

ALTRONICS

ELECTRONIC COMPONENTS CATALOGUE

Supplement to Electronics Australia Magazine February 1988



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Dear Customer,

Firstly, a sincere thank you to the many 1000's of you who we had the privilege of serving in 1987. We trust we delivered the high standard of service that we intended and which you rightly deserve.

Well here is our new Catalogue released right at the commencement of this exciting Bicentennial Year. We hope it will be a handy Electronics Shopping Guide for you over the next 12 months or so. The Altronics Catalogue is written and produced right here on our premises, and that includes typesetting, camera work, paste-up, layout - the works.

A number of us "burnt the midnight oil" for a few weeks this summer when there are probably better things to do, but naturally enough we're all proud of the finished article.

We purposely have avoided a full colour Catalogue format as we calculate this, and the cost of using an outside agency to produce it would add at least \$50,000 to our overheads! This is quite ridiculous in my view. I believe we serve you better in keeping our costs, and hence our prices down.

Last year was a bit of a mile stone for us as we moved into our fantastic new premises in Roe Street, Perth. The working conditions are a quantum leap on our previously cramped setup and we have one of the most up to date "Electronic Supermarkets" you will find anywhere. If you are visiting Perth this year please drop in and say hello. We will be delighted to see you.

You will note some great new Constructor Kit Projects in this year's Catalogue. Our thanks go to Jim Rowe and the team at Electronics Australia for the continued high standard of projects. I'm also very enthusiastic about the recently released Silicon Chip Magazine - "SC" looks like being an outstanding mag for the Electronic Enthusiast with some excellent projects to build forecast for 1988. Congratulations to Leo Simpson and Greg Swain on a great job.

Sadly our Australian Dollar buys a lot less than it did even a year ago and prices of imported components and products have risen in cost accordingly. We've fought hard to keep price increases down to a minimum with our bulk purchasing power and you may be surprised to note many 100's of products are at 1987 price levels.

We are dedicated to providing you with total service. Naturally we want your business but we want you to also appreciate that we are all Electronic Enthusiasts, just like yourself, so if you wish to enquire as to the technical suitability of a product, or if you become a trifle stumped when building an Altronics Kit, you can be confident that help is just a phone call away.

Lastly, should you have any constructive suggestions or a complaint, I want to hear from you.

I am determined to leave our competitors behind with our high standard of service and customer satisfaction, so write to me personally should you feel we have ever given less than our best. Have a great Bicentennial Year,

Regards,

Jack O'Donnell
Jack O'Donnell



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ELECTRONIC KIT SET PROJECTS AVAILABLE FOR 1988 FROM **ALTRONICS**



Seven Reasons Why A Quality Project Kit From Altronics Will Often Cost A Trifle More Than From One Of Our Competitors

1. Our Kits are complete with all chassis, cases, panels, mains cords etc., we even include solder! - don't be fooled by the "shortform" kits some suppliers offer, these are often more expensive pro rata than an Altronics Kit.

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

3. Quality screened panels are provided in lieu of "stick on" Scotchcal type labels. The resultant good looks puts an Altronics kit product way in front of the rest.

4. Altronics build yourself projects include step by step instructions

enabling the reasonably careful beginner to successfully complete most projects.

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

6. We take the trouble to build a prototype of each new magazine project whenever possible. In this way we can often add construction hints and additional info to assist the kit builder to get it right 1st time.

7. Lastly we are Electronic Enthusiasts just like yourself, so when you do need a little help or advice, we are just a phone call away. We also offer a repair service at nominal cost to those who get absolutely "stumped" with a project.

Just Some of the Fantastic New Kits for '88



1GHz Freq. Counter



600W
12/240V Inverter



Dual Track P/Supply



8 Way Remote Control



100W
Amp
Module



Super Large
7 Seg. Display



Colour Bar
Pattern Gen.



Millivolt
Meter



Cap. Tester
Multimeter
Adaptor

Dear Constructor,

We are all very excited with the new Kits currently being released. Silicon Chip's new 1 GHz Frequency Counter is outstanding and costs around half of an equivalent commercial unit.

Incidentally with the ever increasing cost of imports, it now makes more sense than ever to "build your own".

We are 100% dedicated to producing constructor Kits of excellence and welcome your comments whether they be a criticism, suggestion or details of any difficulty you may have had building a project.

All the best from Altronics Kit Staff

Brian Sorensen
Manager Kits and R & D



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SOME COMMENTS FROM OUR VALUED CUSTOMERS

" I recently ordered a K 6770 600 Watt Inverter Kit from your Company and wish to thank you for the manner in which -

- My order was taken
- My call enquiring as to progress was returned
- The Kit was packed and delivered to my door, and
- The superb quality of the cabinet and Printed circuit boards, etc.

I now have the unit finished and working".

D.C. Paice, Mt. Waverly Vic. 3149

"Firstly I would like to thank you for the prompt service we received from Altronics.

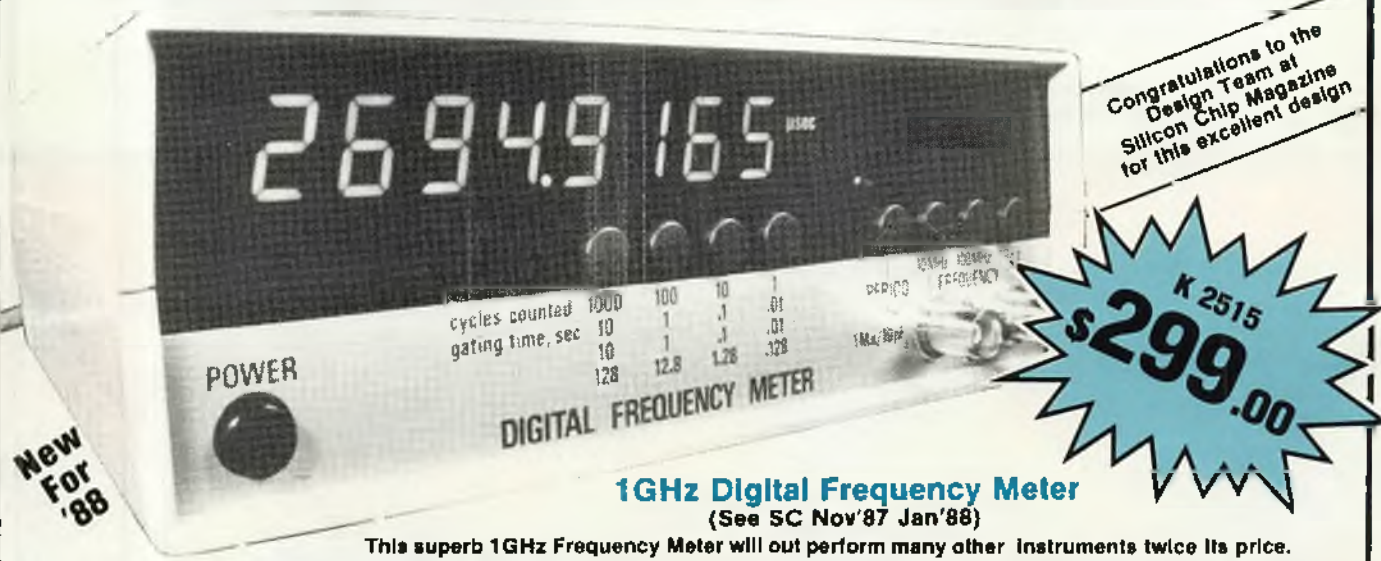
The Kit arrived in good condition and complete. We have built the inverter now, put it through its paces and could not fault it.

It drives 3 different computers, Bondwell, Apple MacIntosh and Digital with a P3 Nec printer. The mains can charge the maintenance free battery and we have clean power".

J. Slegers, Canberra ACT 2601

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

Build These Fantastic High Performance High Specification Quality Test Equipment Kits



1GHz Digital Frequency Meter (See SC Nov'87 Jan'88)

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

The design team at Silicon Chip must be congratulated on all facets of this most professional and desirable piece of equipment. It uses "State of the Art" technology and smart mechanical engineering to give finish and performance second to none.

FEATURES:

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

SPECIFICATIONS

Operational Modes: Period, Frequency to 10MHz, Frequency to 100MHz, Frequency to 1GHz.

Frequency 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 and 100MHz ranges); 0.128, 1.28, 12.8 and 128 seconds (1GHz range)

Maximum Resolution: 0.1Hz (10MHz range); 1Hz (100MHz and 1GHz ranges); 0.0001us (Period mode)

Display: High-brightness 8-digit LED display, overflow indicator, usec and kHz annunciators, leading zero blanking.

Sensitivity: 1M Ohm input: better than 20mV RMS from 10Hz to 20MHz, rising to 70mV RMS at 100MHz
50 Ohm input: better than 10mV RMS from 70MHz to 1GHz. Typical peak sensitivity is 50uV RMS at 1.2GHz

Input Impedance: 1M Ohm Input: 1M Ohm//10pF for signals less than 1V p-p; 180k Ohm//20pF for large amplitude signals
50 Ohm input: 30 Ohm//1.5pF at 1GHz

Overload: 1M Ohm input: 250V RMS for frequencies up to 10MHz (short term only), dropping to 25V RMS at 100MHz - 50 Ohm input: 300mV RMS

Accuracy/Stability: Typical uncalibrated accuracy with a good quality crystal is + or - 10 parts per million (ppm) at 25 deg.C with a temperature stability of + or - 12.5ppm from -20 deg.C to +70 deg.C. Prototypes were found to have a total warm-up drift of considerably less than 1 ppm.

Power Requirements: 240V AC, 50/60Hz.



Signal Tracer for Troubleshooting (See EA Aug'85)

Checks Audio and RF Circuits

This simple signal tracer makes a valuable servicing aid and can be used to troubleshoot both RF and audio circuits. It features an RF probe, battery operation and an in-built loudspeaker.

K 2560 \$29.95

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

A Quality Altronics Kit Could Last You a Lifetime

Lab Standard Function Generator Kit. Every Electronics Workshop, Audio Designer, Enthusiast and School can now save a fortune on a commercial unit of comparable performance.

Fantastic Hi Tech - Hi Spec

Audio Oscillator and Function Generator

This Ultra low distortion oscillator is comparable with the very best laboratory standard sine wave oscillators. As well as having very low distortion it has excellent envelope stability, square wave output and output metering.

(See EA Dec'86)

- Frequency range 10Hz - 100KHz in 4 ranges
- Output level 3V RMS max. adjustable
- Attenuator 0db - 10db, -20db, -30db, -40db, -50db plus fine adjustment.
- Output impedance — 600 ohms unbalanced
- Output waveforms — sine and square
- Sinewave harmonic distortion (typical) 1KHz less than .00% - 100KHz less than .02%
- Square wave rise & fall times .50nS

All components mount on one single PCB making it a breeze to construct. Kit comes complete with professional silk screened and punched natural anodised aluminium front panel.



Save \$200 and More by Building this Fine Kit Project

K 2540 \$ **155.00**



K 2550 \$ **65.00**

Megohm Meter

(See EA July'85)

Check Appliances and Electrical Wiring

There are many situations where a stringent test of insulation resistance is required. For example, whenever mains operated equipment is repaired or built, an insulation test between the active and neutral conductors and the case should be carried out. Similarly, it is a good idea to check for insulation breakdown whenever electrical wiring is installed. There are many circumstances in which a tester of this type can be used. Apart from the application mentioned above, a megohm

meter can be used to check the insulation between transformer windings and the frame. Insulation breakdowns in automotive alternators and generators can also be diagnosed. As well, rough checks of the leakage of high voltage capacitors can be made. It uses transistor inverter to produce a regulated 1000V DC supply which is applied to the insulator under test. Insulation resistances between 2M Ohm and more than 2000M Ohm can be measured.

Transistor FET Zener Tester

(See EA Feb/Mar'88)



New updated circuit incorporates facilities for testing transistor FETs and Zeners etc.

FEATURES:

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

K 2527

\$ **49.95**

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.

New For '88

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



K 2535 \$ **39.50**

Handy Test Gear For The Work Bench



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 and .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**



T.V. Colour Bar and Pattern Generator
(See EA Oct'87)

Service Your Own TV and Save Dollars Ideally suited to T.V. repairs and amateur television production.

FEATURES:

- 8 patterns to choose from
- PAL or NTSC compatible
- Operates on Channel 1
- Horizontal sync output
- Vertical sync output
- RF Output

Housed in rugged "ABS" instrument case.

K 2700 \$ **179.00**



AC/DC Millivolt Meter
(See EA Dec'87)

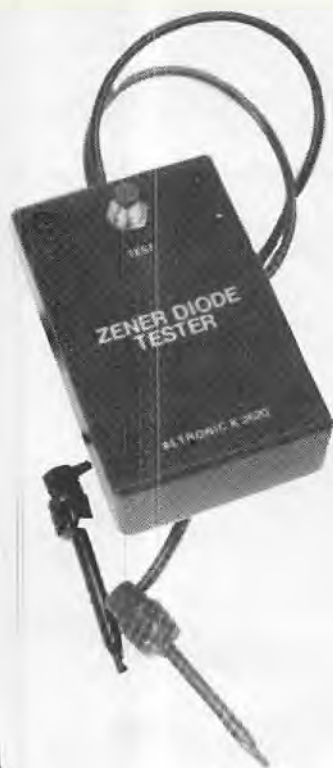
Precision measure critical circuits

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**



Zener Diode Tester
(See ETI May'83)

Take The Guess Work Out Of Identifying Zeners. Simply Plugs Into Your Multimeter

Ever Come across the problem of worn off markings on your Zener Diodes? or even trying to decipher the IN4XXX numbers?

By simply plugging this handy little tester into your multimeter, it allows you to read out the actual Zener voltage of any Zener Diode up to 60 volts and will also test LEDs 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

K 2620 \$ **19.95**

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 multi-meters. 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**

Build It Yourself And Save \$ \$ \$ \$



Digital Photo Timer
(See EA Aug'86)

Precision time your Processing with this Low Cost Project

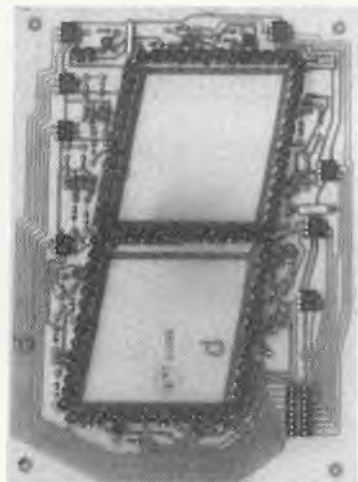
This classy digital timer allows precision timing for photographic processing from 1 second up to 9 minutes 59 seconds in 1 second increments.

