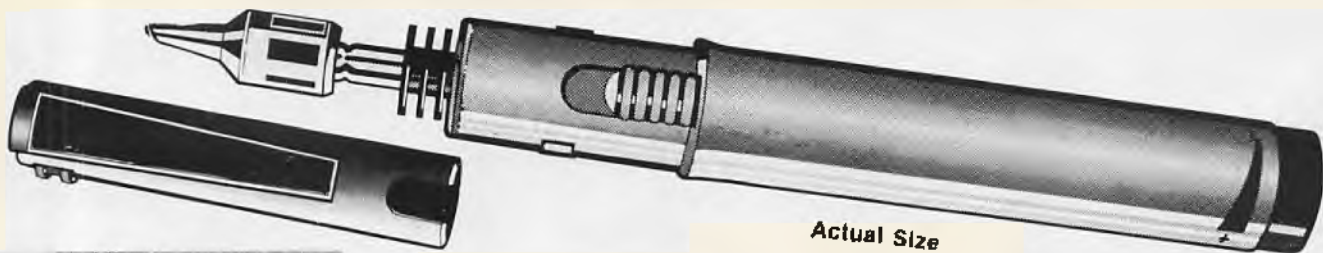
### Soldering Iron Stand

Heavy Iron Base  
T 1310 **\$12.95**

Spare Sponge  
T 1320 **\$1.95**



**Great When You're Working On The Boat, Car, Farm, TV Antenna Or Anywhere In The Field**



Actual Size

## The Nifty Go Anywhere Butane Soldering Iron

- No Cords, Batteries or Gas Bottles
- Heavy Duty Tip Temperature Up To 400°C
- Adjustable Temperature equivalent to 10 — 60 Watts
- Up to 60 Minutes Continuous use
- Powered by Standard Butane Gas Lighter Fluid.

Safety Cap Turns Off Heat and Gas When Replaced

Spare Tips With Catalytic Heater

T 2460 **\$39.95**

T 2463 1.0MM  
T 2464 2.4MM  
T 2465 3.2MM  
T 2466 4.8MM



**\$12.95 ea.**

No Leakage Current To Sensitive CMOS & Microprocessor Circuits

See Page 89  
For Further Service Aids

**MICRON T2440**

**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 (808°F, 682°F, 716°F, 770°F and 824°F) fixed temperatures are selectable by rotating the detained rotary switch freely without changing heater or tip.

<b>Specification</b>	Model	T 2440
	Mains power V.AC	240
	Heater operating V.AC Voltage	24
	Heater power	
	Consumption (watts)	48
	Standard Tip	T 2424

**Interchangeable Tips \$5.50 ea**

**MICRO CHISEL**

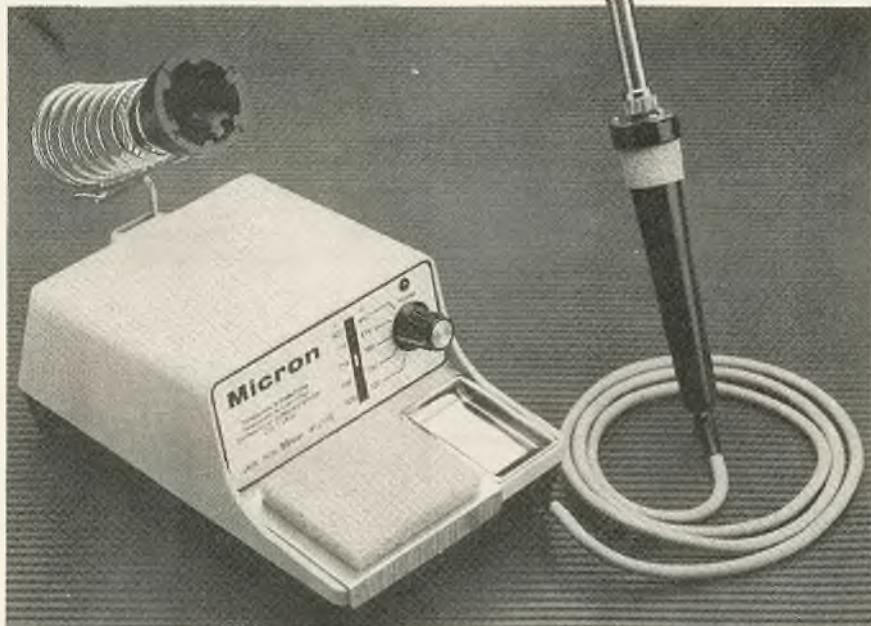
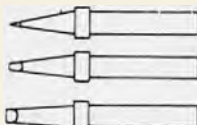
T 2423 1mm

**MINI CHISEL**

T 2424 1.5mm

**STD CHISEL**

T 2425 3mm



**Temperature Readout via LED barograph** instantly visible.

**Temperature Control.** A unique electronic control circuit maintains tip temperature to within +/- 1 deg.C. of idling, this is accomplished by embedding the thermocouple sensing unit in the heating element barrel. This method allows the closest possible monitoring of tip working surface temperature. This means the tip is not overheated, and so tip and heater life is greatly enhanced. It also means excellent heat recovery during heavy soldering.

**Zero Voltage Switching.** The revolutionary electronic "Zero Voltage" switching, protects voltage and current sensitive devices such as CMOS against transient voltage spikes

**Grounded Tip.** The soldering tip is grounded through the power unit to ensure the tip leakage is less than 0.4 millivolt or 0.03 microampere.

**Low Voltage Element.** 24V element for added safety especially with CMOS and microprocessor soldering in situ. 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 **\$139.95**

**Temperature Adjustable 250°C to 450°C**

Excellent new iron, screwdriver temperature adjustable between 250°C and 450°C enabling very delicate soldering on low settings with surprising heat energy reserve on maximum setting.

Relative temperature is indicated by LED lamp brightness. Much lower cost than a soldering station.



T 2445 **\$37.95**

**Low Cost Micron 25 Watt**

Light-weight • Interchangeable tips • efficient thermal transfer from element to tip • tip temperature maintains within the limits suitable for electronic work and also small household jobs fully S.E.C. tested and approved.

**Tip**  
T 2416 **\$2.50**



T 2415 **\$19.50**

**Professional Temperature Fixed  
Soldering Iron**

*Comes supplied  
with T 2424 tip*

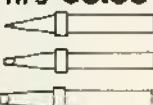
- 370 deg. Fixed Temperature • High efficiency patented heating element.
  - Iron clad, chrome plated, long life interchangeable tips.
- This iron uses high grade iron clad, chrome plated and pretinned tips. Tip life expectancy is many times that of conventional plated tips.



T 2420 **\$27.50**

**REPLACEMENT TIPS \$5.50 ea**

- MICRO CHISEL T2423 1mm
- MINI CHISEL T2424 1.5mm
- STD CHISEL T2425 3mm



**Solder Suckers (Professional Quality)**

Self cleaning plunger. Long life Teflon Tip. Double diaphragm. Dual O-Ring seal. 225mm x 20mm (d) 50mm stroke powerful suction.

T 1240 **\$11.95**

**Dual O-Ring Seal**

Replacement tip

T 1241 **\$2.35**

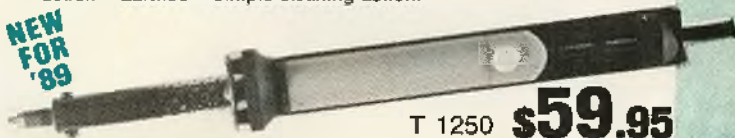


**De-Solder Iron**

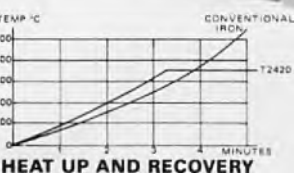
Ideal for the service technician and hobbyist alike. This lightweight de-soldering iron allows components to be quickly and cleanly removed with one hand. Naturally it's SEC approved and comes with a cleaning wand.

- 240V AC 50Hz 30W • SEC Approval W/2228 • Easy single handed action • Earthed • Simple cleaning action.

**NEW FOR '89**



T 1250 **\$59.95**



**12V Soldering Iron**

For the motorist. Compact soldering iron. Just plugs into car lighter socket



T 2512 **\$11.50**

**Solder**

200g. reel 1mm universal gauge. Suitable for all types of Electronic soldering from delicate microprocessor work to general purpose service work. Resin Cored - includes bit saving additive.



**T 1200 \$7.00**  
10 Up **\$6.00**

**Tweezers**

Needle Nose **T 2375 \$2.50**  
Duck Bill **T 2377 \$2.50**



**Steel Rule**

**T 2382 300MM \$5.95**



**Tapered Reamer**

essential for chassis work  
Enlarges from  
5-20mm

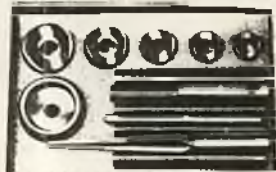


**T 2370 \$15.50**

**Hole Punch Set**

A must for every enthusiast or serviceman.  
Cuts holes in metal up to 1.6mm (16 gauge)  
Set of 5 punches and tapered reamer.

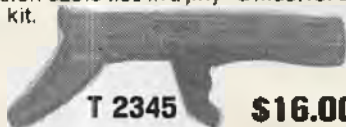
**Punch Sizes**  
16mm  
18mm  
20mm  
25mm  
30mm



**T 2360 \$55.00**

**Cable Tie Gun**

Tension cable ties in a jiffy - a must for every tool kit.

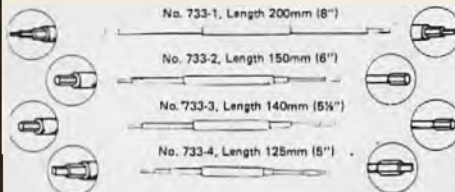


**T 2345 \$16.00**

**Tools For Technician And Hobbyist**

**Alignment Tool Set**

Super Tough Delrin Plastic. Universal Alignment. Set of 4 Tools



**T 1400 \$4.20**

**Allen Key Set**

Set of 7 Handy Keys

Sizes: (mm) 1.4, 1.5, 2, 2.4, 2.5, 3, 4

**T 1410 \$1.95**



**11PC Drill Set**

Industrial quality meets  
British standard 328-1959  
complete with pressed steel  
storage case 1-6mm

**T 2330 \$14.50**



**Powerful 6000 RPM Mini Drill For PC Work**

Tons of torque. Just the shot for PCB work. 12V DC Operation from external power pack. Comes with 0.8mm and 1.0mm chucks. Plus one 1.00mm Drill Bit.

**T 2302 \$21.50**

**Drill Bits For PCB Work**

8mm **T 2320 \$1.75**  
1.0mm **T 2325 \$1.95**



**Needle File Set**

Use for contacts, points, general electronic work. Very handy! Set of 5 files, round, square, half round triangular and flat.



**T 2350 \$22.50**

**Pearl Catch**

Super natty tool for picking up small screws nuts washers, pins and holding in place for fixing etc.



**T 2380 \$3.95**

**Wire Stripper**

Hardened Jaws



**T 1510 \$5.50**

**Crimping Tool**

Multiway

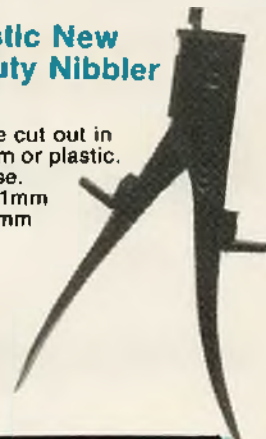


**T 1550 \$4.95**

**Fantastic New Heavy Duty Nibbler**

Cuts any shape cut out in steel, aluminium or plastic. Very easy to use. Capacity steel 1mm Aluminium 1.6mm

**T 2355 \$19.95**



**Mini Bench Vice**

Quality Die Cast Alloy

**T 2365 \$10.50**



## Professional Wire Stripper

Designed by Elcontrol Italy

For the full time technician or for the discerning hobbyist who would like a stripper to last 20 years or more!



T 1522 \$16.95

### Spare Blades

T 1525 \$1.95

## Professional Automatic Wire Stripper

Automatically adjusts to insulation/wire diameter



T 1520 \$10.95

## Engineers Screwdriver Set

### 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 Stand With Alligator Clips

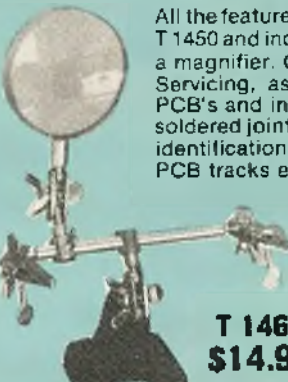
Screw this handy little jig to your work bench and presto! you now have both hands free to insert and solder components!!



T 1450 \$9.50

## 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

## General Workshop Series

All stainless steel construction with insulated handles.



NEW FOR '89

### Diagonal Cutter

With bevelled edge and rounded jaw profile cutting capacity: Copper wire 1.2mm - Steel wire 0.4mm - Length 110mm Weight: 60g.