FEATURES:

- Large easy to read LED displays.
- Hold switch which interrupts timing.
- Focus switch which bypasses the timer settings.

The Altronics Kit is housed in an attractive Instrument Case which is fully punched and screen printed.

GREAT VALUE
K 1850 **\$85.00**



Large 7 Segment Display
(See EA Aug'87)

This large 153mm high seven segment display is fully compatible with standard size displays. It can be configured for use as either common anode or common cathode. Multiplexed on DC driver and arranged to have a decimal point on either the left or right handside.

It can be used to interface equipment with existing displays for large elapsed times and digital clocks.

K 1225 **\$59.95**



Telephone Off Hook Indication
(See SC 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**

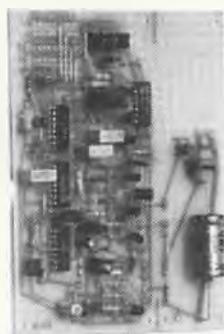


Microwave Oven Leak Detector
(See ETI July'79)

No Microwave Oven should be without our Leakage Detector. Completely passive project receives microwaves via an antenna which develops a voltage across a detector diode driving the meter. Monitor your microwave oven with this easy to build kit. All components mount on single PCB, including the meter. Genuine Hewlett Packard Hot Carrier Diode supplied.

No Batteries Required

K 1724 **\$17.50**



4 Digital Combination Lock
(See EA Aug'87)

This Electronic combination lock has a four digit security code which is entered using a single push button switch. For added security, each number of the code must be entered within certain time restraints. Once the correct code has entered, the circuit triggers a solenoid operated door catch to unlock the door.

Alltronic Kit Housed in Sturdy Jiffy Box

K 1925 **\$39.50**



8 Way Remote Control

(See EA June July'86)

This nifty Kit enables you to convert your TV, CD, VCR etc. to be operated remotely from the comfort of your armchair. Up to eight separate functions can be switched with this infra-red remote control.

K 1830 **\$125.00**

Added facility for K 1830

Apart from above - allows for control of On/Off, Mute and volume Control.

K 1840 **\$45.00**



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:

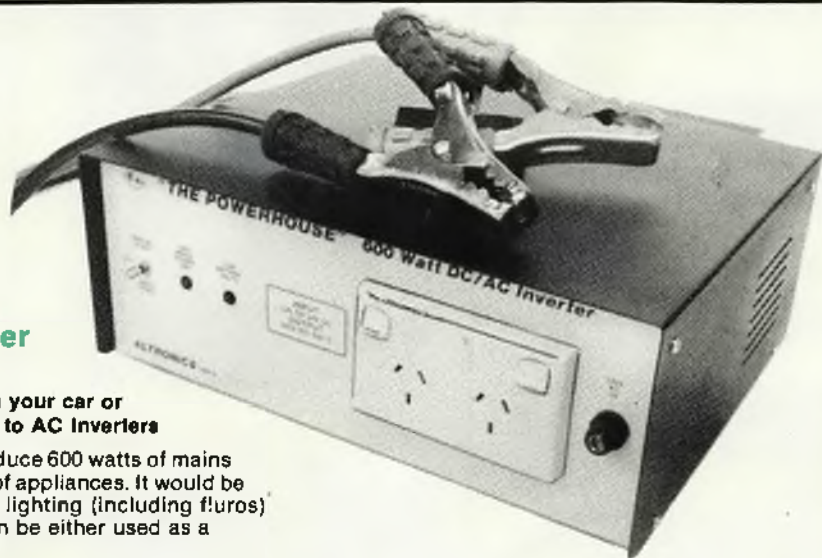
- Wireless Microphone
- Professional Eavesdropping
- Listen to the TV in the kitchen.
- Makes an excellent child minder.
- Could be adapted to an alarm.

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

K 1106 **\$9.50**

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 fluores) electric motors and much more. It can be either used as a portable unit or permanent fixture.

A must for farming, camping, mining, boating, remote settlements and wherever else 240W 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

\$425.00

KIT VERSION

K 6774

\$525.00

12V INPUT

K 6775

\$525.00

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 **\$279.00**

Fully Built & Tested

K 6755 **\$379.00**



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.

This Great little design also
doubles as a battery charger

K 6705 **\$89.00**

**VERY EASY
TO BUILD**

Power Supply Project Kits



Bench Top Power Supply

3—30V to 1 Amp Max. with variable current limit.
(See EA Jan'85)

FEATURES:

- Output variable between 3 and 30V
- Short circuit Protection
- Full 1 amp output over entire voltage range.
- Load switching
- Current limiting fully variable—twin selectable ranges—dual scale meter.
- Separate earth terminal provided.
- Housed in our Deluxe "ABS" instrument case.

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



The Ideal Power supply for the audiophile experimenting with Linear Op Amp Designs

EA Dual Tracking Power Supply

(See EA Feb'87)

- Housed in tough "ABS" instrument case.
- Fully protected against short circuits, overloads and thermal runaway. Employs fold back current protection.
- LED indicator for regulator dropout.
- Floating ground.
- Voltage adjustable to within 10mV
- Output + or - 1.3V to + or - 22V at 2 Amps +5V @ 1.0 Amps.
- Load switch.

K 3320 \$169.00



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

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 \$29.00

AUXILLARY + AND — 12V OUTPUT TERMINALS OPTION

Fixed Outputs Independent of Variable Main Output

K 3302 \$14.50

Power Supply Project Kits



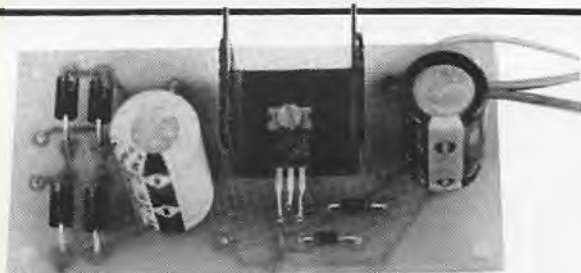
24V To 12V DC Converter
(See SC Dec'87)

This supply was designed to enable 12V appliances like stereos, 2 way radios, CB's etc. to operate from a 24V battery supply as used in Trucks 4 WD's and Boats without causing expensive damage to the vehicles battery system.

FEATURES:

- Operates from 18V-30V. Output is 13.6V at 5 amps.
- Low heat dissipation approx. 5W at full load.
- Easy to construct and install
- Housed in strong metal case.

K 3255 \$59.00



Car Radio Cassette Power Supply
(See SC Nov'87)
Ideal Starter Kit

This simple Kit would ideally suit the up and coming budding Electronics enthusiast.

It has been designed to power Car Radio/Cassette for use in a mantle radio.

FEATURES:

- Delivers 13.4V at 1.5A
- Includes all components PCB, transformers etc. ready for assembly into your case.

K 3205 \$35.00



13.8V High Current Supply

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

Altronics Kits Are Fun To Build And Use

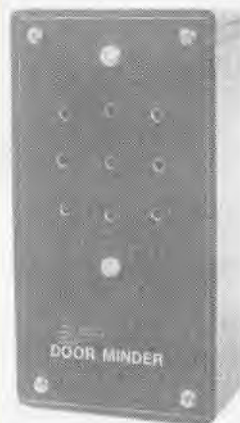


Regenerative Radio
(See EA Jan'88)

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

New For '88



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

Alarm System Kits For Home And Vehicle

**The Ultimate In Vehicle Protection
Car Security System**
(See ETI April '84)

Uses Vibration Sensors To Guard Against Tampering and Vandalism



FEATURES:

- Auto Arming with Exit and Entry Delays.
- Dash Mount status indicator
- Remote Protection of bolt-on accessories.
- Inc. circuitry to monitor any failure of dash warning lights
- Protects your expensive stereo from unauthorised removal.
- Also includes circuitry to monitor your car dash lights

K 4340 \$59.50

VIBRATION SENSOR PACK
Inc. Mic Cable & Connectors

K 4341 \$22.50

RESONANCE MICROPHONE ONLY

K 4342 \$7.50

Ultrasonic Movement Detector
(See EA Aug '84)

Ideally Suited to K 4340 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

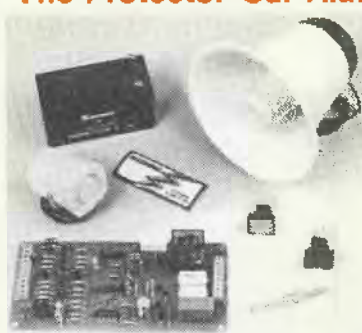
Ear Splitting 110db Modulated Tone (See EA Aug '86)

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

The Protector Car Alarm (See SC Feb '88)



This refined car burglar alarm has about every feature you could possibly want to keep wouldbe 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

Basic Car Alarm ETI 084

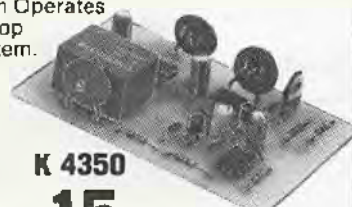
This Ingeniously Simple Alarm Operates by Detection of any Voltage drop in your vehicles electrical system.

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

FEATURES:

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

K 4350 \$15.00



MULTI SECTOR BURGLAR ALARM

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:

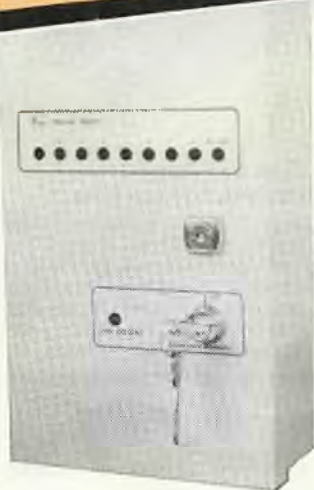
- Alarm has 8 separate input circuits—8 sectors can be monitored independently.
- Each input circuit is provided with an indicator LED and a sector On/Off switch.
- Individual sector isolation allows the user to have some areas of the premises habited while others remain protected.
- Inputs accept both 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 \$22.95



Altronics Kits Are Fun To Build And Use



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 GOLD TOUCH PLATE

K 6319 \$35.00

SUPPLIED WITH SILVER TOUCH PLATE

K 6320 \$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



EA Drill Speed Controller MK 11

For Universal Brush Type Motor
Drawing Up to 3 Amps

Varies motor speed from a few RPM to full speed while maintaining good torque.

- Suitable for
- Drills and Drill Presses
 - Circular Saws
 - Jig Saws
 - Food Mixers
 - Movie Projectors

Altronics Kit comes complete with Mains Flex Lead and Plug and Quality "ABS" Jiffy Box.

- Pre-punched and Screened panel.

(See EA Dec'84)

K 6005 \$24.50



Temperature Controlled Soldering Station

Controls the temperature of your standard soldering iron. Suitable for irons rated from 20W—75W - Standard soldering iron plugs straight in, no need for modification.

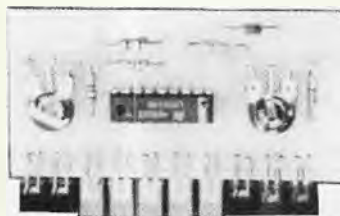
The Altronics Kit comes complete — pre-punched and silk screened.

(EA Sept'86)

K 6400 \$39.00

Build It Yourself And Save \$ \$ \$ \$

Expanded Scale Led Voltmeter



(See ETI Project 326)

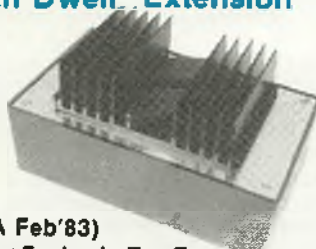
Easy To Build
Covers Range 10.5V to 15V

Brilliant single chip design by ETI. Ten segment display indicates exact voltage in .5V increments from 10.5V to 15V.

- Invaluable where voltage monitoring is essential i.e. Nicad battery charging circuitry etc.
- Great as a "State of the Art" car battery voltmeter.
- Easily configured to provide a "Voltage High" or "Voltage Low" Alarm Output

K 4326 \$16.00

Transistor Assisted Ignition With Dwell Extension



(See EA Feb'83)

Keep Your Engine In Top Tune

Yes, it's bad enough paying \$3.00 a gallon for petrol without wasting a fortune on an out of tune engine. Fit this transistor assisted ignition kit in minutes and start saving money from the very next petrol stop.

This unique electronic ignition system will easily double the interval between tune ups. Plugs and points stay in top condition for much, much longer. Greatly reduced plug breakdown at high rev's.

Dead easy to build and (even better) there are only 3 electrical connections required to the car wiring system.

Now housed in sturdy Jiffy Box. **K 4010 \$39.50**

Twin Range LED Tacho



(See ETI Aug'80)

0-1000 RPM/0-10,000 RPM

Unit suitable for 1, 2, 3, 4, 6 and 8 cylinder vehicles, 2 stroke or 4 stroke. Fully compatible with conventional CDI and transistorized ignition systems. Includes protection circuitry to prevent noise and high voltage spikes from the points and coil circuit damaging the electronics.

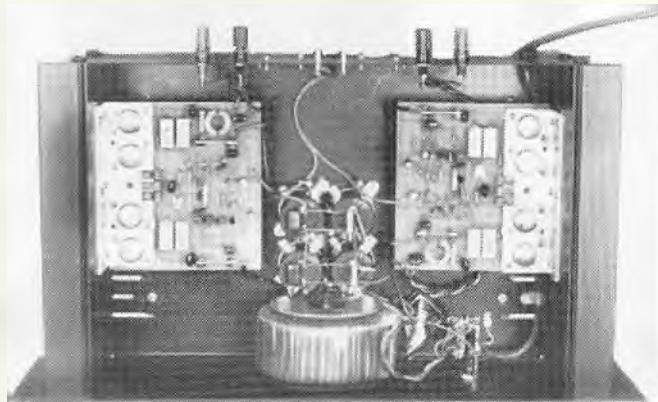
Display flashes when over-revving occurs. Only 3 connections required to electrical system.

K 4324 \$27.50

Audio Amplifier Kits To Build

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 6 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

**New
For
'88**

K 5010 \$399.00

The Playmaster Sixty-Sixty Stereo Amplifier

(See EA July'86)

BEGINNER CONSTRUCTORS CAN BUILD THIS AMPLIFIER

If you can use simple hand tools and a soldering iron you can build this project. Its designed on one large printed circuit board. Virtually everything is board mounted i.e. even input sockets and switches!! There is no shielded wire, in fact there is only a handful of soldered connections external to the PCB. So by simply following the step by step instructions and inserting components with the pre-drilled PCB and soldering thereafter the amp is thus constructed. You will be proud of the end result - and it will last you a lifetime.