T 2750 \$12.50

### Long Nose Pliers

General electronic use. Length: 140mm Weight: 60g.

T 2760 \$12.50

### Flat Long Nose Pliers

For bending component legs, IC pins etc. and general use. Length: 135mm Weight: 60g.

T 2770 \$12.50

### Curved Long Nose Plier

Offset jaws for working in confined and awkward spaces. Length: 135mm Weight: 60g.

T 2780 \$12.50

## Palm Grip Series



### Diagonal Cutter

T 2700 \$9.95

### Flat Nose (Serrated) Plier

T 2710 \$9.95

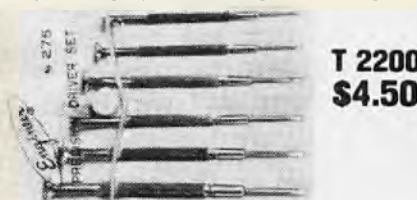
### Needle Nose Plier

T 2720 \$9.95

### Curved Needle Nose Plier

T 2730 \$9.95

## Quality Screwdrivers Jewellers Drive Set 6 PC



T 2200 \$4.50

## Mini

55mm O/A Length

Flat Blade 1.6mm

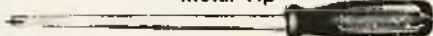
Phillips Micro



T 2100 \$0.90c  
T 2102 \$0.95c

## Alignment S/Drivers

Metal Tip



T 1401 100mm Shaft \$2.95

T 1402 200mm Shaft \$3.25

## Low Cost IC Inserters-Extractors



### Inserters

T 2520 8 - 16 Pin \$10.95

T 2524 18 - 20 Pin \$10.95

T 2528 24 - 28 Pin \$12.50

T 2536 36 - 40 Pin \$12.50

### EXTRACTOR

T 2550 8 - 40 Pin \$2.50

## IDC Cable

		Per M	10 Up
10 Way	W 0610	\$1.50	\$1.30
16 Way	W 0616	\$1.75	\$1.60
26 Way	W 0626	\$2.15	\$1.95
34 Way	W 0634	\$3.25	\$2.90
50 Way	W 0650	\$4.95	\$4.50



## Rainbow Cable

1.27mm Pitch

10 Core	W 0510	\$2.25	\$2.05
16 Core	W 0516	\$3.50	\$3.25
24 Core	W 0524	\$3.95	\$3.50



## Enamelled Winding Wire

Handy hobby packs - for coil winding etc.

	Metric	B + S	Pack	Per M	10 Up
W 0402	.2mm	32	25g	\$4.50	\$4.10
W 0403	.25mm	30	25g	\$4.50	\$4.10
W 0404	.4mm	26	25g	\$4.50	\$4.10
W 0405	.5mm	24	100g	\$5.95	\$5.50
W 0406	.63mm	22	100g	\$5.95	\$5.50
W 0407	.8mm	20	100g	\$5.95	\$5.50
W 0408	1mm	18	100g	\$5.95	\$5.50
W 0409	1.25mm	16	100g	\$5.95	\$5.50

## Tinned

W 0420	.71mm	22	100g	\$6.50	\$6.10
--------	-------	----	------	--------	--------



## Heatshrink Sleeving

Hobby Pack

Includes internal diameter  
1.6mm, 2.4mm, 4.8mm, 6.3mm  
12.7mm, 19mm.

## By The Metre

1.6mm	W 0561	\$2.50
2.5mm	W 0562	\$2.95
4.8mm	W 0563	\$3.25
6.3mm	W 0564	\$3.50
12.7mm	W 0565	\$4.95
19mm	W 0566	\$6.95

## Audio Leads Din and RCA Audio Leads

All 1.8M Length

5 Pin Din/5 Pin Din (Reversed Connts for video)	P 0420	\$3.25
5 Pin Din/5 Pin Din	P 0421	\$4.65
5 Pin Din/4 RCA	P 0423	\$4.95
4 RCA/4 RCA (male)	P 0427	\$5.95
5 Pin Din/2 RCA (male)	P 0430	\$4.50
2 RCA/2 RCA (male)	P 0435	\$2.95



## Video & Test Leads 1.8 Metre

PL259/PL259	P 0740	\$5.50
PL259/BNC	P 0742	\$7.50
PL259/RCA	P 0744	\$4.75
RCA/RCA	P 0750	\$3.30



## TV Antenna Fly Leads

Male/Male	P 0755	\$3.70
Male/Female	P 0757	\$3.70



## BNC Male

BNC/BNC	P 0746	\$7.95
BNC/RCA	P 0748	\$6.45
BNC/Croc Clips	P 0752	\$8.55



## Test Leads

IC Clips to Banana Plugs	P 0411	\$3.75
IC Clips to Pin Plugs	P 0412	\$3.75



## Meter Test Leads

Pin Plugs to prods	P 0402	\$3.70
Banana Plugs to prods	P 0403	\$3.90



## Bench Test Leads

Banana to Croc. Red/Black	P 0405	\$2.95
Croc Clip to Croc Clip H/Duty	P 0415	\$6.75





### PRO GRADE HOOK UP WIRE All On 100M Reels



### Light Duty Hookup Tinned 7/.16MM

Red W 0250 Yel W 0254  
Blk. W 0251 Grn W 0255  
Brn W 0252 Blu W 0256  
Orn W 0253 Wht W 0257

Per Metre **.18**  
Per 100M Reel **\$9.50**  
Buy Eight Reels for  
Only **\$65**

### Medium Duty Tinned 14/.20MM

Red W 0260 Blk W 0261  
Blu W 0265 Wht W 0268

Per Metre **.25**  
Per 100M Reel **\$18.00**  
Buy Four Reels for  
Only **\$60**

### Heavy Duty 24/.20MM

Red W 0270 Blk W 0272  
Green W 0274

Per Metre **.29**  
Per 100M Reel **\$22.00**  
Buy Three Reels for  
Only **\$55**

### Extra H/Duty 32/.20MM

Brown W 0280  
Blue W 0282

Per Metre **.38**  
Per 100M Reel **\$25.00**  
Buy Two Reels for  
Only **\$40**

### SHIELDED CABLES Shielded Audio



Supplied on 100M reels (not Hanks). Eminently suitable for microphone cables, chassis wiring, building wiring.

		Per M	Per Reel
W 1010	1 Core	.50	\$32.00
W 1020	2 Core	.70	\$55.00
W 1022	2 Core '8'	.75	\$57.00
W 1040	4 Core	1.25	\$90.00

### Extra Heavy Twin Mic Cable

20 x .12mm by 2  
Suit Entertainment Work

W 1030  
\$2.20 per M  
\$150 per 100M RI.



### 100% Screened Computer Cable

7/.2mm Tinned Alum.  
Mylar Shield.

W 0705	4 Wire	\$1.40M
10 Up		\$1.15M
W 0710	6 Wire	\$1.80M
10 Up		\$1.50M
W 0715	9 Wire	\$2.30M
10 Up		\$1.99M

### Special Audio/Data Cable

2 x 2 pairs. Individually shielded and Drain Wire.

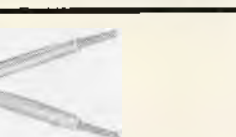
W 1032  
\$1.95 per M  
\$150 per 100M RI.



### Communication Cable

One pair screened - Colours Yellow, Grey 7/0.2 3 pair telephone type cable .5mm - Colours Red, Black, Green, White, Blue, Orange. Outer sheath light Grey.

200M Reel  
W 0362 \$1.95 per M  
\$220.00 per 200M Reel



### Figure '8' Cables On Reels

For speaker wiring, security systems, PA systems, low voltage wiring etc. All include polarity trace stripe.

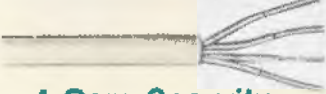
Cat.No.	Conductor	Colour	Trace Colour	Reel Length	Per M	Per Reel
W 0100	2x14/.14	Grey	Black	100M	.35	\$ 25.00
W 0105	2x14/.193	Grey	Black	100M	.45	\$ 30.00
W 0110	2x19/.193	White	Red	200M	.50	\$ 64.00
W 0112	2x19/.193	White	Black	200M	.50	\$ 64.00
W 0114	2x19/.193	White	Green	200M	.50	\$ 64.00
W 0116	2x19/.193	White	Blue	200M	.50	\$ 64.00
W 0122	2x24/.20	Red/Blk	-	200M	.63	\$ 88.00
W 0124	2x24/.20	White	Red	500M	.63	\$220.00
W 0125	2x24/.20	White	Black	500M	.63	\$220.00
W 0126	2x24/.20	White	Green	500M	.63	\$220.00
W 0127	2x24/.20	White	Blue	500M	.63	\$220.00



### Instrumentation Wire 510 Strand

Cable overall diameter 3mm. Super flexible - Super durable.

W 0540 Red \$2.95 per M  
W 0542 Blk \$50 per 20M RI.



### 4 Core Security

Quality 14/.20 for professional security/alarm system. Inner conductor colours yellow, green, red, blue. Three outer sheath colours available.

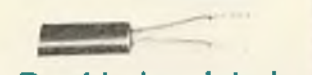
W 0354 Grey  
W 0355 Black  
W 0356 White  
.80 per M  
\$138 per 200M RI.



### Super Low Loss Speaker Cable

W 0130 2 x 90/.18mm

Per Metre **\$2.95**  
10M+ **\$2.50**



### Double Insulated Twin

W 0190 2 x 2/.75mm

Per Metre **\$1.20**  
10M+ **.99**



### Telephone Type Cable

Supplied on 200M rolls, enclosed in tough PVC bags in the traditional way. Enables tangle free extraction from centre of roll through hole in the side of PVC bag.

Per M. 200M RI.  
W 0302 2 Pair .60 \$78  
W 0303 3 Pair .80 \$100  
W 0306 6 Pair 1.50 \$118  
W 0310 10 Pr 2.40 \$330



### Mains Cable

3 Core, 7.5 Amp 250V

Per Metre **\$2.10**  
10M + **\$1.90**

### Feeder And Coax Cables



		Per M.	10 Up
W 0220	300 Ohm Clear Ribbon	.30	.23
W 0221	300 Ohm Black Ribbon	.35	.29
W 0222	75 Ohm Coax (STD)	.80	.69
W 0224	75 Ohm Coax Low Loss	1.05	.93
W 0226	RG 58AU 52 Ohm Coax	.80	.69
W 0230	RG62 92 Ohm Coax	1.50	1.20

# REFERENCE BOOKS

**ALTRONIC**  
Components

## SAMS GENERAL BOOKS

### 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

**\$34.95**

### 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. 600 Pages.  
B 2015

**\$49.95**



### Z-80 MICROCOMPUTER DESIGN PROJECTS

Here is a solid introduction to the Z-80 that shows you how to build a microcomputer called the EZ-80. The first section deals with hardware and software aspects of the Z-80. The second section covers constructing and checking out of the EZ-80 EPROM programmer. Both wire wrapped and PC board methods are discussed. The third section addresses the applications of the EX-80. Six appendices are included for easy reference.  
B 2080

**\$34.95**



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B 2086

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Describes the construction and use of various versions of the 555 timer and gives many practical applications.  
B 2020

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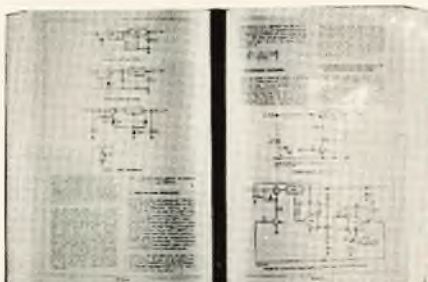
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Z 0024	BAW62/BAW76 Diode	.20	.17
Z 0029	OA90 Ger.Diode	.35	.30
Z 0030	OA91 Ger.Diode	.35	.30
Z 0035	OA95 Ger.Diode	.35	.30
Z 0060	5082-2800 Schottky Diode	2.50	2.25
Z 0101	1N914/1N4148 Diode	2.50	1.00
Z 0105	1N4002 100V 1 Amp	.09	.08
Z 0109	1N4004 400V 1 Amp	.12	.10
Z 0112	1N4007 1000V 1 Amp	.16	.14
Z 0115	1N5404 400V 3 Amp	.30	.26
Z 0118	1N5408 1000V 3 Amp	.45	.40
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## DIODE BRIDGES

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Z 0132	WO4 Bridge 400V 1.2 Amp	1.10	.95
Z 0134	PWO4 Bridge 400V 6 Amp	2.30	2.10
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Z 0308	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 0314	5V1 1N751	Z 0338	18V 1N967
Z 0316	5V6 1N752	Z 0340	20V 1N968
Z 0318	6V2 1N753	Z 0342	22V 1N969
Z 0320	6V8 1N754	Z 0344	24V 1N970
Z 0322	7V5 1N755	Z 0346	27V 1N971
Z 0324	8V2 1N756	Z 0348	30V 1N972
Z 0328	9V1 1N757	Z 0350	33V 1N973
Z 0328	10V 1N758	Z 0352	36V 1N974

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Z 0606	3V6 IN4729	Z 0632	12V IN4742
Z 0608	3V9 IN4730	Z 0634	13V IN4743
Z 0610	4V3 IN4731	Z 0636	15V IN4744
Z 0612	4V7 IN4732	Z 0637	16V IN4745
Z 0614	5V1 IN4733	Z 0638	18V IN4746
Z 0616	5V6 IN4734	Z 0640	20V IN4747
Z 0618	6V2 IN4735	Z 0642	22V IN4748
Z 0620	6V8 IN4736	Z 0644	24V IN4749
Z 0622	7V5 IN4737	Z 0646	27V IN4750
Z 0624	8V2 IN4738	Z 0648	30V IN4751
Z 0626	9V1 IN4739	Z 0650	33V IN4752
Z 0628	10V IN4740	Z 0652	36V IN4753
		Z 0675	75V IN4781

### 5 WATT

All One Price.1.15ea. 10Up. .1.05ea			
Z 0405	5V1	Z 0415	15V
Z 0409	9V1	Z 0418	18V
Z 0412	12V	Z 0422	22V
Z 0413	13V	Z 0424	24V

## LEDS

Z 0140	Led 3mm Red	.20	.18
Z 0141	Led 3mm Green	.23	.21
Z 0143	Led 3mm Yellow	.28	.25
Z 0145	Led 3mm Orange	.28	.25
Z 0150	Led 5mm Red	.18	.16
Z 0151	Led 5mm Green	.23	.21
Z 0152	Led 5mm Yellow	.30	.28
Z 0154	Led 5mm Orange	.28	.25
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	.27
Z 0164	Led Rectangular Yellow	.28	.25
Z 0172	Led Infra Red CQY89A	1.20	1.10
Z 0175	Led Tricolour	.69	.63
Z 0180	Bar Graph 10 Seg Red	3.25	2.95
Z 0181	Led 5mm Flashing Red	1.60	1.50
Z 0182	Led 5mm Flashing Green	1.60	1.70

## 7 SEGMENT DISPLAY

Z 0184	HP7301 Display C/Anode 0.3"	3.90	3.75
Z 0187	HP7303 Display C/Cath. 0.3"	3.90	3.75
Z 0190	FND500/HD1133R .5" Disp.C/Cathode	2.90	2.65
Z 0191	FND507/HD1131R .5" Disp.C/Anode	3.50	3.20

## OPTO

Z 1600	FPT100 Photo Transistor	1.60	1.50
Z 1610	MEL12 Darlington Photo trans	1.30	1.20
Z 1635	BPW50 Infra Red Diode	3.45	3.20
Z 1642	MOC3021 OPTO Coupler	2.95	2.75
Z 1644	MOC3041 TRIAC CPLR Zero Crossing	3.45	3.20
Z 1645	4N28 OPTO Coupler	1.70	1.60

## VOLTAGE REGULATORS

### FIXED

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 Pos.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 Neg. 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	UA7805KC/LM309K +5V 1.5A Reg.TO-3	3.40	3.25
Z 0542	UA7812KC +12V 1.5A Reg.TO-3	3.40	3.25
Z 0558	LM336V-5 5V 10mA reg.	2.95	2.65

## VOLTAGE REGULATORS

### ADJUSTABLE

Z 0545	LM317T 2-30V 1A ADJ. TO-220	2.95	2.85
Z 0550	LM317K 2-30V 3A ADJ. TO-3	6.95	6.50
Z 0560	LM337K -VE 2-30V 3A ADJ.TO-3	12.50	11.95
Z 0562	LM337T 2-30V 1A Adj TO-220	4.55	4.35
Z 0565	LM338K +VE Adj.Reg. 5A TO-3	15.95	15.50
Z 0570	LM350K +VE ADJ. Reg. 3A TO-3	15.95	15.50
Z 0580	LM396K +VE ADJ. Reg. 10A TO-3	31.95	30.95
Z 0585	LM723CN ADJ. +/-VE Reg TO-5	1.45	1.40

## TRIACS, TRIGGERS,

Z 1710	BT136/500 TRIAC 500V/4A	2.45	2.20
Z 1712	BT137/500 TRIAC 500V/6A	2.45	2.20
Z 1715	BT138/500 TRIAC 500V/12A	3.50	3.20
Z 1720	BT139/500 TRIAC 500V/16A	3.80	3.45
Z 1722	SC146D TRIAC 400V/10A	4.95	4.50
Z 1725	SC250D TRIAC 400V/15A	6.50	6.00
Z 1728	SC260D TRIAC 400V/25A	9.50	9.00
Z 1735	MAC320 TRIAC 600V/8A Inst.Tab	2.95	2.65

## DIACS

Z 1745	ST2/BR100 Diac	.95	.90
Z 1750	ST4 Diac (Equip HT32)	1.95	1.75

## SCR'S

Z 1765	C103B/MCR100 SCR 200V/.8A	1.70	1.55
Z 1768	C106D SCR 400V/4A TO126	1.50	1.40
Z 1769	C106Y SCR 30V/4A Sensitive Gate	1.09	.99
Z 1774	C122E/BT151 500V/8A	3.40	3.15

**Note:** 1st Price column is the singles Price. 2nd Column price is the per unit price for quantities of 10 or more.

## TRANSISTORS

Z 1001	AC127/AC187	TO-1	NPN		1.70	1.60
Z 1002	AC128/AC188	TO-1	PNP		2.95	2.65
Z 1020	BC107 Metal Can		NPN		.65	.55
Z 1021	BC108 Metal Can		NPN		.65	.60
Z 1023	BC109 Metal Can		NPN		.80	.75
Z 1030	BC327	TO-92	PNP		.35	.32
Z 1031	BC328	TO-92	PNP		.35	.32
Z 1035	BC337	TO-92	NPN		.35	.32
Z 1037	BC338	TO-92	NPN		.35	.32
Z 1039	BC546	TO-92	NPN		.29	.26
Z 1040	BC547	TO-92	NPN		.20	.17
Z 1042	BC548	TO-92	NPN		.20	.17
Z 1044	BC549	TO-92	NPN		.20	.17
Z 1050	BC550	TO-92	NPN		.32	.17
Z 1052	BC556	TO-92	PNP		.32	.17
Z 1055	BC557	TO-92	PNP		.20	.17
Z 1057	BC558	TO-92	PNP		.20	.17
Z 1059	BC559	TO-92	PNP		.20	.17
Z 1061	BC635	TO-92	NPN		.69	.63
Z 1062	BC636	TO-92	PNP		.69	.63
Z 1064	BC639	TO-92	NPN		.60	.55
Z 1065	BC640	TO-92	PNP		.60	.55
Z 1068	BD139	TO-126	NPN		1.25	1.15
Z 1069	BD140	TO-126	PNP		1.25	1.15
Z 1073	BD437	TO-126	NPN		1.40	1.25
Z 1074	BD438	TO-126	PNP		1.40	1.25
Z 1076	BD649	TO-220	NPN		2.65	2.40
Z 1081	BD661	TO-126	NPN	Darlington	2.35	2.05
Z 1082	BD682	TO-126	PNP	Darlington	2.35	2.05
Z 1084	BDV64B	SOT-93	PNP		7.50	6.95
Z 1086	BDV65B	SOT-93	PNP		7.50	6.95
Z 1100	BER91A(UHF RF Trans				3.30	2.95
Z 1105	BF115 RF Transistor	TO-72	NPN		1.09	.99
Z 1110	BF469 Philips Trans.	TO-126	NPN		1.70	1.38
Z 1112	BF470 Philips Trans.	TO-126	PNP		1.70	1.38
Z 1114	BU208A	TO-3	NPN		7.70	7.35
Z 1116	BUX80	TO-3	NPN		5.70	5.35
Z 1117	BU326	TO-3	NPN		5.70	5.35
Z 1118	MJ2955	TO-3	PNP		2.75	2.50
Z 1120	MJ4032	TO-204	PNP	Darlington	21.25	20.35
Z 1122	MJ4035	TO-204	NPN	Darlington	18.95	18.00
Z 1123	M+P3055	TO-220	NPN		2,752.50	
Z 1124	MJ15003	TO-3	NPN		7.80	7.50
Z 1125	MJ15004	TO-3	PNP		7.80	7.50
Z 1126	MJE340	TO-126	NPN		1.80	1.50
Z 1127	MJE350	TO-126	PNP		1.80	1.50
Z 1128	MJE2955T	TO-220	PNP		2.25	2.05
Z 1129	MJE3055T	TO-220	NPN		2.10	1.98
Z 1130	TIP29C	TO-220	NPN	1A	1.80	1.65
Z 1132	TIP30C	TO-220	PNP	1A	1.80	1.65
Z 1134	TIP31C	TO-220	NPN	3A	1.70	1.60
Z 1136	TIP32C	TO-220	PNP	3A	1.70	1.60
Z 1138	TIP41C	TO-220	NPN	6A	1.90	1.70
Z 1140	TIP42C	TO-220	PNP	6A	1.90	1.70
Z 1142	TIP121	TO-220	NPN	Darl/ton (5a)	3.95	3.65
Z 1144	TIP126	TO-220	PNP	Darlington	2.25	2.15
Z 1146	TIP2955	TO-218	PNP	15A	2.30	2.20
Z 1148	TIP3055	TO-218	NPN	15A	2.40	2.25
Z 1150	TT800/2N3019	TO-39	NPN		1.80	1.65
Z 1152	TT801/2N4033	TO-39	PNP		2.30	2.05
Z 1157	MPSA55	TO-92	PNP		1.09	.98
Z 1160	2N2219	TO-39	NPN		1.50	1.35
Z 1164	2N2219 A	TO-39	NPN		1.50	1.35
Z 1166	2N2222 A	TO-18	NPN		.95	.90
Z 1167	2N2905	TO-39	PNP		1.35	1.30
Z 1168	2N3053	TO-39	NPN		1.35	1.20
Z 1170	2N3054	TO-66	NPN	4A	3.60	3.35
Z 1174	2N3055	TO-3	NPN	15A	2.75	2.50
Z 1177	2N3442	TO-3	NPN	10A	5.50	4.90
Z 1185	2N3643	TO-92	NPN		.29	.26
Z 1186	2N3644	TO-92	PNP		.69	.65
Z 1187	2N3645	TO-92	PNP		.60	.55
Z 1190	2N3771	TO-204	NPN	30A	6.30	5.85
Z 1192	2N3773	TO-204	NPN	16A	8.99	8.35
Z 1195	2N3740	TO-66	PNP	4A	6.95	6.35
Z 1200	2N3904	TO-92	NPN		.40	.35
Z 1201	2N3905	TO-92	PNP		.35	.33
Z 1230	2N4250	TO-92	PNP		.55	.50
Z 1235	2N4292	TO-92	NPN	RF	3.98	3.70
Z 1242	2N5087	TO-92	PNP		.75	.69

## Package Formats

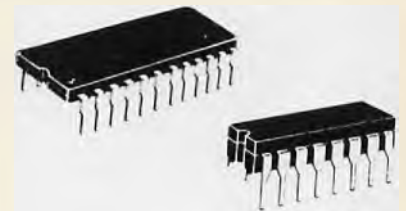


## SPECIAL FET/MOSFET

Z 1123	<b>MTP 3055A</b> N Channel Mosfet	2.75	2.50	Z 1510	<b>2SK134 NCL</b> Power Mosfet	9.95	9.40
Z 1240	<b>2N4342 TO-226</b> P Channel JFET	1.50	1.30	Z 1512	<b>2SJ49 PCH</b> Power Mosfet	9.95	9.40
Z 1243	<b>BF245C FET</b>	1.70	1.60	Z 1520	<b>2SJ56</b> Power Mosfet	16.95	15.00
Z 1245	<b>2N5458/MPF 104 TO-226</b> N Channel JFET	1.20	1.10	Z 1525	<b>2SK176</b> Power Mosfet	13.95	13.00
Z 1246	<b>2N5459/MPF 105 TO-226</b> N Channel JFET	1.10	.99	Z 1530	<b>BUZ71 Fet</b>	5.50	4.95
Z 1248	<b>MFE131 TO-206</b> Dual Gate Mosfet	2.95	2.65	Z 1540	<b>VN88AF</b>	5.95	5.40
Z 1250	<b>2N5484 TO-92</b> N Channel JFET	1.25	1.09	<b>UNIUNCTION</b>			
Z 1251	<b>2N5485 TO-92</b> N Channel JFET	1.15	.95				
Z 1252	<b>2N5486 TO-92</b> N Channel JFET	1.15	.95				
Z 1400	<b>2N2646 TO-18</b>	1.75	1.60	Z 1410	<b>2N6027 TO-92 PROG.</b>	1.20	1.10