"For short term power capability (Music power). The Amplifier can deliver 105W into an 8 Ohm load for a single channel, & no less than 153 W into 4 Ohm load under the same conditions"

Never before has such a high performance Amplifier been so affordable or so easy to build. It's hard to imagine even the most ardent Audiophile being less than delighted with the audio purity of this fine Amplifier.

FEATURES:

- 60 watts per channel with both channels driven into 8 Ohm loads
- Very low noise on phono and line level inputs - better than CD performance
- Very low harmonic and intermodulation distortion
- Excellent headroom
- Tape monitor loop
- Tone controls with centre detent and defeat switch
- Mono/stereo switch
- Toroidal power transformer
- Easy to build construction
- Very little wiring

Power Output - (One Channel) 4 Ohms 88W, 8 Ohms 74W - (Both Channels) 4 Ohms 72W, 8 Ohms 62W.

Harmonic Distortion - Less than .01% for all powers up to 60W into 8 Ohm loads - Less than .015% for all powers up to 70W into 4 Ohm loads.

Intermodulation Distortion - Less than .01% for all powers up to 60W into 8 Ohm loads - Less than .012% for all powers up to 80W into 4 Ohm loads.

Frequency Response - Phono Inputs - RIAA/IEC equalisation within + or - 0.5db from 40Hz to 20KHz

Line Level Inputs - -0.5db at 20Hz and -1db at 20KHz

Input Sensitivity - Phono inputs at 1KHz - 4.3mV (overload capacity at 1KHz - 140mV) Line Level Inputs - 270mV.

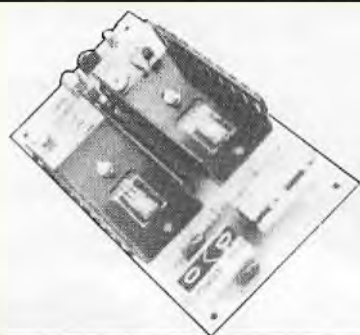
Hum & Noise - Phono (with respect to 10mV at 1KHz) - 89db unweighted with typical moving magnet cartridge. High level inputs (with respect to 270mV) - 103db unweight with 20Hz to 20KHz bandwidth.

Tone Control - Bass - + or - 12db at 50Hz
Treble + or - 12db at 10KHz

Damping factor - At 1LKHz and 30Hz - greater than 80

Stability - Unconditional

K 5060 \$329.00



20 Watt Utility Amp Module (See EA Nov'84)

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

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

Audio Amplifiers And Projects

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

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

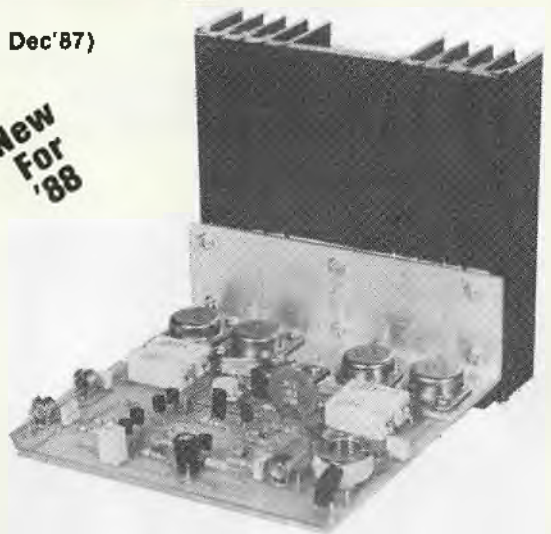
All components, including output transistors mount on a single PCB. Suitable for high quality guitar amp, public address or in a high fidelity stereo amplifier. Kit includes angled heatsink bracket, main heatsink and unlike other kit suppliers, the In-Built Polyswitch for loudspeaker protection.

	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%	.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**

New For '88



Mosfet Power Amp Module 150 Watt (See ET1 Jan'81)

Studio Specifications

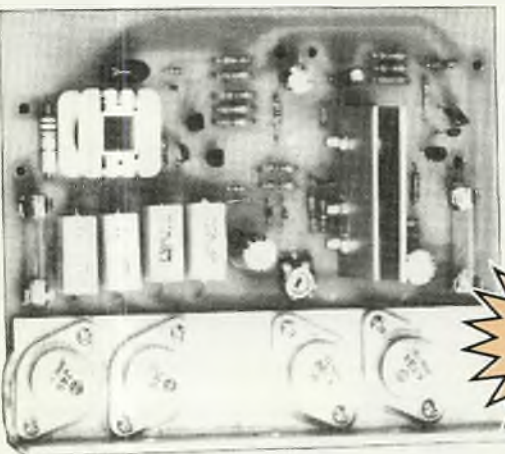
Here is a power, general purpose power Amplifier module suitable for Hi Fi, guitar and PA applications employing sturdy reliable MOSFET's in the output.

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 12W
0.03% @ 10KHz 12W
Stability
Exceptional (tested to full output driving 3.3uF into short circuit at 10KHz).

K 5120 **\$79.00**



EASY TO BUILD



Protect That Expensive Speaker System

Speaker Protector Kit (See ET1 Oct'82)

Cheap Insurance for That \$1000 Speaker System

Protect your valuable loudspeaker system with this easy to build kit. Based on the ET1 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
\$32.50



Active Direct Injection Box (See EA Oct'87)

Converts high impedance unbalanced 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. pickup.

K 5550 **\$45.00**



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**



Bench Amplifier

(See ETI 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**

Build These Fantastic Hi Fi Loudspeakers



Vifa SA-100 2-Way Speaker Kit

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 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 \$799 per pair. **K 5095 \$799.00**



Vifa SA-70 2-Way Speaker Kit

If your budget won't run to the \$800-\$1,000 needed for an equivalent pair of fully-imported loudspeakers, these speakers are the ones to go for. The new SA-70 is an improved version of the original EA-60/60 speaker kits released a year and a half ago 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.

The construction of the speakers follows the usual principle of the knock-down flat-pack cabinets, pre-built crossovers and push-on tags for the leads. A real winner.

Complete kit of speakers, crossovers and cabinets \$499 per pair **K 5090 \$499.00**

Audio Circuits And Projects



Dynamic Noise Reduction System
(See ETI Dec'86)

Stunning Design Makes Your Tape Machine Sound Like A CD Player. An Asset To Any Home Stereo System

Cut that annoying tape hiss and dramatically increase dynamic range of your cassette recordings with this Dynamic Noise Reduction System Kit.

This fantastic system improves signal to noise of your tape deck by up to an incredible 18db without treble attenuation. It also expands dynamic range, allowing greatly improved recordings from compact disc players.

No external wiring or modification necessary as a standard type deck just plugs directly into the unit.

Kit comes complete, pre-punched and silk screened. A must for any serious audiophile. 3-4 hours work for the average constructor and your ready to listen to tapes as never before.

K 5575 \$**99.50**



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

High Performance balanced line input pre-amp — makes a superb Mic I/P 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**



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**

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 \$**12.50**



(EA Aug'81)

Ideal for Parties, Shop Signs, Display Windows, Special Lighting Effects etc.

Combination Colour Organ and Light Chaser. Four channel colour organ operation. (The lights connected to each channel pulse in beat to the music proportional to portion of frequency spectrum concerned). Four chaser modes forward and reverse. Output lamp load capacity a massive 2400 watts — that's 100 party globes. Full instructions & every last nut and bolt included.

Housed in Attractive, Tough "ABS" Instrument Case

K 5800 \$**125.00**

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**

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**

Low Cost Temperature Probe

Here's an easy to build probe design 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**



Video Enhancer (See EA Oct'83)

Sharpens up your picture when copying Video to Video

Here's a simple but effective video enhancer that is super easy to build at a fraction of the cost of commercial models.

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

SPECIFICATIONS:

- Signal to noise ratio 50db ref. 1V p-p

- Frequency Response (flat) 1Hz to 8.5MHz - 3db
- Boost and Cut Plus and Minus 6.3db
- Gain Odd
- Input Impedance 82 Ohms
- Output impedance 68 Ohms

Complete Kit supplied in Deluxe Cabinet with silk screened front panel.

K 5825 **\$42.50**



Video Amplifier (See EA Aug'83)

Another first class project from EA. Super Cheap and Super effective. For computers with low video output e.g. "Taiwan Apples etc." This video amp can greatly improve picture stability and eradicate shimmer, screen swim etc. Two outputs, normal and inverted.

For VCR's: Tired of a grainy or snowy picture? Connect this amp internal to your television and presto the improvement is fantastic!

(Documentation is quite detailed on connection to TV sets)

K 5850 **\$17.50**



Video RF Modulator (See ETI Oct'81)

If you cannot afford a Video Monitor for your computer this is the Kit for you. Super stable oscillator design and very low modulation distortion.

FEATURES:

- Works with both B and W and Colour TV sets.
- Suitable for computers, TV games, TV pattern generators etc.
- Deluxe kit supplied with metal plated jiffy box for RF Shielding.
- Input and output sockets.

K 9760 **\$29.95**

A 'Dual-Speed' Direct-Connect Computer Modem (See AEM Dec'85)



The project supports 300 Baud full duplex operation and 1200/75 Baud half duplex operation. That is, you can transmit and receive at 300 Baud in both directions or 1200 Baud one way, 75 Baud the other. A switch has been incorporated allowing you to select either 1200 baud, transmit with 75 Baud receive, or 75 Baud transmit with 1200 Baud receive. Most bulletin boards employ 300 Baud full duplex, a few have 1200/75 Baud facilities. Telecom's Viatel videotex service employs 1200/75 half duplex operation. You transmit at 75 Baud and receive at 1200 Baud. This has the advantage that, when receiving at 1200 Baud, Viatel writes information to your screen at the fastest rate; four times the speed if you were using 300 Baud communications.

Four front panel toggle switches provide all the operating functions. One selects the 'speed'. To the right of this is a switch which allows you to select transmit/receive Baud rates in the 1200/75 Baud mode. Further to the right is the "answer/originate" switch. Four LED indicators allow you to keep an eye on what's happening at any time. The ON indicator is obvious. On its right is the 'CD' LED which lights up when you've detected another modem's signalling tone, termed the 'carrier'. This lets you know when communications can proceed. Then comes the 'Rx' LED which flashes as data is being received. Last on the right is the 'Tx' LED which flashes as you transmit data.

A 25-pin D connector on the rear panel of the unit provides for connection to your computer. The interface signals comply with the RS232 standard. Only the minimum signal lines have been implemented to make interfacing as simple and as 'universal' as possible.

The project was designed around the '7910' "world modem" chip.

K 9600 **\$169.00**



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**

Quality Microphones and Accessories

Quality Microphones From Altronic

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 Vocallist, Public Address and General purpose entertainment use. Frequency res. 20Hz - 18KHz. Dual Z 600 Ohm and 50K .6M lead with phone plug Uses 1.5V AA battery Mic holder & wind-screen Inc. 22mm diam. x 195L



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 6M lead with phone plug. uses 1.5V AA battery Mic holder & windscreen Inc. 22mm diam. x 195 L.



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 AA cell



C 0355
\$35.00

Electret Tie Clasp Microphone

Omni Directional Quality mic. Powered by miniature mercury button cell Frequency Response 50-16KHz, 1000 Ohms, -65db, 6M Lead.



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

Electret Condenser Microphones One for the Kids

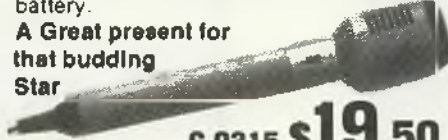
Low Cost Wireless Mic

Absolutely the "Bees Knees" for the kids to sing along into the Hi Fi home FM receiver ghetto blaster or portable FM Radio.

Great Fun for all the family

Transmitting Freq.: 88-108MHz FM tough ABS, powered by one AA penlight battery.

A Great present for that budding Star

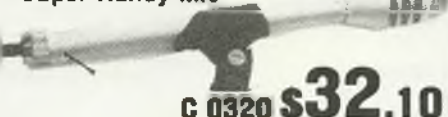


C 0315
\$19.50

Two Function Cardioid Microphone

Wireless or Electret operation (simply swap over the antenna and output lead). Frequency 88 - 108MHz 3M Lead supplied DC 2 x AA Penlight.

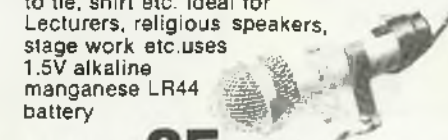
Super Handy Mic



C 0320
\$32.10

Lavaller (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
\$35.00

High Performance ALC Wireless Microphone

Our incredible ALC Microphone is one of the most exciting products for '88. Wireless mics suffer from overmodulation distortion with too higher input sound level 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: 30Hz-15KHz
 - Carrier Frequency Adjust Range: Within +1MHz, 88-108MHz.
 - 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 Compliment: 4 x AA
 - Weight: 235g.

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

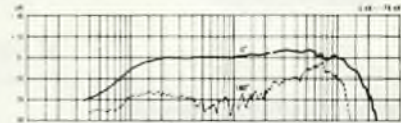
A fantastic Entertainers Microphone for such a low price - not quite in the league of the C 0385, but perfectly suited to general purpose entertainment, Live PA etc. Incredibly good feedback rejection.

Very Rugged.

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



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



Ultra Cardioid

With Laminated Metal Vacuum Evapulated Film diaphragm.

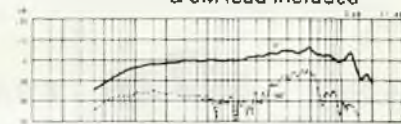
Simply superb entertainers microphone. Silky smooth response (useable to 18Hz). Extremely low feedback incidence. Inbuilt wind filter eliminated "Pops". Balanced line circuit enables long mic cable runs.

Polar Pattern	Cardioid
Impedance	250 Ohm
Freq. Res.	70-15,000Hz (useable to 18KHz)
Sensitivity	-77 + 3db

Diaphragm Material Laminated metal vacuum evapulated film
Switch On/Off with lock
Pop Filter Built-In



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



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 -65 (5cm From Sound Source).

C 0304 \$29.80



Professional Paging Mic

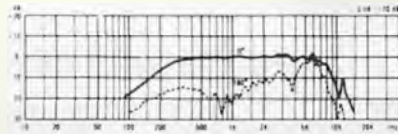
Has tapered low frequency response for articulate speech reproduction. Low impedance balanced line. PTT switch with lock facility. Additional switch contacts for remote switching muting etc.