## LINEAR IC'S

Z 2005	<b>CA3130 FET Op.Amp</b> 8 Pin Dtl	3.95	3.50	Z 2645	<b>LM/CA3080 Transcon</b> Op Amp	1.95	1.75
Z 2010	<b>CA3140 FET Op.Amp</b> 8 Pin Dtl	2.10	1.90	Z 2650	<b>LM3086 Transistor</b> Array	1.50	1.25
Z 2018	<b>DM2502 Successive</b> Approx.Reg.	29.75	27.50	Z 2655	<b>LM3900 Quad Norton</b> Op Amp	1.25	1.15
Z 2021	<b>ICL7555/TLC555</b> CMOS Timer	1.80	1.65	Z 2660	<b>LM3905 Precision</b> Timer	3.20	2.95
Z 2501	<b>LM301 Op.Amp</b> (Un-Comp)	1.20	1.10	Z 2665	<b>LM3909 Led</b> Oscillator	3.30	3.10
Z 2507	<b>LM307 Op Amp</b>	1.25	1.10	Z 2670	<b>LM3914 Led Bar/</b> Dot Driver	6.50	5.95
Z 2509	<b>LM308 Super Beta</b> Op.Amp	1.95	1.75	Z 2672	<b>LM3915 Led Bar/</b> Dot Driver	5.95	5.45
Z 2512	<b>LM310 Voltage</b> Follower	5.70	5.35	Z 2674	<b>LM3916 Led Bar/</b> Dot Driver	5.95	5.45
Z 2516	<b>LM311/UA311</b> Comparator	1.25	1.15	Z 2690	<b>LM/RC4136 Quad</b> Op Amp	2.95	2.85
Z 2520	<b>LM331N Prec.Voltage</b> to Freq.Convtr.	17.95	16.95	Z 2700	<b>MC1408 8 Bit Mult.</b> D-A Conv.	5.10	4.60
Z 2524	<b>LM324 Low Power</b> Quad Op Amp	1.40	1.25	Z 2705	<b>MC1488 Quad.</b> RS-232C Trans	1.95	1.85
Z 2528	<b>LM334Z Constant</b> Current Source	3.50	3.20	Z 2710	<b>MC1489 Quad.</b> RS-232C RX	1.95	1.85
Z 2530	<b>LM335Z Volt.Mode</b> Temp Sensor	17.50	15.95	Z 2755	<b>NE555 Timer IC</b>	.65	.60
Z 2532	<b>LM339 Quad</b> Comparator	1.20	1.05	Z 2758	<b>NE556 Dual Timer IC</b>	1.40	1.25
Z 2536	<b>LM/UA 348 Quad</b> Op Amp	2.25	2.10	Z 2760	<b>NE570 Compander IC</b>	7.50	6.95
Z 2540	<b>LM358 L/Pwr</b> Dual Op Amp	1.55	1.35	Z 2762	<b>NE571 Compander IC</b>	4.70	4.50
Z 2541	<b>LM359N Hi Speed</b> Norton Op Amp	5.95	5.50	Z 2790	<b>NE5534N Op Amp</b> Low Noise	2.70	2.50
Z 2542	<b>LM361 High Speed</b> Diff. Comp.	9.50	8.98	Z 2792	<b>NE5534AN Op Amp</b> V/Low Noise	3.50	3.20
Z 2546	<b>LM380 Power Amp</b> 14 Pin Dtl	3.45	3.20	Z 2805	<b>OM350 VHF Pre Amp</b>	15.95	14.60
Z 2550	<b>LM381 Low Noise</b> Dual Pre Amp	4.90	4.65	Z 2810	<b>SG2538N</b> Switching Reg.	8.20	7.90
Z 2552	<b>LM382 Low Noise</b> Dual Pre Amp	4.25	3.90	Z 2861	<b>TL061 Lo/Pwr</b> JFET Op Amp	1.95	1.80
Z 2554	<b>LM384 5 Watt</b> Audio Pwr Amp	5.50	4.95	Z 2862	<b>TL062 Lo/Pwr</b> 2XJFET Op Amp	2.60	2.40
Z 2556	<b>LM386</b> Low Volt.Amp.	2.40	2.20	Z 2864	<b>TL064 Lo/Pwr</b> 4XJFET Op Amp	4.50	4.10
Z 2558	<b>LM393 Dual</b> Comparator	1.25	1.15	Z 2871	<b>TL071 Lo/Nse</b> JFET Op Amp	1.19	1.09
Z 2560	<b>LM394CH Matched</b> Transistor Pair	8.95	8.15	Z 2872	<b>TL072 Lo/Nse</b> 2XJFET Op Amp	1.95	1.75
Z 2568	<b>LM709/UA709</b> Op Amp	1.60	1.50	Z 2874	<b>TL074 Lo/Nse</b> 4XJFET Op Amp	4.15	3.90
Z 2590	<b>LM741 Op Amp</b> 8 Pin Dtl	.99	.95	Z 2881	<b>TL061 GP JFET</b> Op Amp	1.45	1.20
Z 2595	<b>LM747 Dual</b> Op Amp	1.90	1.80	Z 2882	<b>TL062 GP 2XJFET</b> Op Amp	1.55	1.45
Z 2598	<b>LM883 Dual Low Noise</b> Op Amp	3.95	3.85	Z 2884	<b>TL064 GP 4XJFET</b> Op Amp	3.90	3.75
Z 2620	<b>LM1458/4558 Dual</b> Op Amp	1.09	.99	Z 2894	<b>TL494 Pulsewidth</b> Mod Cont CCT	4.50	4.35
Z 2640	<b>LM2817 Freq.to</b> Voltage Conv.	3.95	3.85	Z 2910	<b>MC1372P ColourTV</b> Video Modit.	5.25	3.95
				Z 2912	<b>MC1374P TV Modit.</b> Circuit	3.75	3.40
				Z 2914	<b>MC1377P Col.TV RGB</b> to PAL/NTSC Convtr.	6.95	6.50
				Z 2930	<b>MC145026 Trinary</b> Encoder	3.10	2.95
				Z 2932	<b>MC145028 Trinary</b> Decoder	3.95	3.60



## MEMORY CPU AND SUPPORT

Z 6106	<b>4118 MOT 16X1K</b> Dynamic RAM	6.50	6.05
Z 6116	<b>6116/2016 CMOS 2KX8</b> RAM 250NS	3.95	3.75
Z 6256	<b>41256 256K DRAM</b>	24.95	24.95
Z 6684	<b>4164/6664 64K DRAM</b>	8.95	8.45
Z 6680	<b>TMS4500 DRAM</b> Controller	29.50	27.00
Z 6800	<b>6800 Motorola CPU</b>	12.50	11.25
Z 6802	<b>6802 Motorola CPU</b>	11.98	11.85
Z 6810	<b>6810 MOT 128X8</b> STATIC RAM	6.80	6.50
Z 6821	<b>6821 Motorola PIA</b>	6.50	5.95
Z 8920	<b>74S189/TBP18SA030</b> 256 BIT PROM	7.50	6.90
Z 8922	<b>74S288/TBP18SO30</b> 256 BIT PROM	7.50	6.90
Z 9001	<b>Z80A 4MHZ CPU</b>	5.40	4.98
Z 9005	<b>Z80A 4MHZ PIO</b>	5.40	4.98
Z 9010	<b>Z80A 4MHZ CTC</b>	6.20	5.70
Z 9107	<b>2732 32K EPROM</b>	8.95	8.10
Z 9110	<b>2764 64K EPROM</b>	8.50	7.85
Z 9120	<b>27128 128K EPROM</b>	9.95	9.10
Z 9147	<b>M68582 Real Time</b> Clock 4 Bit	14.50	13.30
Z 9160	<b>8255 P.I.A.</b>	6.50	6.20
Z 9170	<b>AY-3-1015D 25K</b> BAUD UART	16.75	15.75
Z 9125	<b>27C55 EPROM</b>	12.95	11.95
<b>MISC SEMI CONDUCTORS</b>			
Z 7200	<b>NE566 Function</b> Generator	3.15	2.75
Z 7202	<b>NE567 PLL/Tone</b> Decoder	2.25	2.10
Z 7205	<b>XR2206 Function</b> Generator	10.95	10.75
Z 7216	<b>ICM7216A/IJL Intersil</b> DFM IC	79.00	75.00
Z 7220	<b>SAB0600 Door Chimes</b> Generator	9.95	9.10
Z 7225	<b>LM3911 Temperature</b> Control	4.80	4.35
Z 7230	<b>MM5369EYR/N 50HZ</b> TIMEBASE	6.50	6.15
Z 7231	<b>MM5369EST/N 60HZ</b> TIMEBASE	6.50	6.15
Z 7235	<b>MM5387 4 Dig.Al.Clock</b> Direct.LED Drv.	29.95	27.95
Z 7240	<b>MM53200 RX/TX</b>	9.90	8.98
Z 7245	<b>LM34018 Hand Free</b> Speaker Phone IC	9.95	9.50
Z 7250	<b>11C90 650MHZ DIV 10/11</b> Prescaler	17.25	15.90
Z 7292	<b>MM74C926N 4Dig.Dis.</b> Driver	12.50	12.00
Z 7296	<b>ICL7106 Dig.Dis.</b> Driver	14.95	13.95
Z 7298	<b>3.5 Digit</b> Display	12.95	12.45
Z 7300	<b>ZN414 AM Radio</b> Receiver/IC	1.70	1.50
Z 7310	<b>MC13020 AM Stereo</b> Decoder IC	9.95	9.20
Z 7320	<b>TDA1170S TV Vertical</b> Defl.system	6.50	5.95
<b>MODEM IC'S</b>			
Z 9215	<b>7910 World</b> Modem Chip	25.00	24.50

## CMOS

Z 4000	4000 D. 3 Input Nor Gate	.85	.80	Z 4032	4032 Triple Serial Adder	3.65	3.35	Z 4161	4161 Binary Counter A/S	1.65	1.70
Z 4001	4001 Quad 2 I/P Nor Gate	.80	.75	Z 4034	4034 8-ST/TRI-ST BI-DIR I/O Bus Reg	4.50	4.10	Z 4501	4501 Triple Gate	.90	.85
Z 4002	4002 Dual 4 IP Nor Gate	.80	.75	Z 4035	4035 4 Bit Shift Reg	2.00	1.90	Z 4502	4502 Strobed Hex Inv.	1.90	1.80
Z 4006	4006 18 Stg.Stat Shift Register	1.50	1.40	Z 4040	4040 12 STG Binary CTR	1.80	1.60	Z 4503	4503 Hex N/Inv Tri-St Buffer	1.30	1.20
Z 4007	4007 Dual Comp PR + Inv	.90	.85	Z 4042	4042 Quad Clocked D Latch	1.40	1.30	Z 4508	4508 Dual 4 Bit Lach	4.20	3.80
Z 4008	4008 4 Bit Full Adder	1.70	1.55	Z 4043	4043 Quad Nor RS Latch	1.40	1.30	Z 4510	4510 BCD Up/DN Counter	2.30	2.20
Z 4009	4009 Hex Buffer Inverting	1.50	1.35	Z 4046	4046 Micropower PLL	2.10	1.98	Z 4511	4511 BCD to 7 SEG DC/DR	2.30	2.20
Z 4010	4010 Hex Buffer N/Invert	1.60	1.45	Z 4047	4047 Low Pwr Mono/Asta M/VIB	4.50	4.10	Z 4512	4512 8 CHData Selector	1.70	1.60
Z 4011	4011 Quad 2 IP Nand Gate	.85	.80	Z 4049	4049 Hex Inverting Buffer	1.15	.99	Z 4514	4514 4-16 LN DCDR/4 BT LT	4.50	4.25
Z 4012	4012 Dual 4 IP Nand Gate	.85	.80	Z 4050	4050 Hex Buffer (Non/Inv)	1.15	.99	Z 4516	4516 Binary Up DN Cntr	1.98	1.90
Z 4013	4013 Dual D Flip Flop	1.05	.95	Z 4051	4051 8 CH A/Log Multipix	1.98	1.90	Z 4518	4518 BCD Up Counter	1.98	1.90
Z 4014	4014 8 STG STC Shift Reg	1.70	1.20	Z 4052	4052 4 CH A/Log Multiplexer	1.45	1.40	Z 4520	4520 Dual Binary Up Cntr	1.98	1.90
Z 4015	4015 Dual 4 Bit STAT Reg	1.30	1.20	Z 4053	4053 TPL 2 CH A/Log Multiplexer	1.70	1.60	Z 4521	4521 24 Stage Freq Divider	3.70	3.45
Z 4016	4016 Quad Analog Switch	1.20	1.15	Z 4055	4055 14 Bit Counter	1.70	1.60	Z 4526	4526 Prog 4 BT BI Counter	1.90	1.80
Z 4017	4017 Decade Counter Driver	1.40	1.30	Z 4060	4060 Quad A/Log Switch	1.15	1.05	Z 4528	4528 Dual Mono Multi	2.00	1.90
Z 4018	4018 Reset. Divide-BY-N	1.90	1.70	Z 4066	4066 8 Input Nand Gate	.95	.90	Z 4536	4536 Dual Mono/Freq Multiplexer	2.09	1.98
Z 4019	4019 Quad And OR SLT Gate	3.50	3.20	Z 4069	4069 Hex Inverter	.80	.75	Z 4543	4543 BCD-TSEGLT/DC/DR/LCD	2.10	2.00
Z 4020	4020 14 Stage Bin Counter driver	1.80	1.60	Z 4070	4070 Quad 2 Input And Gate	.80	.75	Z 4553	4553 3 Digit BCD Counter	4.90	4.60
Z 4021	4021 8 STG STAT Shift Register	1.80	1.60	Z 4071	4071 Quad 2 Input Or Gate	.80	.75	Z 4557	4557 1-64 BIT V/LNG Sift Reg	6.95	6.40
Z 4022	4022 Divide by 8 Counter divider	1.80	1.60	Z 4073	4073 TPL 3 Input And Gate	.80	.75	Z 4566	4566 Industrial Time Base Gen	3.15	2.95
Z 4023	4023 Triple 3 IPT Nand Gate	.95	.90	Z 4075	4075 TPL 3 Input And Gate	.80	.75	Z 4568	4568 Phase Comp.Prog Counter	4.50	4.10
Z 4024	4024 7 Stage Binary Counter Divider	1.05	.95	Z 4076	4076 Quad D Flip Flop	1.70	1.60	Z 4581	4581 4Bit Arithmetic L.Unit	5.95	5.50
Z 4025	4025 Triple 3 IPT Nor GT	.95	.90	Z 4077	4077 Quad Excl Nor gate	.85	.80	Z 4582	4582 Look Ahead Carry BLK	2.40	2.20
Z 4026	4026 Decade CTR-7-Seg Output	3.40	3.20	Z 4078	4078 8 Input Nor gate	.75	.70	Z 4583	4583 Dual Schmitt Trigger	2.10	1.98
Z 4027	4027 Dual JK Flip Flop	1.10	1.05	Z 4081	4081 Quad 2 Input And Gate	.85	.80	Z 4584	4584 Hex Schmitt Trigger	1.15	1.05
Z 4028	4028 BCD-TO-Decimal Decoder	1.45	1.30	Z 4082	4082 Quad 4 Input And Gate	.85	.80	Z 8450	74C14 Hex Schmitt Trig.	1.50	1.35
Z 4029	4029 Presettable UP/DN Counter	1.80	1.60	Z 4093	4093 Quad 2 Input Nand Sch/Trig	1.30	1.20				
Z 4030	4030 Quad 2 IPT Ex. Or Gate	1.10	1.05								

## 74/74LS/74HC SERIES

Please note we have listed the relevant last device digits only with this table e.g. device '10' is available as 7410 (Z 7410) 74LS10 (Z 8010) and 74HC10 (Z 8510). We have adopted this approach to enable you to ascertain at a glance type availability in the different families.



	7400 SERIES	74LS SERIES	74HC SERIES
00 Quad. 2 I/P Nand Gate	Z 7400 1.30 1.15	Z 8000 .70 .65	Z 8500 .85 .80
01 Quad. 2 I/P Nand Gate	Z 7401 1.30 1.15	Z 8001 .70 .65	
02 Quad. 2 I/P Nor Gate	Z 7402 1.30 1.15	Z 8002 .70 .65	Z 8502 .85 .80
03 Quad. 2 I/P Nand Gate(O/C)	Z 7403 1.30 1.15	Z 8003 .70 .65	
04 Hex Inverter	Z 7404 1.30 1.15	Z 8004 .70 .65	Z 8504 .85 .80
05 Hex Inverter (O/C)	Z 7405 1.30 1.15	Z 8005 .70 .65	
06 Hex Inverter Buffer Dvr (O/C)	Z 7406 1.30 1.15		
07 Hex Buff/Dvr (O/C)	Z 7407 1.30 1.15		
08 Quad. 2 I/P And Gate	Z 7408 1.30 1.15	Z 8008 .70 .65	Z 8508 .85 .80
09 Quad. 2 I/P And Gate	Z 7409 1.30 1.15	Z 8009 .70 .65	
10 Triple I/P Nand Gate	Z 7410 1.30 1.15	Z 8010 .70 .65	Z 8510 .85 .80
11 Triple I/P And Gate	Z 7411 1.30 1.15	Z 8011 .70 .65	
12 Triple I/P Nand Gate (O/C)	Z 7412 1.30 1.15	Z 8012 .70 .65	
13 Dual Nand Gate Schmitt Trigger	Z 7413 1.30 1.15	Z 8013 1.45 1.30	
14 Hex Schmitt Trigger	Z 7414 1.80 1.65	Z 8014 .98 .95	Z 8514 1.50 1.40
17 Hex Buffer Dvr (O/C)	Z 7417 1.30 1.15		
20 Dual 4 I/P Nand Gate	Z 7420 1.30 1.15	Z 8020 .95 .90	Z 8520 .85 .80
21 Dual 4 I/P And Gate	Z 7421 1.30 1.15	Z 8021 .98 .95	
23 Dual 4 I/P Nand Gate W/Strobe	Z 7423 1.30 1.15		
25 Dual 4 I/P Nor Gate W/Strobe	Z 7425 1.30 1.15		
27 Triple 3 I/P Nor gate	Z 7427 1.30 1.15	Z 8027 .98 .95	
30 8 I/P Nand Gate	Z 7430 1.30 1.15	Z 8030 .98 .95	Z 8530 .85 .80
32 Quad. 2 I/P Or Gate	Z 7432 1.30 1.15	Z 8032 .98 .95	Z 8532 .85 .80
33 Quad. 2 I/P Nor Gate (O/C)		Z 8033 1.09 .98	
37 Quad. 2 I/P Nand Buffer	Z 7437 1.30 1.15	Z 8037 .98 .95	
40 Dual 4 I/P Nand Buffer	Z 7440 1.30 1.15		
42 BCD to Decimal Decoder (O/C)	Z 7442 1.85 1.70	Z 8042 1.09 .98	Z 8542 2.15 2.05
47 BCD to 7 Seg Dec/Driver	Z 7447 2.20 2.09	Z 8047 1.80 1.65	
48 BCD to 7 Seg Dec/Driver		Z 8048 1.80 1.65	
49 BCD to 7 Seg Dec/Driver		Z 8049 1.95 1.75	
50 DL 2W 2 I/P A/O Inv Gate	Z 7450 1.40 1.30		
51 And/Or Inv Gate	Z 7451 1.40 1.30		
53 Exp 4W A/O Inv Gate	Z 7453 1.40 1.30		
54 4W And/Or Inv Gate	Z 7454 1.40 1.30	Z 8054 .98 .95	
60 Dual 4 I/P Expander	Z 7460 1.40 1.30		
70 And Gated JK Flip Flop	Z 7470 1.30 1.15		
72 And Gated JK Flip Flop	Z 7472 1.50 1.35		



## 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				
73 Dual JK FF W/-Clear	Z 7473	1.50	1.35	Z 8073	1.20	1.10	Z 8573	2.05	1.98
74 Dual D Type F/F	Z 7474	1.50	1.35	Z 8074	1.20	1.10	Z 8574	1.09	.98
75 4 Bit Bistable Latch	Z 7475	1.70	1.55	Z 8075	1.20	1.10			
76 Dual JK Flip Flop	Z 7476	1.85	1.70	Z 8076	1.60	1.50	Z 8576	1.70	1.60
78 Dual JK Flip Flop				Z 8078	1.40	1.25			
82 4 Bit Binary Full Adder	Z 7482	4.80	4.40						
83 4 Bit Full Adder	Z 7483	2.20	2.09	Z 8083	1.98	1.92			
85 4 Bit Magnitude Comp	Z 7485	2.35	2.15	Z 8085	1.45	1.35	Z 8585	3.15	2.95
86 Quad. Excl.Or Gate	Z 7486	1.55	1.45	Z 8086	.98	.95	Z 8586	1.09	.98
90 Decade Counter	Z 7490	1.85	1.70	Z 8090	1.09	.98			
91 8 Bit Shift Reg	Z 7491	2.70	2.50						
92 Divide By 12 Counter	Z 7492	1.95	1.75	Z 8092	1.35	1.20			
93 4 Bit Binary Counter	Z 7493	1.70	1.55	Z 8093	1.35	1.20			
94 4 Bit Shift Reg	Z 7494	4.50	4.10						
95 4 Bit Shift Reg	Z 7495	2.45	2.15	Z 8095	1.45	1.35			
96 5 Bit Register	Z 7496	2.85	2.60						
100 8 Bit Bistable Latch	Z 7700	4.30	3.95						
107 Dual JK Flip Flop	Z 7707	1.80	1.65	Z 8107	.98	.95	Z 8607	1.09	.98
109 Dual JK Flip Flop	Z 7709	1.55	1.45	Z 8109	.98	.95			
112 Dual JK Flip Flop				Z 8112	.98	.95			
121 Monostable Multivibrator	Z 7721	1.80	1.65						
122 Retriggerable Mono Multivibrator	Z 7722	1.80	1.65	Z 8122	1.40	1.30			
123 Dual Retriggerable Mono Multivibrator	Z 7723	1.80	1.65	Z 8123	1.30	1.15			
125 Quad. Tri State Buffer	Z 7725	1.70	1.55	Z 8125	1.65	1.55			
126 Quad. Tri State Buffer				Z 8126	1.20	1.09			
132 Quad. 2 I/P Nand Schmitt Trig.	Z 7732	2.25	2.10						
138 Decoder/Demultiplexer				Z 8138	1.20	1.09			
139 Decoder/Demultiplexer				Z 8139	1.45	1.35			
141 BCD to Dec Decoder/Drv	Z 7741	3.45	3.15						
143 Counter/Latch Decoder/Drv	Z 7743	8.75	7.98						
147 10 I/P Priority Encoder				Z 8147	2.95	2.70			
148 8 I/P Priority Encoder				Z 8148	2.95	2.70			
151 8 I/P Multiplexer				Z 8151	1.35	1.25	Z 8651	2.00	1.90
153 Dual 4 I/P Multiplexer				Z 8153	1.35	1.25			
155 Dual Decoder/Demultiplexer				Z 8155	1.20	1.09			
156 Dual Decoder/Demultiplexer				Z 8156	1.40	1.30			
157 Quad 2 I/P Multiplexer				Z 8157	1.45	1.35	Z 8657	2.00	1.90
158 Quad 2 I/P Multiplexer				Z 8158	1.45	1.35			
160 BCD Decade Counter	Z 7760	4.20	3.85	Z 8160	1.45	1.35	Z 8660	2.00	1.90
161 4 Bit Binary Counter	Z 7761	3.95	3.65	Z 8161	1.60	1.50			
162 BCD Decade Counter	Z 7762	4.10	3.75	Z 8162	1.60	1.50			
163 4 Bit Binary Counter				Z 8163	1.60	1.50	Z 8663	2.00	1.90
164 8 Bit Shift Register				Z 8164	1.65	1.55	Z 8664	2.00	1.90
165 8 Bit Shift Register				Z 8165	1.95	1.85	Z 8665	2.00	1.90
166 8 Bit Shift Register				Z 8166	1.70	1.60			
173 4 Bit D Type Register	Z 7773	2.75	2.60	Z 8173	1.70	1.60	Z 8673	2.00	1.90
174 Hex D Type Flip Flop				Z 8174	.90	.80	Z 8674	1.50	1.34
175 Quad.D Type Flip Flop				Z 8175	1.50	1.40	Z 8675	1.50	1.34
178 4 Bit Univ Shift Register	Z 7778	3.50	3.20						
190 U/D Decade Counter	Z 7790	1.85	1.70	Z 8190	2.10	1.98			
191 U/D Binary Counter	Z 7791	2.10	1.95	Z 8191	2.10	1.98			
192 U/D Decade Counter	Z 7792	4.20	3.85	Z 8192	2.10	1.98			
193 U/D Binary Counter	Z 7793	2.98	2.90	Z 8193	1.70	1.60	Z 8693	2.30	2.10
194 4 Bit R/L Shift Register				Z 8194	1.45	1.35			
195 4 Bit Shift Register				Z 8195	1.60	1.50	Z 8695	2.00	1.90
221 Dual Monostable Multivibrator				Z 8221	1.45	1.35			
240 Octal Inv B/L Dvr				Z 8240	2.20	2.10	Z 8740	2.00	1.90
241 Octal Bus Line Driver				Z 8241	2.10	1.98			
244 Octal 3 State Driver				Z 8244	2.50	2.38	Z 8744	2.20	2.00
245 Octal 3 State Transceiver				Z 8245	3.10	2.90	Z 8745	2.20	2.00
257 Quad. 2 I/P Multiplexer				Z 8257	1.40	1.30			
258 Quad. 2 I/P Multiplexer				Z 8258	1.20	1.08			
259 8 Bit Address Latch				Z 8259	1.70	1.60			
266 Quad. Exclusive Nor				Z 8266	1.40	1.30			
273 Octal D Type Flip Flop				Z 8273	2.25	2.10			
365 Hex Buffer	Z 7910	2.10	1.95	Z 8365	1.20	1.08			
366 Hex Inverter				Z 8366	1.20	1.09			
367 Hex Buffer				Z 8367	1.20	1.09			
368 Hex Inverter				Z 8368	1.20	1.09			
373 Octal Transparent Latch				Z 8373	2.25	2.10			
374 Octal D Type Flip Flop				Z 8374	2.25	2.10			
377 Octal D Type Flip Flop				Z 8377	2.10	1.98			
390 Dual Decade Counter	Z 7920	2.60	2.30						
393 Dual 4 Bit Shift Register	Z 7923	4.70	4.50	Z 8393	1.70	1.60			
426 Quad. Gate	Z 7926	3.30	3.10						
629 Volt Control Oscillator				Z 8429	6.60	6.15			
670 Register File				Z 8435	1.90	1.35			



### PROTECTION OF OUR OZONE LAYER

There has been much discussion recently on CFC's & how they destroy the ozone layer. Some Australian states have already passed legislation banning CFC products, & the Federal Government has just introduced it to Parliament. Altronics & Electrolube have not been idle! During 1989, CFC propellants in Electrolube products will be replaced with Propellant 22 (difluorochloromethane). Propellant 22 has the same excellent propelling qualities as CFC's including non-flammability, but **without** their harmful effects. Propellant 22 is widely recognised as technically the best replacement for those propellants listed in the 1987 Montreal Protocol as ozone depleting. Why has 22 not been used before? Because CFC's were cheaper. Only a worldwide company like Electrolube could utilise this excellent propellant to provide industry with a complete working range of cleaners, coatings, lubricants & service aids. Yes, Electrolube "H" range will be a little more expensive because of Propellant 22, but not as high as the price of our ozone layer. The new propellant cans will have a green tree and statement on the cap for identification. The high standards of industry & electronics need this propellant. Thank you Electrolube.