Polar Pattern Cardioid
Impedance 600 Ohm
Freq.Res. 200 8,000Hz
Sensitivity -70 + 3db
DiA. Material Polyester Film
Switching Electronic
Mat./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 \$89.50



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.

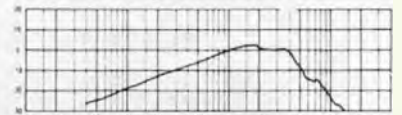


Move Over AKG - You've Now Got Serious Competition!

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 \$129.00



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



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 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 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



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



Mic Holder

C 0401 \$4.50



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 35mm for Med. Mics \$1.95
C 0221 22mm for Pencil Mics \$1.95
C 0222 41mm for Ball type Mic. \$2.20

High Grade Stereo Mixers At Direct Import Price

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

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 (low 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.B.D. System
- **Delay Time:** 30—200mS
- **Echo Repeat Control**
- **Delay Time Control**
- **Dimensions:** 480(L) x 240 (W) x 110 (H)

240V Mains Operated

Professional 15 Watt Megaphone PA

Our Megaphones are extremely rugged, provide crisp clear voice reproduction and represent excellent value. Part of the secret is the use of noise cancelling microphones. The result is a surprising volume level available without acoustic 'squeal' or feedback even when used indoors in relatively confined spaces. **Ranges:** 300M approx. (up to 800M in ideal conditions) **Power:** 8 x AA cells not supplied (order separately 2 of Altronics S 4970)



A 1980 \$99.95

Professional PA Amplifiers Designed By Altronics

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

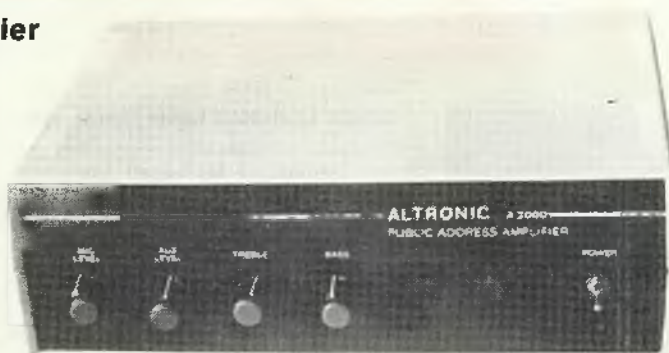
Developed right here in Australia by Altronics — the Altronic A 2000 utilizes balanced input, drive output and feedback circuitry to achieve performance and stability unheard of with low cost amplifiers. The A 2000 will operate happily into all sorts of capacitive and inductive loads. Long lines, speaker 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** 60Hz to 12KHz.

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	100K Unbalanced	3 Mic Low Z	100K Unbalanced	3 Mic Low Z
(Switchable)	or 10K Balanced	Bal. or Unbal. Line	or 10K Balanced	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
Typical Distortion at Full Power O/P	(less than 1%)	(less than 3%)	(less than 1%)	(less than 3%)

\$599

\$699

\$799

\$899



Redford Industry Standard Audio Products

Redford High Power Attenuator Type Level Controller For 100V and 70V Line Speaker Circuits



Super Compact Level Controller

• Installs in minutes with simple Reliable Screw Terminals • No messy Soldering required • "Break Before Make" switch contacts ensure Long Life High Load Capability • Full Frequency Response Low Loss Transformer Used.

Redford Installs Easily to 1 Gang Wall Box or 1 Gang Mounting Block (P 8045)
Power Rating 100V Line 40W 70V Line 30W

Standard Model (W/out Relay) **A 2330 \$39.50**

PA Override Model Inc. Relay **A 2335 \$44.50**

Redford Standard Level Controller For 100V & 70V Line Speaker Circuits



Installs in minutes with simple reliable screw terminals. No messy soldering required.

Installs to 1 gang wall box or 1 gang mounting block (P 8045) Power Rating 3W.

Standard Model (W/Out Relay) **A 2320 \$29.95**

PA Override Model Inc. Relay **A 2325 \$35.00**

Brief Specifications:

Mic Carrier Power 50mW Max. **Dynamic Range** over 100db **S/N Ratio** better than 90db **Frequency Response** 20Hz to 16KHz **+/-3db Mic Battery** 4 x AA cells **Battery Life** over 24 hours continuous operation **Receiver Sensitivity** 12db/micro volt for 60db S/N ratio **Pre emphasis/De emphasis** 50us. **Receiver output** unbalanced 6.3mm phone jack and balanced 3 pin cannon type. **Output Level** (adjustable) Unbalanced 0-2.5V Balanced 0-.3V into 600 ohms. **Receiver Power Supply** 200 - 260VAC.

Superb Redford Wireless Microphone System

Uses Dual Diversity Receivers for Long Range Noise Free Pure Fidelity Reproduction.



Superb Microphone Reproduction Compares with Shure etc.



Unique Microphone Design Completely Eliminates "Dangling" 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 Parabol 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.

C 0111	Dual Diversity Receiver	202.1MHz	\$729
C 0113	Dual Diversity Receiver	202.5MHz	\$729
C 0115	Dual Diversity Receiver	203.7MHz	\$729
C 0121	Entertainment Mic.	202.1MHz	\$349
C 0123	Entertainment Mic.	202.5MHz	\$349
C 0125	Entertainment Mic.	203.7MHz	\$349
C 0131	Lavalier Microphone	202.1MHz	\$349
C 0133	Lavalier Microphone	202.5MHz	\$349
C 0135	Lavalier Microphone	203.7MHz	\$349

Quality Redford Industry Standard 8 Channel Mixer

This pro quality mixer is yet another fine product from **Redford**. It like most other **Redford** series products is made right here in Australia.



New For '88

FEATURES:

- 6, 200-600 Ohm balanced microphone inputs
- 2, 100K auxiliary inputs
- Treble and bass on auxiliary inputs
- Muting of auxiliary inputs available from microphone input
- Balanced 0db 600 Ohm output
- 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 0dbm. **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

A 2050 \$399

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 and/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 counterpart. The problem - up until now - has been cost. The European sourced woofers have been expensive compared to conventionally sourced woofers.

Altronica has solved this problem. After months of research and elimination of suppliers, we have a magnificent range of P-P cone woofers that are fully spec'd out, consistent, high quality and low cost.

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)
Sensitivity 1M/1Watt .. 87db (+/-2db)
Voice Coil 25mm
Nett Weight 900gm
Electromagnetic Q 0.45
Magnetic 280 gm/10 oz.

C 3055 **\$32.50**

12" Woofer 100 Watt RMS 150W Max.



Rated Input Power 100W
Max. Input Power 105W
Impedance (400Hz) 8 Ohm
Frequency Response fo - 2000Hz
Resonant Frequency 23Hz
(+/-5Hz)
Sensitivity 1M/1Watt .. 93db (+/-2db)
Voice Coil 38mm

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

C 3070 **\$139.00**

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)
Sensitivity M/1Watt ... 90db (+/-2db)
Voice Coil 39mm
Nett Weight 2200 gram
Electromagnetic Q 0.4
Magnet 836 gm/30 oz.

C 3060 **\$65.00**

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)
Sensitivity 1M/1Watt .. 92db (+/-2db)
Nett Weight 4120gm
Voice Coil 50mm
Electromagnetic Q 4120 gm
Magnetic 1400 gm/50 oz.

C 3075 **\$179.00**

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)
Sensitivity 1M/1Watt .. 92db (+/-2db)
Voice Coil 38mm
Nett Weight 2650 gm
Electromagnetic Q 0.23
Magnet 836 gm/30 oz.

C 3065 **\$79.00**

Polypropylene Passive Radiators

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



Quality Replacement Speakers From The Importer



Mini 57MM
200 MW 8 Ohm
Large Ferrite Magnet. Ideal replacement speaker. Great for hobby projects.

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

High Performance
125MM (5 in.)

High efficiency dual cone quality driver. Excellent midrange "presence". Roll edge cone suspension. As used with the Redford weatherproof sound column range. Two voice coil impedance models.

C 0630 C 0632
4 Ohm 16 Ohm

Both \$19.50
5 or more \$18.00



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 \$11.95
10 Up \$10.95



150 x 100
(6 x 4 in.)
Dual Z 4/8 Ohm. 3 Watt RMS. Mounting hole centres 57 x 146.

C 0622 \$ 9.95
10 Up \$ 9.50



178 x 125
(7 x 5 in.)
Dual Z 4/8 Ohm. 3 Watt RMS. Mounting hole centres 110 x 110.

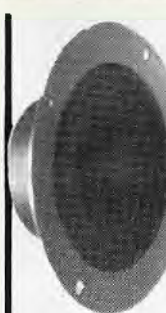
C 0624 \$12.50
10 Up \$11.20

Dual Cone Wide Range

200mm (8 in.) 10 Watts Max. power input. Public Address Background Music. Ideal Hi Fi extension speaker. Includes transformer holes at 51mm.

Over 100,000 sold in Australia.

C 2000 \$16.50
10 Up \$15.00



Cone Tweeter
50 Watt
5 Watt Max. Power
8 Ohm Z

Amazing performance budget price. Frequency response 2KHz-18KHz. 110mm diam. Hole centres 79mm. Australia's best value at this price.

C 3020 \$12.50
4 Up \$11.00



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

25 Watt Wide Range

Roll edge suspended cone high mid range efficiency especially suited to use in vocal PA and sound column use.

200mm (8 in.) Superbly smooth high power speaker. Max. input power 25W 8 Ohm Z. Resonant to 60Hz.

C 2001 \$24.50
10 Up \$23.00



Piezo Ceramic Speakers

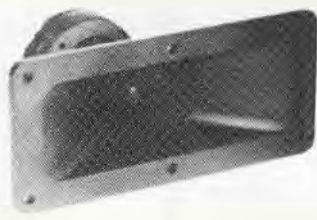
Piezo Ceramic Speakers offer several advantages over conventional speakers, such as — • no bulky magnet structure • No voice coil • No No crossover network required • excellent transient response • Extremely low distortion • High impedance as Piezo appears as capacitive rather than inductive load • Light 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 \$17.00



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 \$17.00



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 \$35.00

vifa

SPEAK

High Performance Loudspeaker Components

TWEETERS

VIFA D19TD-05-08



C 3150
\$55 ea

VIFA D25TG-55-08



C 3155
\$74 ea

MIDRANGES

VIFA K10MD-19-08



C 3135
\$79 ea

VIFA D75MX-10-08



C 3140
\$129 ea

WOOFERS

VIFA C20WG-19-08



C 3120
\$119 ea

VIFA P21WO-00-08



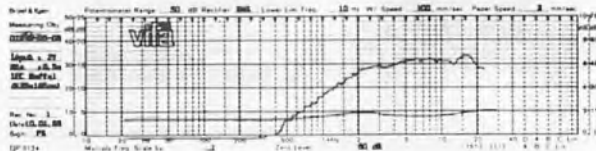
C 3125 **\$188 ea**

VIFA P25WO-00-08



C 3130 **\$220**

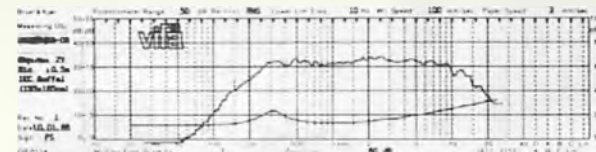
19mm dome tweeter with polymer diaphragm. This dome tweeter is VIFA's biggest selling driver. Very Smooth and versatile. Ferro Fluid cooled voicecoil ensures high power handling and perfect damping. Suited for any quality 2-, 3- and 4-way system with power handling up to 100 watts RMS.



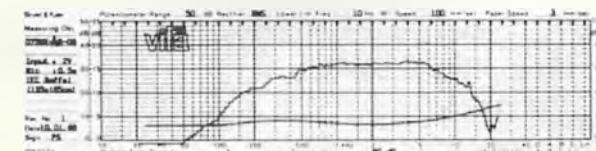
25mm dome tweeter with polymer diaphragm. Larger and more powerful version of the D19TD. Smooth and detailed performance with low colouration. Ferro fluid cooled voicecoil make this tweeter suited for high powered 2- and 3-way systems up to 150 watts RMS.



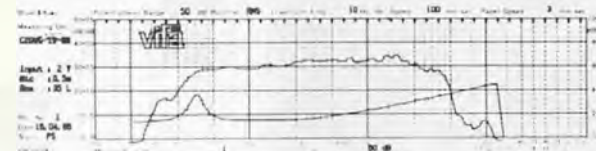
4" sandwich coated cone midrange with foam surround. High quality midrange for any 3-way system. Accurate and neutral performance with low colouration. Requires a 0.5 litre sealed and damped enclosure (e.g. VIFA'S PC-K10 plastic cover). Ideal for systems up to 80 watts RMS.



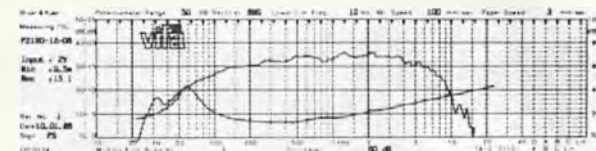
Unusual 3" dome midrange with a coated soft textile diaphragm. Very smooth & detailed performance with excellent dispersion & clarity. 75mm voicecoil ensures high power handling & superb transient response. Requires a 1.5L sealed & damped enclosure(e.g. VIFA'S CC-D75 cover). Optimal midrange in 3-& 4-way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



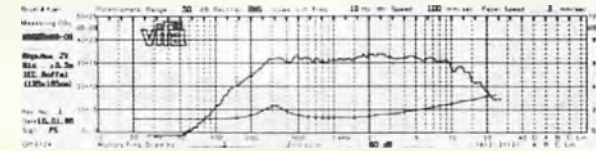
8" sandwich coated woofer with foam surround. One of VIFA'S most successful drivers. For use in 15-40 litre sealed enclosures. Very flat response with low distortion. Ideal in 2-way bookshelf systems. 50 watt power handling.



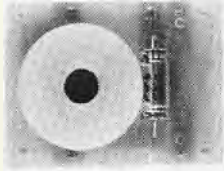
8" Polycone woofer with large magnet and diecast magnesium basket for highest rigidity. Like the P17 this woofer also has rubber surround. Can be used in 25-45 litre bass reflex enclosure. Ideal in both 2- and 3-way systems. 70 watts power handling capacity.