### Silicone Compound Aerosol

A multi-purpose compound with exceptional water and moisture-repelling characteristics. Contains no solvents — formulated from silicone compound and propellants for continuous application to the required thickness. Deposits a tenacious, grease-like coating to seal electrical and electronic equipment from the ingress of moisture and atmospheric pollution. Excellent resistance to tracking and corona discharge. Resists extremes of temperature (-50 deg C to +200 deg C). Insulates and protects metals, rubbers and plastics. Non toxic, non-flammable and odourless.

T 3050 **\$8.40**

### Anti-Static Foam Cleanser

A very efficient foaming cleanser for hard surfaces, especially those prone to static dust attraction. Specially developed for use on plastics, metals, glass and synthetic surfaces. Removes existing static charges and prevents further build-up for extended periods. \* **Not suitable for records, where only Electrolube Anti-Static Record Cleaner should be used.**

T 3055 **\$7.50**

### Contact Treatment Oil 170g Aerosol

An extra high-quality contact treatment oil for the most critical applications, when long-term performance and reliability are vital. Particularly suitable for new contact surfaces which are free of dust or tarnish and require the highest operational advantage. Anti-static, safe on most plastics, paints and rubbers.

T 3060 **\$9.75**

### Freezer

A safe, time-saving method for detecting dry joints and overheating components. Unique **Electrolube** formula contains a minute proportion of a special fluid to prevent the resultant condensation causing corrosion or reduction of insulation resistance. Other uses include preventing component damage during soldering, testing thermostats/thermosensitive components, repairing thermometer threads, and small mechanical shrink fitting. Cools to below - 50 deg C.

T 3080 **\$7.75**



### Electro Mechanical Lubricant

Identical electrical and mechanical properties to the Electro-Mechanical Lubricant aerosol, but supplied in a self-sealing nylon pen, with retractable snorkel tube, for pin point application.

T 3062 **\$6.50**

### Electro-Mechanical Lubricant

A non-conductive lubricant. Use to ensure smooth operation of moving electrical parts.

*No More Scratchy Pots Or Sticky Relays.*

T 3045 **\$7.50**

### Electronic Cleaning Solvent

A fast-drying, safety solvent for quick and efficient cleaning of electrical contacts, electronic components, tape heads, video equipment, computers and all delicate surfaces. Non-flammable, extremely low in toxicity, safe to use during equipment operation, and harmless to plastics, rubbers and elastomers. After cleaning electrical contact surfaces, apply an **Electrolube Contact Treatment**.

T 3065 **\$8.50**

### Clear Protective Lacquer

A flexible coating for protecting printed circuit boards components and surfaces from humidity and other forms of environmental attack, and for E.H.T. sealing. **Electrolube Clear Protective Lacquer** will not discolour or crack and is easy to solder-through, for modifications or repairs. The convenient aerosol pack eliminates the need to use expensive spray equipment involving laborious cleaning operations and viscosity checks. **Electrolube Clear Protective Lacquer** conforms to most International Specifications.

T 3085 **\$8.50**

### Printed Circuit Board Cleaner

A non-flammable blend of solvents for removing contaminants and flux residues from soldering. Test small area before use on plastics.

T 3067 **\$8.50**

## ELECTROLUBE SERVICE AIDS

### Conformal Coating

Aerosol—A MIL-SPEC lacquer for use when equipment may be exposed to extremes of temperature and weather. Department of Aviation Approval.

T 3090 **\$14.95**

### Contact Cleaning Strips

The unique cleaning, lubricating and protecting treatment for small relay and non-wiping contacts, edge connectors and other areas where only a very thin film of Contact Treatment is required.

T 3070 **\$5.50**

### Nickel Screening Compound

An electrically conductive coating which gives extremely efficient screening against RFI and EMI. With a quick drying time at room temperature, Nickel screening compound can be used to coat computer cabinets VDU's and a variety of electronic and electrical housing of any complex shape.

T 3100 **\$25.00**

### RP50 Positive Photoresist Aerosol

The RP50 aerosol is a fast drying positive photoresist for one to one reproduction of circuits, diagrams and images on metals from transparent positive masters. The aerosol has been introduced for small production requirements at home or in the lab.

Complete instructions for use are included with the aerosol. Used in conjunction with Photo resist developer.

T 3110 **\$8.95**

### Photo-Resist Developer

Safe Aqueous Alkali Developer for use with RP50 Photoresist. Takes 30-60 seconds at 20 deg. C.

T 3115 **\$9.95**

### Ultraclene Degreasing Solvent

Non flammable, fast drying general purpose safety solvent with powerful penetrating action for heavy duty degreasing applications. Highly recommended for cold cleaning. Test small area before use on plastics.

T 3064 **\$8.75**



**6 PAGES OF HANDY  
DATA INFORMATION**

**CB RADIO CHANNELS**

**HF 40 CHANNEL INTERNATIONAL  
STANDARD**

CHANNEL NO	FREQUENCY MHZ	CHAN NO	FREQUENCY MHZ
1	28.865	21	27.215
2	26.875	22	27.225
3	26.885	23	27.255
4	27.005	24	27.235
5	27.015	25	27.255
6	27.025	26	27.265
7	27.035	27	27.275
8	27.055	28	27.285
9 (emergency)	27.065	29	27.295
10	27.075	30	27.305
11	27.085	31	27.315
12	27.105	32	27.325
13	27.115	33	27.335
14	27.125	34	27.345
15	27.135	35	27.355
16	27.155	36	27.365
17	27.165	37	27.375
18	27.175	38	27.385
19	27.185	39	27.395
20	27.205	40	27.405

**VHF FM MARINE RADIOTELEPHONE (INTERNATIONAL CHANNELS)**

Channel Design	Frequency (MHz)		Type Traffic	Ship To Ship	Ship To Shore	Permanent Scan List
	Ship	Shore				
01	156.050	160.650	VTS	Yes	Yes	
02	156.100	160.700	Port Ops	Yes	Yes	
03	156.150	160.750	Port Ops	Yes	Yes	
04	156.200	160.800	Port Ops	Yes	Yes	
05	156.250	160.850	VTS	Yes	Yes	
06	156.300	156.300	Safety	Yes	No	
07	156.350	160.950	Com'l	Yes	Yes	
08	156.400	156.400	Com'l	Yes	No	
09	156.450	156.450	Com'l & Non Com'l	Yes	Yes	Fish
10	156.500	156.500	Com'l	Yes	Yes	
11	156.550	156.550	Com'l	Yes	Yes	
12	156.600	156.600	Port Ops	Yes	Yes	
13	156.650	156.650	Navigational	Yes	Yes	
14	156.700	156.700	Port Ops	Yes	Yes	
15	156.750	156.750	Environmental	Yes	Yes	Environmental
16	156.800	156.800	Safety Calling	Yes	Yes	
17	156.850	156.850	State Control	Yes	Yes	
18	156.900	161.500	Com'l	Yes	Yes	
19	156.950	161.550	Com'l	Yes	Yes	
20	157.000	161.600	Port Ops	Yes	Yes	
21	157.050	161.650	Coast Guard	Yes	Yes	
22	157.100	161.700	Coast Guard	Yes	Yes	
23	157.150	161.750	Coast Guard	Yes	Yes	
24	157.200	161.800	Public Corresp.	No	Yes	Busy Tel.
25	157.250	161.850	Public Corresp.	No	Yes	Busy Tel.
26	157.300	161.900	Public Corresp.	No		Busy Tel.
27	157.350	161.950	Public Corresp.	No		Busy Tel.
28	157.400	162.000	Public Corresp.	No		Busy Tel.
60	156.025	160.625				
61	156.075	160.675				
62	156.125	160.725				
63	156.175	160.775				
64	156.225	160.825				
65	156.275	160.875	Port Ops	Yes	Yes	
66	156.325	160.925	Port Ops	Yes	Yes	
67	156.375	156.375	Com'l	Yes	No	
68	156.425	156.425	Non Com'l	Yes	Yes	Fish
69	156.475	156.475	Non Com'l	Yes	Yes	Fish
71	156.575	156.575	Non Com'l	Yes	Yes	Fish
72	156.625	156.625	Non Com'l	Yes	No	Fish
73	156.675	156.675	Port Ops	Yes	Yes	
74	156.725	156.725	Port Ops	Yes	Yes	
77	156.875	156.875	Port Ops	Yes	No	
78	156.925	161.525	Non Com'l	Yes	Yes	
79	156.975	161.575	Com'l	Yes	Yes	
80	157.025	161.625	Com'l	Yes	Yes	
81	157.075	161.675	Coast Guard	Yes	Yes	Coast Guard
82	157.125	161.725	US Gov.Only	Yes	Yes	
83	157.175	161.775	Coast Guard	No	Yes	Coast Guard
84	157.225	161.825	Public Corresp.	No	Yes	Busy Tel.
85	157.275	161.875	Public Corresp.	No	Yes	Busy Tel.
86	157.325	161.925	Public Corresp.	No	Yes	Busy Tel.
87	157.375	161.975	Public Corresp.	No	Yes	Busy Tel.
87A	157.375	157.375				
88	157.425	162.025	Com'l	Yes	No	Busy Tel.

**UHF 40 CHANNEL AUSTRALIAN  
STANDARD**

CHANNEL NO	FREQUENCY MHZ	CHAN NO	FREQ. MHZ
1	476.425	21	476.825
2	476.450	22	476.850
3	476.475	23	476.875
4	476.500	24	477.000
5 (emergency)	476.525	25	477.025
6	476.550	26	477.050
7	476.575	27	477.075
8	476.600	28	477.100
9	476.625	29	477.125
10	476.650	30	477.150
11	476.675	31	477.175
12	476.700	32	477.200
13	476.725	33	477.225
14	476.750	34	477.250
15	476.775	35	477.275
16	476.800	36	477.300
17	476.825	37	477.325
18	476.850	38	477.350
19	476.875	39	477.375
20	476.900	40	477.400

**27MHz MARINE FREQUENCIES**

Frequency (MHz)	Channel Use
27.680	Commercial organisations. Domestic ship-shore-ship and intership, calling and working.
27.720	Professional fishermen. Domestic, ship-shore-ship, calling and working
27.820	Professional fishermen. Intership.
27.860	Amateur organisations. Alternate calling and working for distress, emergency and safety messages for weather and position reports.
27.880	<b>Distress calling ONLY</b>
27.900	Amateur organisations. Domestic ship-shore-ship, calling and working.
27.910	Amateur organisations. Domestic ship-shore-ship, calling and working.
27.940	Amateur organisations. Club events, ship-shore-ship and intership, calling and working.
27.960	Amateur organisations. Intership.
27.980	Surf rescue.

27MHz marine radio channels should not be confused with 27MHz CB radio channels. While both are in the 27MHz band they are not interchangeable and a 27MHz CB cannot be used on the 27MHz marine band and vice versa.

**SEE PAGES 36 & 37  
FOR CB AND MARINE TRANCEIVERS**

## DIN CONNECTORS

Notes — The numbering of the contacts is shown as seen on the mating face of the connector.

Notes 2 — The same connectors are used for monaural and stereophonic systems.

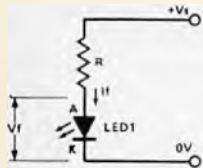
Notes 3 — Normally, it is recommended to connect the shell of the plug to terminal 2 of the connector to ensure that the screen is earthed.

Contact arrangement See Note 1	IEC Type designation *		Application	Connections					
	Pin connector	Socket connector		1	2	3	4	5	
	01	02	Microphone	Monaural system (balanced) Hot lead		Return lead			
				Monaural system (unbalanced) Hot lead					
	03	04	Microphone	Stereophonic system (balanced) Hot lead of left-hand channel	Screening: earth	Return lead of left-hand channel	Hot lead of right-hand channel	Return lead of right-hand channel	
				Stereophonic system (unbalanced) Hot lead of left-hand channel			Hot lead of right-hand channel		
			Record player	Monaural system			Hot lead		Connected to 3
			See Note 2	Stereophonic system			Hot lead of left-hand channel		Hot lead of right-hand channel
			Tape recorder	Monaural system	Input signal	Output signal	Connected to 1	Connected to 3	
			See Note 2	Stereophonic system	Input signal of left-hand channel	See Note 3	Output signal of left-hand channel	Input signal of right-hand channel	Output signal of right-hand channel

## LEDS

COLOUR	RED	ORANGE	YELLOW	GREEN
V <sub>F</sub> (TYPICAL)	1.8V	2.0V	2.1V	2.2V

TABLE 1 Typical forward voltage characteristics of standard LEDs with forward current set at 20 mA.



OPERATING LED FROM DCV

$$R = \frac{V_s - V_f}{I_f}$$

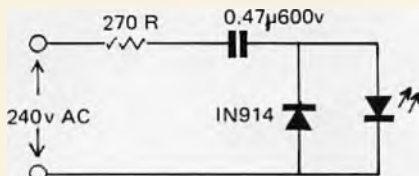
OPERATING LED FROM ACV AS AN INDICATOR

$$R = \frac{0.5 (V_s - V_f)}{I_f}$$

IN914

The above formulas should be used in conjunction with Table 1 to determine the required series resistance to operate LEDs at 20mA.

OPERATING DIRECTLY FROM 240V AC MAINS



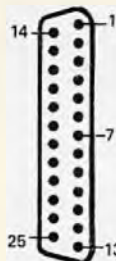
The above circuit results in a LED current of approximately 16mA.

## COMPUTING TERMS

**ASM:** Assembler.  
**BASIC:** Beginners All-purpose Symbolic Instruction Code.  
**BDOS:** Basic Disk Operating System.  
**BIOS:** Basic Input/Output System.  
**Bit:** Binary Digit. Either 1 or 0.  
**Bug:** an error in a program.  
**Byte:** A computer word eight bits wide.  
**CBASIC:** A commercial version of the BASIC language, running under CP/M.  
**CCP:** Console Command Processor.  
**Chain:** To automatically run one program after another.  
**CRT:** Cathode Ray Tube.  
**DDT:** Dynamic Debug Tool.  
**Editor:** A program which lets you alter and correct source files and other documents.  
**FIFO:** First in, first out.  
**IFF:** If and only if.  
**I/O:** Input/Output.  
**Kilobyte:** 1024 bytes (Kbyte).  
**Kilobaud:** 1000 baud (kbaud).  
**Macro:** A user-defined sequence of instructions which can be inserted anywhere in a program.  
**MBASIC:** Microsoft BASIC.  
**NAD:** A name and address file maintenance program.  
**Page:** A length of memory, typically 256 bytes.  
**Parity:** An extra bit on the end of a character or byte for error detection.  
**PIP:** Peripheral Interchange Program.  
**Poll:** To ask a peripheral if it requires service.  
**R/O:** Read Only; cannot be overwritten.  
**RAM:** Random Access Memory.  
**RPN:** Reverse Polish Notation.  
**TTY:** Teletype.

## RS232C CABLE PLUG CONNECTIONS

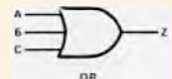
PIN NO.	SIGNAL
2	TRANSMIT DATA
3	RECEIVED DATA
7	SIGNAL GROUND
4	RTS
5	CTS
8	RLSD
6	DSR
20	DTR



## BASIC LOGIC FUNCTIONS



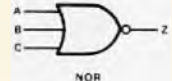
AND



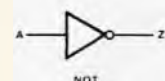
OR



NAND



NOR



NOT



EXCLUSIVE-OR

## STANDARD CENTRONICS PRINTER PLUG CONNECTIONS

PIN NO. SIGNAL

19	SIGNAL GROUND
2	DATA BIT 0
3	DATA BIT 1
5	DATA BIT 2
5	DATA BIT 3
6	DATA BIT 4
7	DATA BIT 5
8	DATA BIT 6
1	DATA STROBE
10	DATA ACKNOWLEDGE
11	INPUT BUSY READY



# RESISTORS

They are generally small cylindrical devices between 5 and 40mm long. They are recognized by coloured rings around them.

Large wattage types are generally rectangular and have their values written on them.

Resistance is measured in ohms, which is abbreviated to Ohm or Ω. Thousands of ohms is abbreviated to K and millions of ohms to M.

Eg. 10,000 ohm is 10K  
15,000 ohm is 15M

The coloured rings around a resistor determine its value. The first three indicate its resistance, and the fourth its tolerance.

Tolerance is how much it varies from its specified value. This is given as a percentage.

Eg. 5% tolerance. The fourth band is Gold. A 100 Ohm 5% tolerance resistor could be anywhere between 95-105 ohm.

Circuits generally take this into account.

To determine resistor value, the first two rings are the significant value, the third ring is the number of zeros following:-

**Examples:-**

68 ohms, 5% . . . Blue, Grey, Black, Gold  
1K ohm, 5% . . . Brown, Black, Red, Gold  
560K ohm, 5% Green, Blue, Yellow, Gold  
47K ohm, 2% Yellow, Violet, Orange, Red

## Ohm's Law

The relationship between resistance, voltage and current is defined by Ohm's Law. The formulas are:

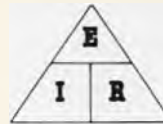
$$E = I \times R$$

$$I = E/R$$

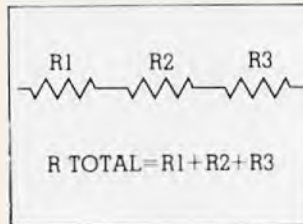
$$R = E/I$$

Where:  
E = Volts  
R = Resistance in Ohms  
I = Current in Amps

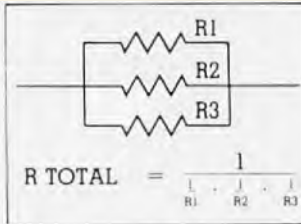
An easier way to remember Ohm's Law is by this diagram. Just cover up the value you are looking for, and the formula shows.



### Resistors in series



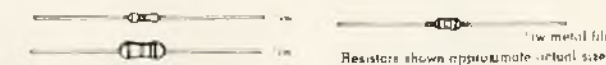
### Resistors in parallel



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)

### Close Tolerance Resistors

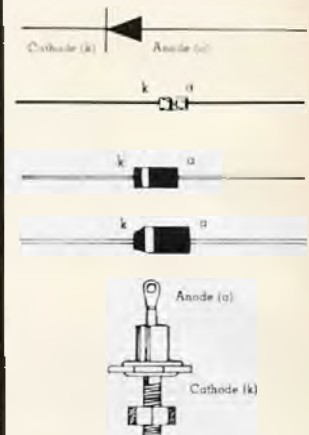
1% resistors have five coloured bands instead of four. The colour coding is basically the same except that they have three bands indicating the significant values, the fourth band is the multiplier and the fifth is the tolerance.



# Diodes

Diodes are used to rectify current, and also detect signals. They are generally rated in terms of voltage and current.

Most diodes are about 3-10mm long and cylindrical. They may be black or clear. Diodes are always polarized. The positive or cathode is marked with a black or silver stripe. You can check whether or not a diode is destroyed by measuring its resistance with an ohmmeter. If the diode is OK, it will have an extremely high resistance in one direction and a low resistance in the other direction. When testing, don't touch the leads with your fingers. This will give misleading readings.



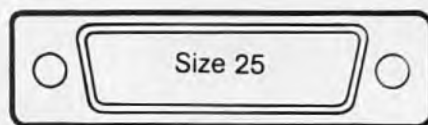
## Shell sizes

Actual size reproductions

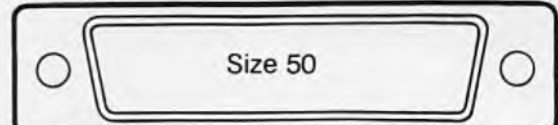
D' type subminiature shell sizes. You can work panel cutouts from this information. (They are actual size)



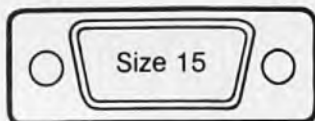
1.239" x .515" overall  
(31.47 x 13.08)



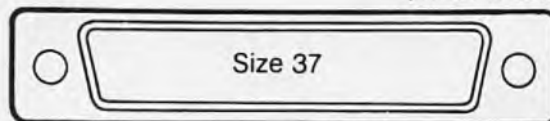
2.107" x .515"  
(53.57 x 13.08)



2.661" x .626"  
(67.59 x 15.90)



1.567" x .515"  
(39.80 x 13.08)



2.754" x .515"  
(69.95 x 13.08)

## CAPACITORS

Capacitors store electrical charge, and can transmit alternating current, although they can't pass a direct current.

Capacitor markings puzzle amateurs and professionals alike. There are many different codes.

The most common types are Greencaps, ceramics, styrofoam, electrolytic and tantalum.

Electrolytic and tantalum capacitors are polarised. This means that they have a positive and a negative lead and must be installed the correct way round.

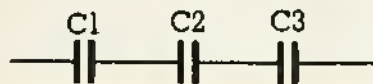
Capacitance is measured in Farads. A Farad is very large, and in most cases the units used are fractions of a Farad.

Microfarad (uF) ..... a millionth of a farad  
 Nanofarad (nF) ..... a thousandth of a microfarad  
 Picofarad (pF) ..... a thousandth of a nanofarad  
 So .001uF = 1nF = 1,000pF

### CAPACITOR MAGNITUDES

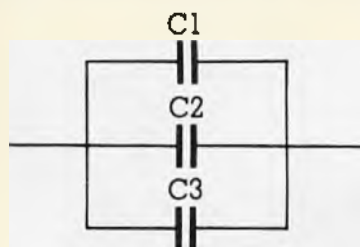
100,000 pF	=	0.1uF or 100nF
10,000 pF	=	0.01uF or 10nF
1,000 pF	=	0.001uF or 1nF
100 pF	=	as is (100pF)
10 pF	=	as is (10pF)
1 pF	=	as is (1pF)

### CAPACITORS IN SERIES



$$C_{TOTAL} = \frac{1}{\frac{1}{C1} + \frac{1}{C2} + \frac{1}{C3}}$$

### CAPACITORS IN PARALLEL

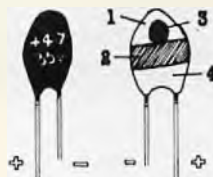


$$C_{TOTAL} = C1 + C2 + C3$$

## TANTALUMS

These are generally marked in uF, with the voltage and polarity clearly marked.

Some only have a colour code and a dot on them. Looking at the capacitor with the dot towards you and the leads down, the positive is the lead on the right hand side.



### TANTALUM CAPACITOR COLOUR CODE

Colour	1	2	3	4
Black	-	0	x1μF	10V
Brown	1	1	x10μF	-
Red	2	2	x100μF	-
Orange	3	3	-	-
Yellow	4	4	-	6.3V
Green	5	5	-	16V
Blue	6	6	-	20V
Violet	7	7	-	-
Grey	8	8	x0.01μF	25V
White	9	9	x0.1μF	3V
Pink	-	-	-	35V

## GREENCAPS

Greencaps can be marked in a number of different ways. Generally the value is marked in uF:- .001/100. The 100 represents the maximum voltage the capacitor can work at.

The IEC capacitor code is often used. An example would be:- 123K

The first two numbers are the significant figures, and the third the number of zeroes following. The value so derived is in pF. The letter (K in this case) indicates the tolerance.

M = 20% tolerance  
 K = 10% tolerance  
 I = 5% tolerance

So a 153K is a 15,000pF or 15nF or 0.015uF, 10% tolerance greencap. Larger value greencaps are usually marked in Microfarads:- e.g. 0.01uF.

Greencaps are also available in some values at voltage ratings up to 630VDC.

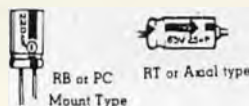


## ELECTROLYTICS

Most Electro's have their capacitance and voltage rating marked on them. Electro's are always marked in uF. Tolerance is not usually marked, but it can vary greatly. A 100uF capacitor could well be anywhere between 80uF and 150uF. Circuits take this into account.

The negative symbol is generally marked.

Electro's must be put in circuit the right way round.