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



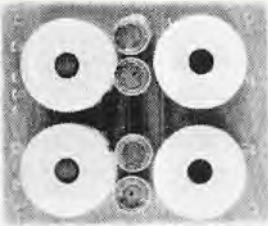
Audio Accessories



2 Way Crossover
Impedance 8 Ohm
Crossover 5000Hz, 6db/Octave
Input Power 60 watts
C 4002 \$8.95



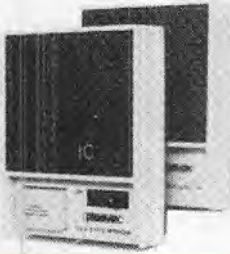
L Pad Level Control
Fully sealed type - for use with speaker crossover system.
Midrange
C 4010 \$7.95
High
C 4012 \$7.95



3 Way Crossover
Impedance 8 Ohm
Crossover 800, 5KHz, 6db/Octave
Input Power 80 watts
C 4003 \$19.50



Innabond Wadding
900mm wide, 25mm thick. A must for speaker box enclosure lining.
Bonus Extra Wide
C 3510 \$7.50



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 \$25.90

Black Speaker Cloth
Quality German '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

Headphones

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

Mini Headphones

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



C 9001 \$7.95

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

Mylar Stereo Phones With Dynamic Mic

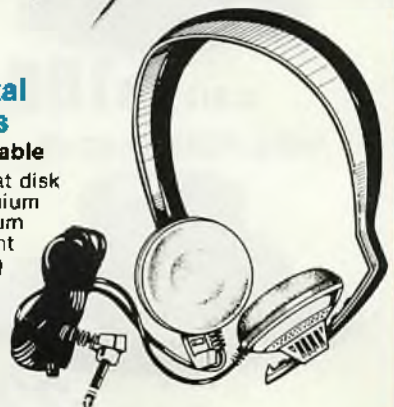
Simply Brilliant Mylar Stereo headset and Dynamic Mic combination. **Phone** 30-18MHz 28 Ohms, 6.5mm Stereo Jack Max. input 400mW. **Mic.** 84db, 600 Ohms, 6.5mm Mono Jack.
C 9050

C 9050 \$37.50

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

**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



C 9630
\$499

**Uniden Sundowner UHF Mobile
FM Transceiver**

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 477MHz.

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 \$12.50

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 unearthened.

Specifications:-

Impedance 50 ohm
V.S.W.R. 1.3:1
Polarization Vertical
Termination S0239
Height 8,250mm
Wind Survival 130 km/H
Power 1kW

L 3215 \$95.00

UHF Antenna

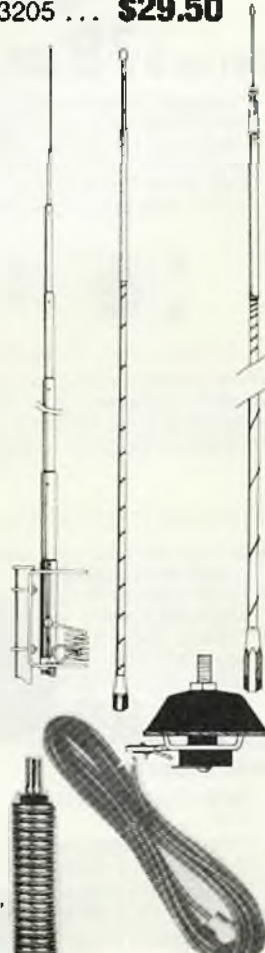
4.5db gain 61cm whip complete with base, lead and connector.

L 3212 \$34.75

5' TUNEABLE WHIP

Sturdy PVC covered helical whip with easily tuneable top whip 120mm long. Standard 5/16" female tpi ferrule.

L 3205 \$29.50



**New
For
'88**

Superb Sound Barrier Car Sound Equipment



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

**New
For
'88**

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

Lock Down Aerial

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

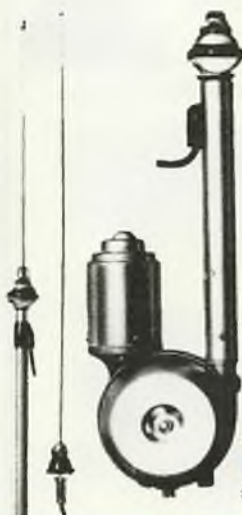
C 9405

Spring Base Aerial

Heavy Duty Stainless Steel 1.5M extended length.

C 9410

**C 9420 \$49.95 C 9405 \$7.75
C 9410 \$8.75**



Car Radio Accessories →



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, capsized 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.

C 5100 \$59.00

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

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

Extremely
Accurate
Made In
Japan Quality

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
\$7.95



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 \$1.25

UHF 305MHz Microprocessor Controlled Wireless Security System

Just imagine a Security/Alarm System you can install in about an hour — Uses no Wiring or Cables and Costs less than \$1 for the mounting Hardware

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 \$25 per hour these days. Hardly worth the effort is it? After all what have you got to loose?—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—

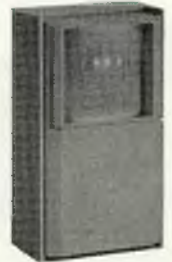
Take It With You If You Move

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

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

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

Including Batteries
System Cat.No. **\$ 5260 \$579.00**

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**



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**

Security System Components And Accessories

**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.

\$ 2500
1 - 9 _____ **\$7.95**
10 - 24 _____ **\$7.40**
25 Plus _____ **\$6.90**

**3 Position 2 Pole
Key Lock Switch**



Key is removable in Position 1 only.

Switch Position
1. (12 O'Clock) 8-1, 4-5
2. (2 O'Clock) 1-2, 5-6
3. (10 O'Clock) 7-8, 3-4

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

\$ 2506 _____ **\$7.95**
10 Up _____ **\$7.40**

**4 Position 2 Pole
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.

\$ 2510
1 - 9 _____ **\$9.95**
10 - 24 _____ **\$9.25**
25Up _____ **\$8.50**

**Reed Switch
and Magnet Sets**

3 Types (Surface Mount)

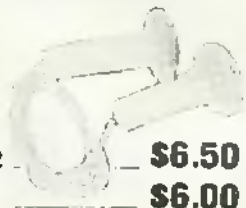


\$ 5153 SPDT \$6.50
Changeover Type
\$ 5155 N/C SW \$4.50
\$ 5156 N/O SW \$5.95

**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**



\$ 5152 _____ **\$6.50**
10 Up _____ **\$6.00**

Pressure Mats



Ultra thin switch mat for under carpet or mat etc.

\$ 5184 _____ **\$26.50**
Up _____ **\$24.95**

**Weatherproof Horn
Speakers**

5 and 10 Watt



5W ___ **C 2010** ___ **\$14.50**
10 Up ___ **\$13.00**
10W ___ **C 2015** ___ **\$15.95**
10 Up ___ **\$14.80**

**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
\$ 5177 _____ **\$24.50**
4 Up _____ **\$22.50**

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.
50mm H
\$ 5175 _____ **\$18.95**
10 Up _____ **\$17.00**

**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 _____ **\$22.50**
10 Up _____ **\$19.98**

**Contractors
Bulk Users
Contact Our
Wholesale Dept
On (09) 328 2199
For Bulk Rates**

Mini Buzzer 5 - 15V DC



\$ 5162
\$2.30

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

PCB Mount Piezo 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.

New For '88



\$ 5164 1 - 9 **\$2.75**
10 Up **\$2.50**

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**
New For '88



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**
10 Up **\$16.50**

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 i.e. by opening car or door etc.



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



\$ 5147
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
\$12.50

Alarm Circuit Window Foil Tape



\$ 5180 10 Up
\$18.50 \$16.95
\$ 5182
Tape Terminating Blks. **\$1.20**

Alarm Stickers

Two or three of these placed around your premises will give the message loud and clear — keep out or be zapped by our alarm system!!

Two handy sizes — one for home or business and a smaller type for inside window fixing i.e. for Car, Caravans, Boats etc.

Both are Fade resistant Bright Red. If you're the frugal type and adverse to forking out for a security system, then why not plaster some of these around — Guaranteed to deter 95% of wouldbe villains.



\$ 5400 For Home or Office 200mm x 75mm **\$1.95**
\$ 5410 For Car, Caravan, Boat Etc. 70mm x 25mm **.95c**

Infra Red Movement Detector

The Infra Red or IR detector for short is basically a high gain passive tuned receiver of a particular IR band. The heart of the unit consists of a high gain lens (antenna) which has a "Commutated" field of view. Its reception pattern is comb-like, but highly tuned to the IR wavelength of human bodies. When a human passes within proximity of the pickup area, the lens will selectively pick up IR radiation and then not. Movement across the pickup area will result in a series of pulses sent to a detector circuit. IR detectors are very reliable as they do not transmit and will not respond to non heat radiating objects. Curtains, for example, can wave about without tripping the alarm. Even the cat is unlikely to trip the unit.

FEATURES:

- Lens simply 'snaps' to either **wide angle** (range 40 feet) for normal use or **Narrow angle** (and 80 feet plus) for corridor applications.
- Snazzy integral mounting bracket allows corner 90° mounting as well as normal surface mount. (this is a fantastic feature as these work best in corners and are visually unobtrusive)
- 12V DC Powered
- Built-in test lamp
- Alarm output SPDT 30V 1a



\$ 5301 **\$99.00**

Security Cable 4 Core

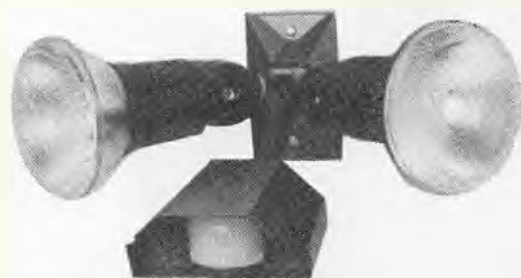
Sturdy 14/20 professional grade. Inner conductors yellow, Green, Red, Blue Three outer sheath colour versions. Grey Black White
1 - 9M 10 - 99M 100M Roll
W 0354 **.65c .55c \$45**
W 0355 **.65c .55c \$45**
W 0356 **.65c .55c \$45**

Screened 4 Core Data/Security Cable

Similar to W 0354/6 series but with 100% Mylar shield and drain wires. Inner conductors Red, Black, White, Blue.
W 0705
1 - 9M 10 - 99M 100M Roll
\$1.10 \$1.00 \$90.00

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



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.

Protection for Mum and the Kids

High Impact ABS fire retardant, UV Stabilised housing.

Multi-zone Fresnel lens with wide angle coverage

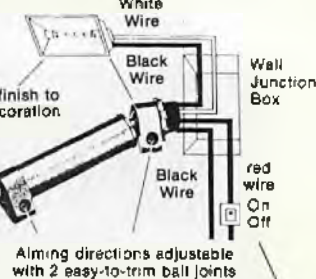
Built-in photo cell to de-activate PIR detection during daylight

Sensitivity adjustment (20 - 50 feet)

Time Adjustment (1 - 20 Minutes)

Elegant design & finish to merge into any decoration

Incandescent Light 500 Watts Max.



Existing wall switch, simply flip the switch to operate unit in auto, test, or manual override mode.

- 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 1-20 minutes.

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

\$ 5350 **\$185.00**

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.

**21 Day
Money Back
Guarantee**



A 1530
\$499.00

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 secure 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.

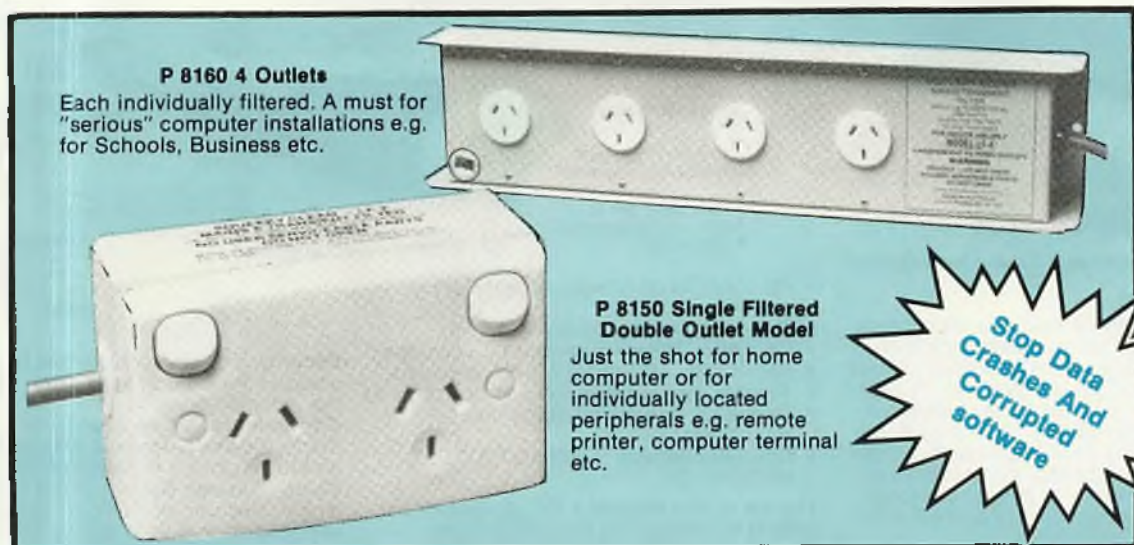
Specifications:

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

Operating Frequencies:

X Band: 10:525 GHz • K Band: 24150 GHz +110 MHz

SQUEEKY CLEAN MAINS FILTERS



P 8160 4 Outlets
Each individually filtered. A must for "serious" computer installations e.g. for Schools, Business etc.

P 8150 Single Filtered Double Outlet Model
Just the shot for home computer or for individually located peripherals e.g. remote printer, computer terminal etc.



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.

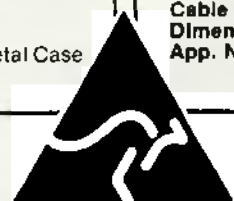
All SQUEEKY CLEAN filters are approved by the Energy Authority for connection to the electrical power circuits in all states of Australia, and are guaranteed for 12 months from date of sale.

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



AUSTRALIAN MADE

Designed & Manufactured
In Australia

New For '88

P 8160
\$269

P 8150
\$99

240V Mains Items



Mains Lead

A 2400 1.8M ... \$3.95

Mains Extension Leads

P 8105 5M \$11.50

P 8110 10M \$14.95



Piggyback Plug

P 8216 \$3.95

Mains Plug

P 8210 \$1.80

Extension Lead Socket

P 8230 \$5.95

Surface Mount Socket

P 8234 \$4.95

IEC Mains Connector

P 8310 \$1.80

IEC Mains Chassis Socket

P 8320 \$2.95

IEC Mains Socket with Fuse Holder

NEW
Holds M205 fuse Plus a Spare!
P 8324 \$4.50



Power Outlets

P 8240 Single ... \$5.95

P 8245 Double .. \$9.80



Blank Plate

P 8040 \$1.95

Mounting Block

P 8045 \$2.75

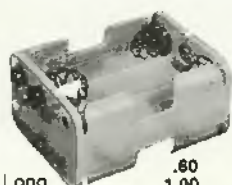
Double Adaptor

P 8290 \$3.75



Battery Holders

S 5025	Battery Holder 2 x AA Cells	.60	10+
S 5029	Battery Holder 4 x AA Cells Long	.90	.55
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	.65



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	2.50	S 4950	2 of UM1/D	4.95
S 4910	2 of UM2/C	1.75	S 4960	2 of UM2/C	3.50
S 4920	4 of UM3/AA*	1.75	S 4970	4 of UM3/AA	3.95
S 4940	2 of 216/9V	2.50	S 4980	4 of UM4/AAA	3.95

Note that the AA 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 the AA size were available in Zinc Chloride. However, it is anticipated that through 1988, 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 and 10-15Ma for 9V.

Cat No.		1-9	10-99	100 Up
S 5020	(AA Singles)	3.50	2.95	2.45
S 5024	(9V Singles)	18.95	17.85	16.95



Button Calculator and Watch Batteries

SILVER OXIDE	Hitachi Maxell	Eveready	National	Price
S 5000	G13 SR44	396		\$3.45
S 5002	G12 SR43	392	WL1	\$2.75
S 5004	G10 SR1130	393	WL5	\$2.95
S 5006	G8 SR1120W	391	G8	\$3.45
S 5008	G6 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



Sealed Lead Acid Batteries

S 5065	12V/1.2AH	22.95
S 5067	12V/2.7AH	34.50
S 5069	12V/4.5AH	45.00

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.

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 \$8.95



AC Products — Household Products



Direct From The Importers AC Adaptors

Our new range of adaptors are each fitted with a 1.6M Lead, in line socket and M 9993 2.1mm DC connector. Should your appliance require a different connector you may select from the adaptor plugs M 9992

M 9995 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	EA
M 9000	3,4,5,6,7,5,9,12	300mA	\$17.95
M 9001	6,	300mA	\$14.95
M 9002	12,	300mA	\$14.95
M 9004	9,	300mA	\$14.95
M 9005	6,9,12	500mA	\$19.50

DC Output Adaptor Plugs Available



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

ADAPTOR PLUGS ALL \$1.25



Supply 1 Amp

240/6, 7.5, 9, 12V @ 1 Amp

M 9030 \$29.50

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

This great little 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**. The 216 type battery snap from the plug pack charger simply connects to 9V battery or either of the AA Battery holders as required.



GREAT VALUE

M 8005 \$19.95

Multipurpose Nicad Battery Charger



With the increasing popularity of Nicad rechargeable batteries, this low cost multipurpose charger is just what the doctor ordered. charges every conceivable battery from AAA through to 9V.

M 8010 \$32.50

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 in 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

Mini Alarm

Fantastic for Door, Window or Cupboard — this great little alarm simply fixes to one surface (usually fixed surface) with the reed switch magnet screwed to the moving door window sash etc. **Arm the system by simply switching on** — battery drain is miniscule! When door/window is opened **blng** the surprisingly piercing alarm is operated. Sound Pressure level is 90db at 1ft. (300mm). At our direct import price you can afford to fit several through out the house for security of your possessions and "peace of mind" for all the family.

Operates from 9V battery (not supplied) (Alkaline type recommended for long service life).

Literally dozens of uses e.g. on the swimming pool gate when used with a weather protective shroud.



\$ 5315 \$16.00

Calculators And Tapes

**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



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 \$7.95



Clock Movement

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

X 1010 \$13.50



Dubbing Set

Any Video to Any Video

P 0730 \$21.95



★ A Great New Product From Altronics For '88 The Fantastic Pin Point Ultrasonic Cleaner ★



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

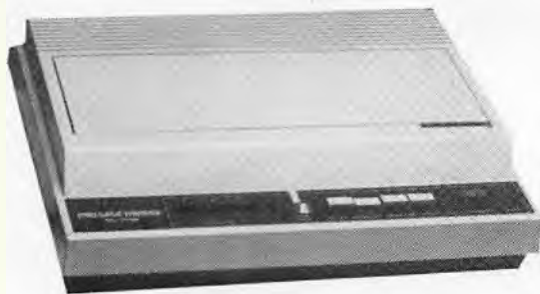
- Power Supply** : 240V 50Hz
- Power Consumption** : 300mA
- Frequency** : 40 +/- 2KHz
- Dimensions** : 224 x 114 x 124mm
- Capacity** : 570ml
- Weight** : 1Kg
- Body Material** : ABS Plastic
- Tank Material** : Stainless Steel (SUS 304)
- On/Off** : 3 Minute Auto Timer



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



**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 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



**RESELLERS —
MANUFACTURERS**

For Bulk Rates

Contact Our

Wholesale Company

**ALTRONIC
DISTRIBUTORS**

(09) 3282199



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**



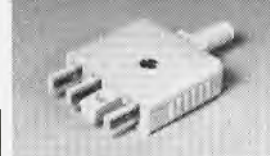
Conversion Cord
Changes from American modular plug, now common on imported equipment, to an Australian plug.

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**

Quality TV Antennas for VHF and UHF Reception

L 2012 \$79.95
An excellent antenna for poor reception areas. Channels 0 to 11 VHF, FM & UHF Band 4 (Including Channel 28) & also Band 5 UHF.

L 2008 \$59.95
All new suburban antenna for average reception areas. Channels 0 to 11 VHF, FM & UHF Band 4 (Including Channel 28)

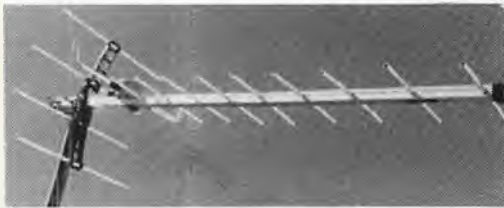
L 2004 \$39.95
Economical VHF & UHF antenna for good reception areas. Channels 0 to 11 VHF, FM & UHF Band 4 (Including Channel 28).



UHF Wide Band Antenna

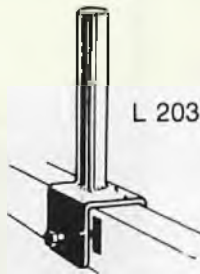
Covers full UHF TV Bands 4 and 5, Including Channel 28

L 2014 \$45.00



TV Antenna Loft Mount

L 2030 \$5.50



Antenna Facia Bracket

L 2035 1.2M \$13.75



TV Antenna Fitting's

TV BALUNS INDOOR



75 to 300 OHMS

L 1010 \$2.98
10 Up \$2.80



300 to 75 OHM

L 1012 \$2.30
10 Up \$1.99



Outdoor Weatherproof Balun

L 1020 \$4.50
10 Up \$4.15



Low Loss

TV Splitters

Suitable for VHF/UHF TV and FM
Without doubt our new JEBSEE TV Splitters are the best engineered splitter products we've seen.

- 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

L 1310 75 ohm IN 2 x 75 OUT
\$4.95 10 Up \$4.50

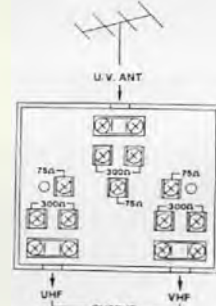
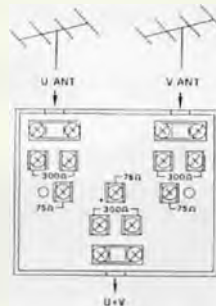
L 1320 75 ohm IN 4 x 75 OUT
\$6.95 10 Up \$6.00

TV Outlet Single Way

L 1030 \$2.95
10 Up \$2.40

Double Way

L 1035 \$3.98
10 Up \$3.45



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

Avtek Modem Buyers Guide

Designed & Built Here In Australia



Minimodem II

New improved version of the famous Minimodem provides the reliability and digital filtering of the Multimodem.

FEATURES:

- Now provides Viatel (1200/75 baud rate) and 300/300 full duplex as standard.
- Commodore VIC 20 and 64 now available. These plug directly into the user port. No need to buy expensive RS232 adaptors.
- Can be powered by the computer directly (for example Microbee and Commodore).
- On 1200 baud (e.g. Viatel) special equalisation is available for improved results on poor phone lines.

- D 1225** Minimodem Inc. Power Supply **\$199.00**
- D 1229** Minimodem (suit Commodore user port) **\$235.00**



Megamodem

These new Megamodem Models offer completely automatic communications at an affordable price. These provide complete SM300 and SM2400 compatibility, while also providing a simple to use menu driven mode where suitable software is not available.

FEATURES:

- Automatic dial, answer and disconnect
- All communications parameters, such as baud rate, parity and number of stop bits are set up automatically by the software and the Megamodem.
- Auspac compatible
- Visual and audio feedback
- 12 months warranty.

- D 1230** Megamodem 12 300/300 1200/1200 V21/22 **\$375.00**
- D 1232** Megamodem 123 V21/22/23 (Inc. automatic speed conversion for Viatel & Videotext 1200/75 services) **\$449.00**



Universal Monitor Stand

With Pan & Tilt Adjustment

This brilliant monitor stand enables you to swivel left/right and tilt up/down i.e. to position monitor to any desired position. Hence viewing position is enhanced and screen glare eliminated.

Altronics Direct Import Price

D 1100 \$34.50

RS-232 Interface 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 Jumper Box

The RS-232 Jumper Box is used to make custom RS-232 interfaces. It consists of a small board with a connector on each end. All 25 pins of each connector go to the 25 solder pads. By custom wiring these pads, many different interfaces can be built: null modems, pin reversers, etc. Also a cable can be connected to tap signals from the RS-232 line.

D 1520 \$ 9.95



RS-232 Surge Protector

The RS-232 surge protector is used to protect RS-232 ports from the possibility of costly damage from large voltage peaks caused by lightning or other power problems. The surge protector uses metal-Oxide Varistors (MOV) to protect pins 2,3 and 7. It has one Male and one Female connector with all 25 pins connected straight through and with MOV's connected between pins 1 and 2, pins 1 & 7. The MOV's will 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 and 250 amps peak current.

D 1510 \$19.50



Null Modem

The RS-232 Null Modem is used to replace a set 25-pin RS-232 connectors with transit DATA and receive DATA CROSS CONNECTED. (Pin 2 of each connector goes to pin 3 of the other connector) Pins 1 and 7 are connected straight through. Each connector is set up in the loop back mode with pins 4 and 5 shorted together. The RS-232 Null Modem is used when the proper operation of a set of modems is in doubt. It also is handy when Transmit DATA and Receive DATA need to be reversed.

D 1530 \$ 9.95

High Definition Computer Monitor

There are a number of low cost 'Hobbyist' monitors around these days at prices unheard of a year or so ago. However, all suffer from poor to medium definition or resolution - hence eye strain becomes a real headache. The situation has all changed with the release of the superb "Goldstar Pro" Non glare, naturally, and screen character resolution well worthy of mating up with top end personal or professional computers.

- Compatible with IBM, Apple, Commodore Computers
- Excellent for small business applications.
- Exceptionally clear and stable display
- 80 characters x 25 lines display.



CDT Non glare phosphor P31 green 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 1115 \$199.00

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

F 1020 \$24.50
5 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 \$24.50
5 Up **\$22.50**

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
5 Up **\$28.00**

120MM x 120MM x 38MM



Fan Finger Guards

F 1022 for 80MM Fan \$1.50
F 1032 for 120MM Fan \$1.95

DC Brushless Fan

Brushless, Electronically Commutated DC Motor

D25 Leads and Adaptors



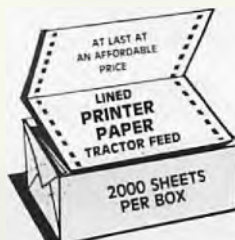
P 0758 D25 to Centronics (Use for IBM) 1.8M **\$27.95**
P 0759 D25 to Centronics (Use for IBM) 3.6M **\$33.50**
P 0762 D25 Male to D25 Male Lead 1.8M **\$27.95**
P 0764 D25 Male to D25 Female Lead 1.8M **\$27.95**

P 0760 D25 Female to D25 Female Gender Changer **\$17.95**



Altronics Printer Paper

The smooth texture finish is nearly 'bond' quality. Faintly ruled one side and pure white the other i.e. ideal for all types of printer application. Box of 2000 sheets suits popular personal printers.



240MM Width
D 1160 \$49.95
380MM Width
D 1165 \$69.95

Floppiclene

You will find regular use of Floppiclene will ensure faultless data capture and transmission saving you not only time and money but completely eliminating the risk of critical data loss caused by read/write head contamination.



The Worlds Leading Diskette Drive Head Cleaning System

Why Clean With Floppiclene?

Because Floppiclene Outperforms Every Other System.

Floppiclene has four major advantages over conventional head cleaners:-

Disposability - The innovative open-ended Floppiclene 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 Floppiclene 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 Floppiclene cartridge, an aerosol of Safeclene and ten disposable cleaning discs.

D 1803 \$49.50

Heatsinks For Hobbyists And Manufacturers



TO3 Minifin

50mm x 50mm x 25mm H
Prepared for TO3

- H 0500 **\$2.25**
10 Up **\$2.10**
Thermal Resistance 5° C/W



Universal U

Use with Flat Pack or TO3 Package
Ideal for PC Mounting

- H 0501 **\$1.10**
10 Up **.99**
Thermal Resistance 8° C/W



Mini U

Low Cost — Suits Flat Pack Semis

- H 0502 **.95**
10 Up **.85**
Thermal Resistance 10° C/W



'Clip On' Type For T 0220 Package

Multifin efficient design—simply push on over T 0220 Metal Tag.

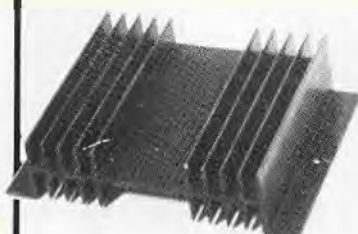
- H 0505 **.75**
10 Up **.68**
Thermal Resistance 25° C/W



TO5

High Efficiency Press On

- H 0512 **.60**
10 Up **.50**
Thermal Resistance 30° C/W



Economy Power

102W x 25H x 75H
Black Anodised

- H 0570 Undrilled ... **\$4.50**
10 Up **\$4.10**

- H 0571 Drilled 2 TO3 **\$5.50**
10 Up **\$4.95**
Thermal Resistance 2.7° C/W



Heatsink Compound

Heat conducting paste facilitates heat transfer from semi to Heatsink. One tube good for up to 30 TO3 package semiconductors.