## CERAMICS

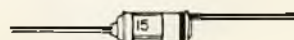
Small ceramics are marked in pF (picofarads) Eg. 1pF to 820pF. Above that they usually revert back to uF. Remember that 1000pF equals 0.001uF. Ceramic capacitors used in kits are usually rated at 50V dc.



## STYROSEALS

These capacitors are marked thus:- 47/630. The first figure is the value in pF and the second is the DC working voltage. Thus a styrofoam marked in this way would be 47pF and 630V DC working voltage.

Styrofoams are not polarized and so may be inserted in circuit either way round.

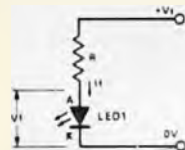


## LED's

Light Emitting Diodes are a special type of diode which lights up when a voltage is applied. They are available in red, green, yellow, orange and in various sizes and shapes. LEDs are polarized, and can be damaged by reverse connection. As a general rule, the longer lead is the positive.

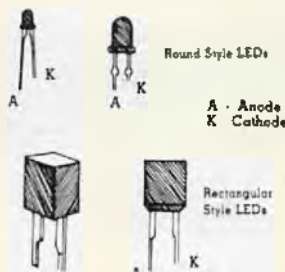
COLOUR	RED	ORANGE	YELLOW	GREEN
V <sub>F</sub> (TYPICAL)	1.8V	2.0V	2.1V	2.2V

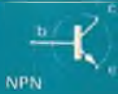
TABLE 1 Typical forward voltage characteristics of standard LEDs with forward current set at 20 mA.



OPERATING LED FROM DC

$$R = \frac{V_s - V_f}{I_f}$$





## TRANSISTOR PINOUTS (All viewed from below)



TO18a	TO18b	7D3AV TO3	TO5	TO5a
TO7	TO12	TO18	TO18u	TO39
TO86	TO86i	TO72g	TO72	TO92
TO92a	TO92b	TO92c	TO92d	TO92e
TO92f	TO92g	TO92h	TO92j	TO98
TO106	TO106i	TO126	SO12a	SO55
E-line	C220	P1	P2	P3

## MORE PINOUTS

**Diodes and Zener diodes**

Positive  
5V 7805 or LM340T5  
12V 7812 or LM340T12  
15V 7815 or LM340T15

Negative  
5V 7905 or LM320T5  
12V 7912 or LM320T12  
15V 7915 or LM320T15

LM317K is a variable 1A regulator 2-30V

**LEDs**

**VOLTAGE REGULATORS**

LM317T LM340T LM320T

ADJ OUT IN GND IN OUT

**Small Signal FETs**

2N5457 2N5458 2N5459 2N5484 2N5485 MPF106

G - Gate  
S - Source  
D - Drain

**Tantalum capacitors**

**Programmable Unijunction Transistor (PUT)**  
2N6027/D13T1

## STANDARD OP AMP CONFIGURATIONS

**INVERTING AMPLIFIER**  
 $V_{out} = -R2/R1 \times V_{in}$   
 $R3 = R1$  in pl. with  $R2$   
INPUT IMPEDANCE =  $R1$

**NON-INVERTING AMPLIFIER**  
 $V_{out} = R1 + R2/R1 \times V_{in}$   
Make  $R1$  in pl. with  $R2$  = SOURCE RESISTANCE

**VOLTAGE FOLLOWER**  
 $V_{out} = V_{in}$   
Make  $R1 =$  SOURCE RESISTANCE

**LOW PASS FILTER**  
CORNOR FREQUENCY =  $1/2\pi R3 C$   
UNITY GAIN FREQUENCY =  $1/2\pi R1 C$   
 $R2 = R1$  in parallel with  $R3$

## ELECTRICAL FORMULAE

**OHM'S LAW** The relationship between resistance, voltage and current is defined by Ohm's Law. The formulas are:-

$E = I \times R$  Where  $E =$  Volts  
 $I = E/R$   $R =$  Resistance in Ohms  
 $R = E/I$   $I =$  Current in Amps

### Series and Parallel Connections

Resistors in series

$$R_{total} = R1 + R2 + R3 + \dots$$

Resistors in parallel

$$R_{total} = \frac{1}{1/R1 + 1/R2 + 1/R3 + \dots}$$

Capacitors in series

$$\frac{1}{C_{total}} = \frac{1}{C1} + \frac{1}{C2} + \frac{1}{C3} + \dots$$

Capacitors in parallel

$$C_{total} = C1 + C2 + C3 + \dots$$

## POWER IN A CIRCUIT

The relationship between current flowing through a given resistance at any voltage is defined by

$P = E \times I$  where  $E =$  volts  
 $E = P / I$   $P =$  power  
 $I = P / E$   $I =$  current

## ZENER DATA

VOLTAGE	400mW TYPES*	1W TYPES**
3.3	1N746	1N4732
3.6	1N747	1N4733
3.9	1N748	1N4734
4.3	1N749	1N4735
4.7	1N750	1N4736
5.1	1N751	1N4737
5.6	1N752	1N4738
6.2	1N753	1N4739
6.8	1N754, 1N957	1N4740
7.5	1N755, 1N958	1N4741
8.2	1N756, 1N959	1N4742
9.1	1N757, 1N960	1N4743
10	1N758, 1N961	1N4744
11	1N962	1N4745
12	1N759, 1N963	1N4746
13	1N964	1N4747
15	1N965	1N4748
18	1N966	1N4749
18	1N4112	1N4750
20	1N968	1N4751
22	1N969	1N4752
24	1N970	1N4753
27	1N971	1N4754
30	1N972	1N4755
33	1N973	1N4756

\* Dissip: 400mW, Op Temp 50°C, Case DO 7 or DO-35  
 \*\* Dissip: 1W, Op Temp 50°C, Case DO 41. This range will dissipate up to 3 watts @ 75°C with 10mm lead length at heatsink

## AVERAGE, RMS, PEAK, AND PEAK-TO-PEAK VALUES FOR A SINE WAVE

Given Value	Multiplying Factor to Get			
	Average	RMS	Peak	Peak-to-Peak
Average	—	1.11	1.57	3.14
Rms	0.9	—	1.414	2.828
Peak	0.637	0.707	—	2.0
Peak-to-Peak	0.32	0.3535	0.5	—

SUFFIXES 'k', 'm', 'M' etc after component values indicate a numerical multiplier or divider - thus

Multipliers	Dividers
k = X 1000	u = ÷ 1000 000
M = X 1000 000	n = ÷ 1000 000 000
G = X 1000 000 000	p = ÷ 1000 000 000 000

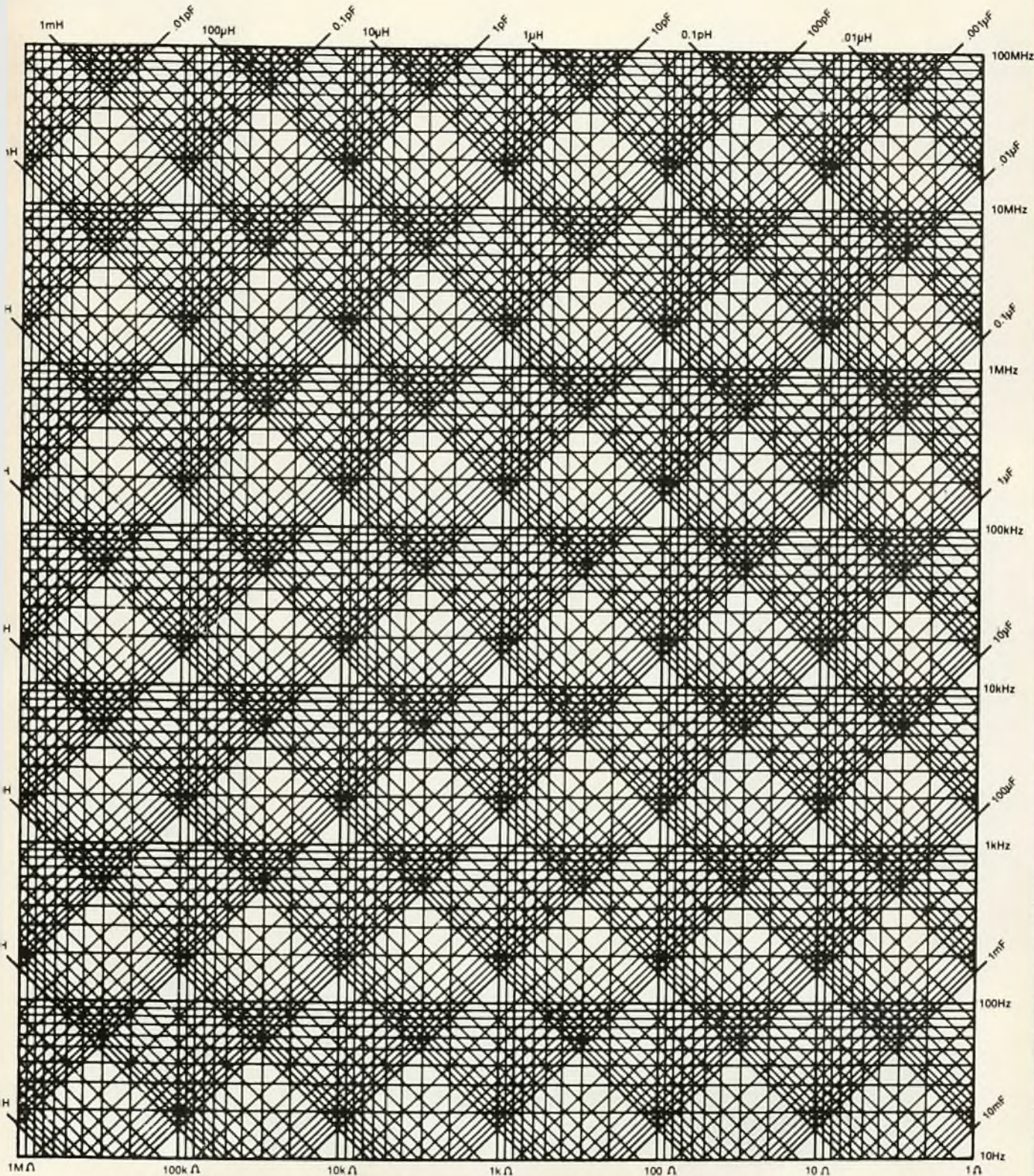
## Reactance-Frequency Chart For Capacitors Inductors & Tuned Circuits

This chart can save a great deal of time when selecting values for coupling and bypassing capacitors, etc. Using it you can frequently avoid tedious calculations. To find the reactance of a capacitor at a given frequency, follow the 45° capacitance value line until it intersects the horizontal frequency line, then read downwards to the ohms scale at the bottom. The reactance of an inductor can be read in a similar manner.

The chart can also provide information about resonant circuits. For example, locate where particular values of L & C intersect and read off the resonant frequency. If frequency is known and either L or C, find the intersect and read off the remaining value. Again, by following along a particular frequency line, a variety of LC options for resonance can be determined.

To design simple 6dB/octave speaker crossover networks, follow the appropriate resistance line up to where it intersects the desired crossover frequency and read off the required values of L & C.

Interpolate for values between the lines, using a needle point for increased accuracy.



## Altronics Resellers

Chances are there is an Altronics Reseller right near you — check this list or phone us for details of the nearest dealer.

**Blue Ribbon Dealers** are highlighted with a ■ These dealers generally carry a comprehensive range of Altronics products and kits or will order any required item for you.

**Don't forget our Express Mail and Phone Order Service** — for the cost of a local call, Bankcard, Visa or Mastercard holders can Phone Order for same day despatch.

**Please Note:** Resellers have to pay the cost of freight and insurance and therefore the prices charged by individual dealers may vary slightly from this Catalogue — in many cases, however, Dealer prices will still represent a significant cost saving from prices charged by Altronics Competitors.

### WA COUNTRY

**ALBANY**  
BP Electronics ■ ..... 412681

**ESPERANCE**  
Esperance  
Communications .... 713344

**GERALDTON**  
KB Electronics  
& Marine ..... 212176

**KALGOORLIE**  
Todays  
Electronics ■ ..... 215212

**KARATHA**  
Daves  
Oscitronic ..... 854836

**MANDURAH**  
Lance Rock  
Retravision ..... 351246

**NEWMAN**  
Watronics ..... 751734

**PORT HEDLAND**  
Ivan Tomek  
Electronics ..... 732531

**WYALKATCHEM**  
D & G.J Pease ..... 811132

### SA CITY

**Force**  
Electronics ■ ..... 2125505

**SUBURBAN**

**BRIGHTON**  
Force  
Electronics ■ ..... 3770512

**CHRISTIES BEACH**  
Force  
Electronics ■ ..... 3823366

**ENFIELD**  
Force  
Electronics ■ ..... 3496340

**FINDON**  
Force  
Electronics ■ ..... 3471188

**LONSDALE**  
Force  
Electronics ■ ..... 3260901

### COUNTRY MT.GAMBIER

South East  
Electronics ..... 250034

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