Fantastic Value

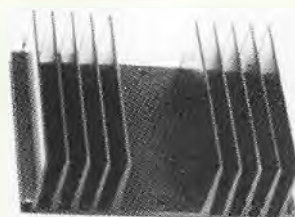
- H 1600 7.5m PK **\$2.95**
H 1610 150m PK **\$14.95**

Buy the trade pack (H 1610) Twenty times the compound for just 5 times the price!

Versatile Heavy Duty

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

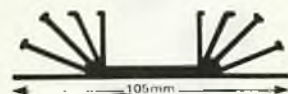
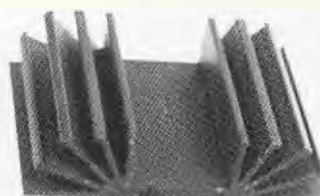
Sizes: 110W x 33H x 72D
Thermal Resistance 2.2° C/W



- H 0560 Undrilled **\$4.95** H 0561 Drilled 2 TO3 **\$6.50**
10 Up **\$4.75** 10 Up **\$5.95**

High Efficiency Fan Type

Black Anodised — Undrilled
Five Handy Lengths



Cat.No.	L	Thermal Resist.	EA.	10Up
H 0520	55mm	2.5° C/W	\$4.15	\$3.85
H 0522	72mm	2.2° C/W	\$4.95	\$4.50
H 0524	135mm	1.1° C/W	\$7.95	\$7.50
H 0526	225mm	0.9° C/W	\$13.50	\$12.50
H 0530	300mm	0.7° C/W	\$14.95	\$13.65

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** (Now why hasn't someone thought of that before!). 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: For O.E.M. Manufacturers 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

Quality Hardware Packs From Altronics At Bargain Prices

Self Tapping Screws

		PACK	PRICE
	H 1100	No. 4 x 8MM	25 \$.95
	H 1102	No. 4 x 8MM	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 BLACK TYPE)

H 1130	No.6 x 9MM	25	.95
H 1132	No.6 x 9MM	200	4.95

3MM and 4MM Metric Round Head Bolts, Nuts, Washers, Zinc Plated



		PACK QTY	PRICE
H 3110	6MM	25	\$.95
H 3115	6MM	200	2.50
H 3120	10MM	25	.95
H 3125	10MM	200	2.95
H 3130	15MM	25	.95
H 3135	15MM	200	3.50
H 3140	20MM	25	.95
H 3145	20MM	200	3.95
H 3150	25MM	25	.95
H 3155	25MM	200	4.95
H 3160	32MM	25	1.25
H 3165	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 1305	6	8	\$ 1.20
H 1359	6	100	9.90
H 1362	9	8	1.20
H 1365	9	100	10.50
H 1372	12	6	1.40
H 1373	12	100	12.00
H 1375	25	4	1.40
H 1376	25	100	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

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	.95
H 2002	Kwik connect FEM.Red	A	6.3	100	6.95
H 2005	Kwik connect FEM.Blue	B	6.3	6	.95
H 2007	Kwik connect FEM.Blue	B	-	100	7.50

MALE QUICK CONNECT

H 2020	Male Red	A	6.3	8	.95
H 2022	Male Red	A	6.3	100	5.95
H 2025	Male Blue	B	6.3	6	.95
H 2027	Male Blue	B	6.3	100	6.95

RING TYPE CRIMPLUG

H 2030	Red	A	3.5	8	.95
H 2032	Red	A	3.5	100	6.95
H 2035	Red	B	4	8	.95
H 2037	Red	B	4	100	6.95
H 2040	Red	A	5	8	.95
H 2042	Red	A	5	100	6.95
H 2045	Blue	B	4	8	.95
H 2047	Blue	B	4	100	6.95
H 2050	Blue	B	5	6	.95
H 2052	Blue	B	5	100	6.95
H 2055	Blue	B	6	6	.95
H 2057	Blue	B	6	100	7.95
H 2060	Yellow	C	5	4	.95
H 2062	Yellow	C	5	50	6.95
H 2065	Yellow	C	6	4	.95
H 2067	Yellow	C	6	50	6.95

SPADE CRIMPLUG

H 2070	Red	A	4	8	.95
H 2072	Red	A	4	100	6.95
H 2075	Red	A	5	8	.95
H 2077	Red	A	5	100	6.95
H 2080	Blue	B	4	6	.95
H 2082	Blue	B	4	100	6.95
H 2085	Blue	B	5	6	.95
H 2087	Blue	B	5	100	6.95

FEMALE BULLET CRIMPLUG

H 2120	Red	A	3.9	8	.95
H 2122	Red	A	3.9	100	6.95
H 2125	Blue	B	3.9	8	.95
H 2127	Blue	B	3.9	100	6.95

MALE BULLET CRIMPLUG

H 2150	Red	A	4	8	.95
H 2152	Red	A	4	100	6.95
H 2155	Blue	B	4	8	.95
H 2157	Blue	B	4	100	6.95

DOUBLE ADAPTOR

Connects 2 Females to 1 Male

H 2100	2M + 1F	6.3	6	.95
H 2102	2M + 1F	6.3	100	6.95

PIGGYBACK "DOUBLE ADAPTOR"

Provides connection to male and allowing connection to additional female.

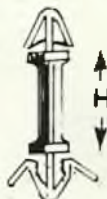
H 2010	Piggyback F to M + F Red	A	6.3	4	.95
H 2012	Piggyback F to M + F Red	A	6.3	50	5.40
H 2015	Piggyback F to M + F Blue	B	6.3	4	.95
H 2017	Piggyback F to M + F Blue	B	6.3	50	5.50

CABLE JOINER/SPLICER

H 2200	Splicer	D	-	4	.95
H 2205	Splicer	D	-	20	2.95



Hardware Items For Hobbyists And Manufacturers



PCB SUPPORTS

4MM Hole required in PCB	H 1430 H = 6MM	Pack 6	\$ 1.40
	H 1433 H = 6MM	Pack 100	13.50
4.75MM Hole required in Chassis	H 1440 H = 12MM	Pack 6	1.50
	H 1445 H = 12MM	Pack 100	12.50

RUBBER GROMMETS

For chassis to 16 gauge



	Chassis Hole	Cable Hole	Pack Qty	Price
H 1450	9.5mm	6 mm	8	\$ 1.50
H 1452	9.5mm	6 mm	100	15.00
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.	Price
H 0914	13mm	8	\$ 1.75
H 0913	13mm	100	11.95
H 0917	18mm	8	1.95
H 0916	15mm	100	12.95
H 0940	12mm Stickon	4	1.85
H 0942	12mm Stickon	100	19.50
H 0950	20mm Stickon	4	1.85
H 0952	20mm Stickon	100	19.50

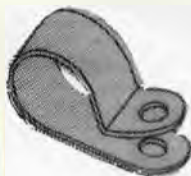
CORDGRIP CLAMPS



H 1470	Cables to 6.3mm	Pack 6	\$ 1.50
H 1471	Cables to 6.3mm	Pack 100	14.95
H 1475	Cables to 9mm	Pack 6	2.70
H 1476	Cables to 9mm	Pack 100	19.50

NEW NYLON CABLE CLAMPS

Available in Two Handy Sizes



Cat.No.	Size	Pack	Price
H 1480	6mm	6	.98
H 1481	6mm	100	8.00
H 1485	9mm	6	.85
H 1486	9mm	100	9.75

Cable Clips

Save a heap on "Trade Packs"



	SUITS CABLE TYPE	Ave. Pack Qty.	Price
H 1700	Fig 8	50	3.50
H 1702	Fig 8	200	12.50
H 1710	Tele cable	50	4.25
H 1712	Tele cable	200	9.50
H 1720	Coax cable	50	4.50
H 1722	Coax cable	200	10.50
H 1730	7-9mm cable	30	2.85
H 1732	7-9mm cable	200	12.50
H 1740	10-12mm cable	20	2.60
H 1742	10-12mm cable	200	14.50

T03 INSULATING CAP



H 1590	.....	.49
10 Up	.....	.45



T03 INSULATING KIT

Mica washers and bushes for T03 semi conductors

Mounts

H 1580	4 devices	\$1.10
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	\$10.50

Cable Ties

Strong Nylon 100mm Long



H 1400	Pack 25	\$1.65
H 1405	Pack 1000	\$29.50

Led Mounts

With locking collars, Suit 5mm leds

H 1550	Pack of 20	\$2.45
H 1551	Pack of 1000	\$65.00



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



New For '88

Velostat TN 3M Co.

Non-static sheeting for storing CMOS, IC's, LSI's etc. 1000 times better than aluminium foil. Will store up to 150 IC's (14 Pin) on one 225 x 150mm sheet.

H 0600	\$5.95
--------	-------	--------



Panel Mounting and Locking Hardware For D Connectors

(Spacers & Screws Packs of 100 Good for 50 D Connectors)

P 3300	Pack of 10	\$1.95
P 3305	Pack of 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.

Solder Lugs



H 1500	Solderlugs Pack 50	\$1.60
H 1501	Solderlugs Pack 100	\$13.50

Instrument Knobs And Parts Drawers

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 1.30

**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 ea 10 Up .75 ea

**COLOUR CAP
SERIES 20MM**
H 6021 RED
H 6023 BLUE
H 6025 GREEN
H 6027 YELLOW

All 1.10 ea 10 Up .99 ea

BLACK PVC FLUTED
15MM H 6040 .90
10 Up .85
20MM H 6042 1.10
10 Up 1.00

CALIBRATED 1-10
H 6090 1.55
10 Up 1.40

CALIBRATED LINE
H 6092 1.55
10 Up 1.40



**POLISHED
ALUM.18MM**
H 6305 1.60
10 Up 1.45



NATURAL ALUM.
15MM H 6310 1.95
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
16MM H 6211 1.90 10 Up 1.70
22MM H 6213 2.20 10 Up 2.00
30MM H 6224 2.55 10 Up 2.30
40MM H 6228 3.95 10 Up 3.60



BRUSHED SILVER
16MM H 6331 1.70 10 Up 1.55
22MM H 6333 1.95 10 Up 1.80
28MM H 6335 2.55 10 Up 2.35

**RESELLERS
MANUFACTURERS**
For Bulk Rates, Contact Our
Wholesale Company
ALTRONIC DISTRIBUTORS
(09) 3282199

METRIC KNOBS FOR 18 TEETH SPLINED SHAFTS

**METRIC 22MM
BLACK** H 6510 .99 ea
10 Up .90 ea

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

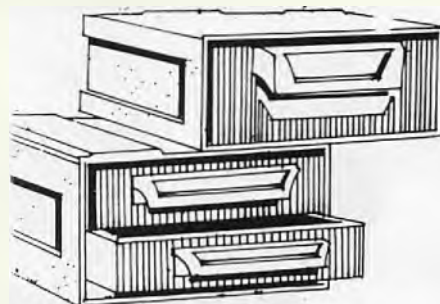
WHITE H 6512 .99 ea
10 Up .90 ea

Both 22mm O.D.



**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.



ea 10up
H 0235 Single Way 4.95 4.50
H 0236 Dbl. Drawers 4.95 4.50

UTILITY PARTS CASE

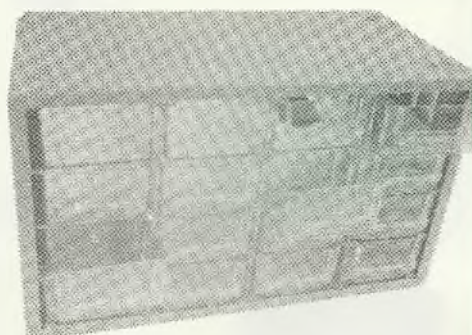
Featuring a clear plastic lid so you can tell contents at a glance. Simple slide lock, 48 partition combinations. Very sturdy ABS plastic. A must for the Technical, Handyman, Hobbyist, Collector.



H 0249 \$23.95

**16 WAY PARTS
DRAWER SET**

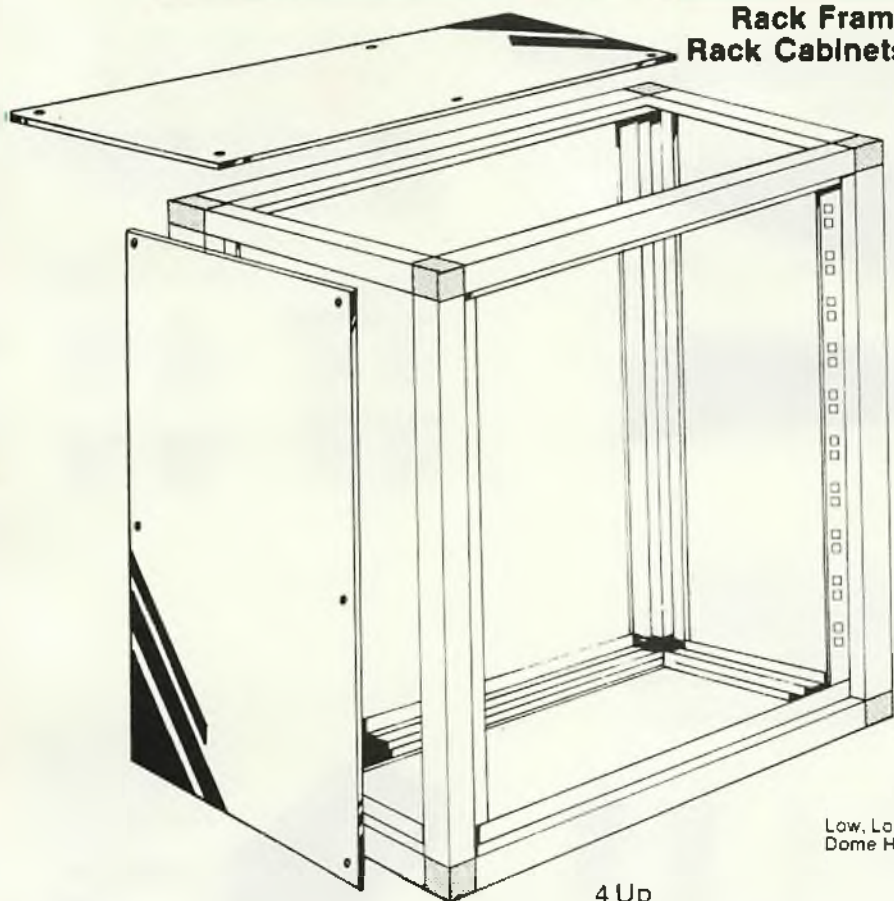
See through acrylic parts drawer. Slide-in Ident. card fronted drawers. Ident. cards supplied. Value Plus!



H 0240 \$32.50

Australian Manufactured Rack Cabinets

Rack Frames for the Home Stereo System
Rack Cabinets for Equipment Manufacturers
Both at Low Low Altronics Prices



AVAILABLE IN TWO FORMATS

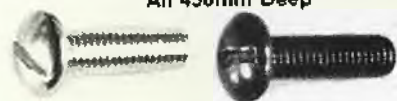
(1) **Racking Frame Only** Fantastic for neatly housing your home Hi Fi System. Looks fine as is with your various sound system modules bolted in place, however, should the little woman disagree, then it is dead simple to obtain some low cost timber panels from your local cabinet shop to fill the side and top recesses. Edging of the timber is not required due to the 15mm recesses.

(2) **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 - and just look at the savings!

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 rivetting 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.

6 Unit (370mm H) 18 Unit (907mm) 30 Unit (1450mm) and 38 Unit (1804mm) Racks available
All 450mm Deep



Rack Panel Screws

Low, Low prices on Nickel Plated and Black finish Rack Screws Dome Head, M6 Thread, 25mm overall length.

			4 Up	
H 0365	Rack Frame 6 unit (370MM)	\$ 99.50	\$ 96.00	
H 0367	Panel Set for H 0365	49.00	45.00	
H 0370	Rack Frame 18 unit (907MM)	129.50	125.00	
H 0372	Panel Set for H 0370	89.00	84.00	
H 0375	Rack Frame 30 unit (1450MM)	169.95	163.00	
H 0377	Panel Set for H 0375	129.00	119.00	
H 0380	Rack Frame 38 unit (1804MM)	199.95	194.00	

			4 Up
H 0382	Panel set for H 0380	\$149.00	\$139.00
H 0385	Rack screw M6 PK12 Natural	2.95	2.65
H 0386	Rack screw M6 PK100 Natural	19.95	17.95
H 0390	Rack screw M6 PK12 Black	2.95	2.65
H 0391	Rack screw M6 PK100 Black	19.95	17.95
H 0395	Rack captive nuts M6 PK12	3.95	3.50
H 0396	Rack captive nut M6 PK100	28.50	26.00

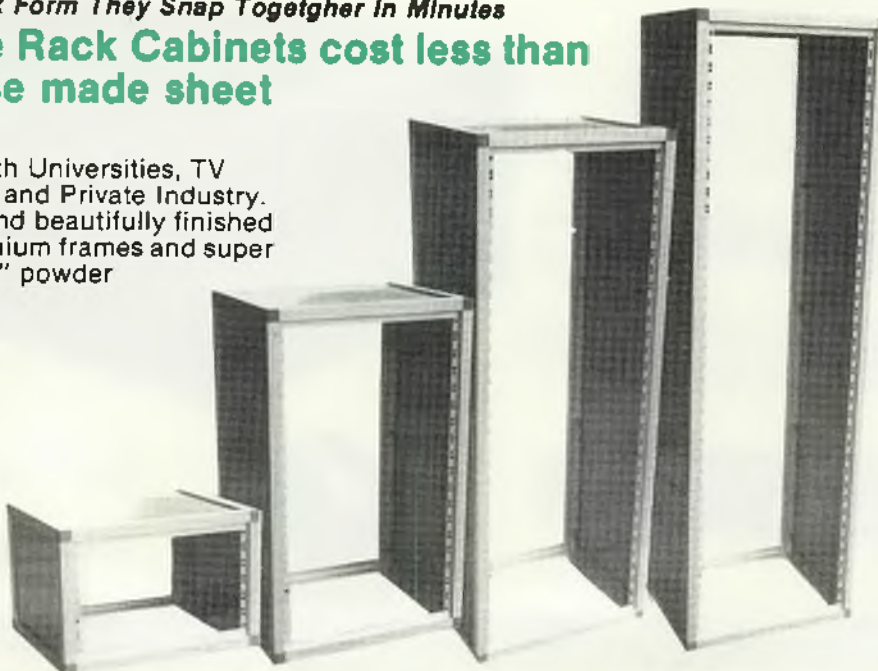
Supplied in Flat Pack Form They Snap Together in Minutes

These High Grade Rack Cabinets cost less than 1/2 that of purpose made sheet metal Racks.

Hundreds are now in use with Universities, TV Stations, Govt. Departments and Private Industry. They are extremely sturdy and beautifully finished with natural anodised Aluminium frames and super durable "Electron Grey-Blue" powder coat enamel panels.

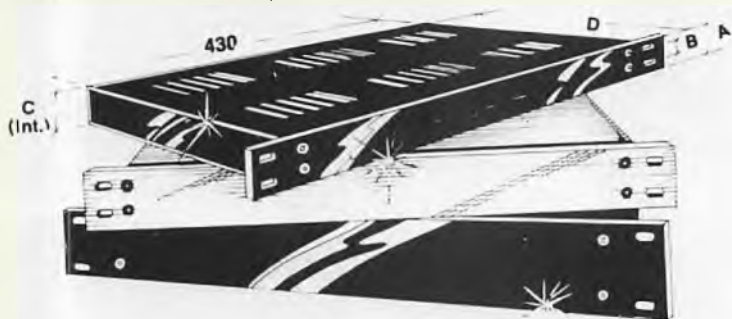
DISPLAYED HERE IN SEQUENCE LEFT TO RIGHT ARE -

- (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 (1690mm of Panel Height)



Professional Series Rack Cabinets

Now Your Preamps, Amps, Control Modules Monitor Panels Etc. Can Look Every Bit As Good As Technics, Nakamichi And Other Top Manufacturers



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

Of the same high quality as our International Rack Series.

NATURAL FINISH	EA	10+
H 0421 44mm	\$ 7.25	\$ 7.00
H 0422 88mm	12.75	12.25
H 0423 132mm	15.75	14.75

BLACK FINISH	\$ 8.50	\$ 7.90
H 0426 44mm	15.95	14.95
H 0427 88mm	22.50	20.50
H 0428 132mm		

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)

Cat.No.	Finish	A	B	C	Pa.	5 +
H 0401	Natural	44	34	38	\$59.95	\$55.00
H 0402	Natural	88	57	82	89.95	85.00
H 0403	Natural	132	89	126	95.00	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

Beware of other rack boxes that do not conform to International Rack Sizing

Economy Rack Cabinet

- Solid steel construction
- Black anodised front panel
- 3 unit (132mm)
- Conforms to International Standards
- Ventilated top and side panels



H 0400 ONLY
\$69.95
5 Up \$65.00

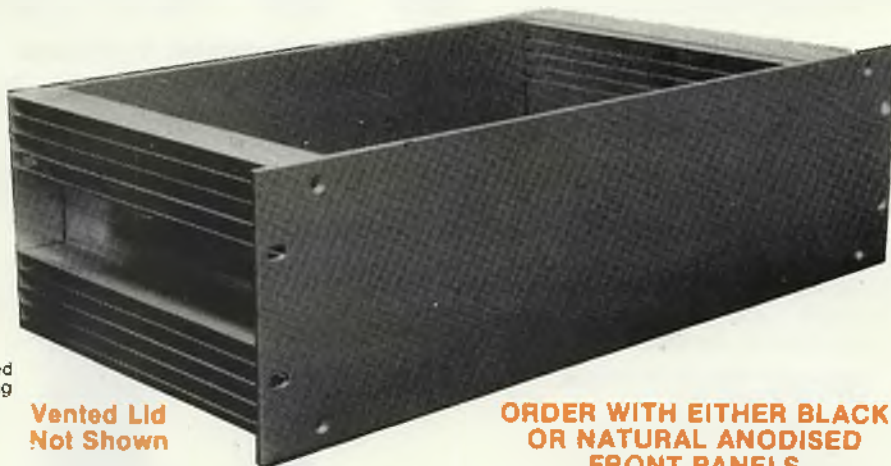
Another Altronics Innovation High Energy Rack Case

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 Supplied 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

Altronics For Quality Instrument Cases

Sturdy 'ABS' Instrument Cases

OEM's — Manufacturers — Bulk Users: Your product will look like it's straight out of "Hewlett Packard's" factory with these brilliant low cost cases. Contact our Wholesale Department for Bulk Prices.



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 (screws supplied).
- 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.
- Great for test instrument and other high grade projects.

	ea.	10+	100+
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

PVC Instrument Case Panels

Each instrument case is supplied, fitted with easy to machine PVC front and rear panels. These panels are textured one side and smooth face the other side (thus allowing for silk screening etc.) These may be ordered separately.

Rear Panel Heatsinking

2.5mm Black Anodised aluminium panels are available e.g. for heatsinking/shielding etc. for above cases. When used these replace the PVC panels supplied.

Natural Anodised Panels

Available as an accessory in place of 'ABS' panels where required.



	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

Altronics Jiffy Boxes

Manufactured from Sturdy ABS

(Not the cheaper Styrene as used by our competitors)

Now available with standard aluminium lid or new ABS plastic lid extra handy where insulation is a factor etc.

The unique Altronics design enables PCB's to simply 'snap in' horizontally and thus a veritable fortune is saved in the deletion of spacers, screws etc. Remember to order your PCB's pre-sized to suit the Altronics Jiffy range.

These are the utility boxes used in dozens of EA and ETI projects and Kits.



PCB Trimmed Width

Box	Lid	Dimensions	Vert.	Horiz.	Price	10 Up
H 0101	Alum.	150 x 90 x 50	90	87	\$3.60	\$3.25
H 0102	Alum.	195 x 113 x 60	106	103	\$5.50	\$5.10
H 0103	Alum.	130 x 68 x 41	62	60	\$2.95	\$2.60
H 0105	Alum.	83 x 54 x 28	50	47	\$2.25	\$2.10
H 0201	ABS	150 x 90 x 50	90	87	\$3.60	\$3.25
H 0203	ABS	130 x 68 x 41	62	60	\$2.95	\$2.75
H 0205	ABS	83 x 54 x 28	50	47	\$2.25	\$2.10

Now In Grey ABS!

The 3 most popular sizes are now available in grey ABS with a matching ABS lid.

H 0151	ABS	150 x 90 x 50	90	87	\$3.95	\$3.60
H 0153	ABS	130 x 68 x 41	62	60	\$3.30	\$3.00
H 0155	ABS	83 x 54 x 28	50	47	\$2.50	\$2.20

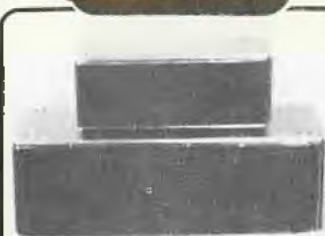


Horwood Instrument Case

Constructed of black Marvplate steel with aluminium front and rear panels. Each supplied complete with handles.

	153 x 102 x 203	
H 0461	\$24.50	\$22.55
	254 x 102 x 203	
H 0463	\$28.95	\$26.50
	203 x 76 x 228	
H 0465	\$24.50	\$22.55
	305 x 76 x 228	
H 0468	\$29.75	\$27.50

**NEW
FOR '88**



Metal Plated Jiffy Boxes

Satin "Chrome" finish metal plating over tough 'ABS' plastic. Great when shielding is required — Miles cheaper than die-cast boxes.

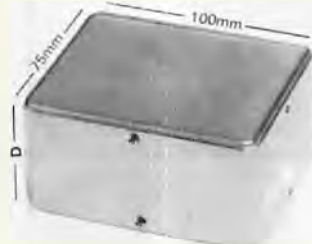
	150 x 90 x 50	
H 0211	\$5.95	\$5.50
	130 x 68 x 41	
H 0213	\$5.25	\$4.80
	83 x 54 x 28	
H 0215	\$3.95	\$3.50



Deluxe Cabinets

Natural finish aluminium chassis with black steel ventilated cover. Very attractive appearance. Fitted with 4 rubber feet. These are the specified cabinets for several ETI kit projects. Perfect for power supplies, amplifiers, custom modules etc. Four nifty sizes.

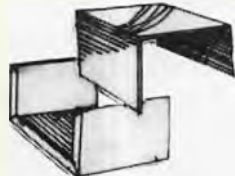
83 x 53 x 102		
H 0441	\$4.50	\$4.00
150 x 61 x 103		
H 0442	\$5.50	\$5.00
150 x 76 x 134		
H 0443	\$6.50	\$6.00
184 x 70 x 160		
H 0444	\$7.95	\$7.00



Horwood Utility Cases

Sturdy Extruded Construction

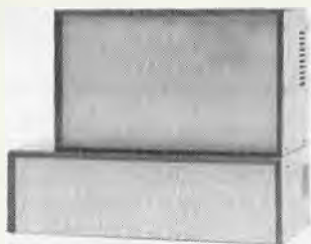
Dimension	ea	10 Up
H 0456 25mm	\$6.45	\$5.75
H 0457 50mm	\$7.45	\$6.75
H 0458 100mm	\$8.45	\$7.75
H 0459 150mm	\$9.85	\$9.65



Aluminium Boxes

Made from 20 gauge aluminium. Screws Inc. Two Handy Sizes

100 x 58 x 45		
H 0355	\$4.25	\$3.85
150 x 100 x 70		
H 0358	\$5.50	\$5.00



K & W Instrument Cases

As used by EA & Silicon Chip in many projects.

Smart Locking Blue & Silver Chassis — Aluminium

Top Cover — Sturdy Steel durable blue. Hammertone Paint Finish. Great for power supply project.

10" x 6" x 6"		
H 0492	\$24.20	\$22.70
12" x 4" x 8"		
H 0494	\$24.20	\$22.70

Dalo Pen

Etch Resistant Ink Makes PC Artwork a Breeze

T 0033 \$4.20



Matrix Pins

H 0805 0.9mm Pk	50	\$1.95
H 0806 0.9mm Pk	1000	\$39.95
H 0809 1.2mm Pk	50	\$1.80
H 0810 1.2mm Pk	1000	\$25.90



Blank PC Board

Single Sided Copper Clad
H 0752 300 x 300 \$9.95

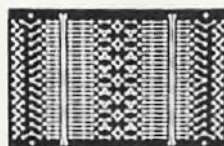
Fibreglass Blank PCB

H 0755 300 x 300 \$12.50



Ferric Chloride Beads

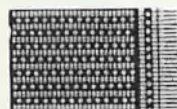
Makes 1 Litre of Solution
H 0800 \$2.95



Design Breadboard

Silver plated. Takes all IC sockets to 40 pin. In-built buss bars.

H 0706	.....	\$3.25
10 Up	.....	\$2.75



Plug In PC Board

60 x 100 x 2.5mm spacing. Silver plated. One of the handiest boards of all — build up professional modules on this plug in board. Great for prototypes. 24 way edge connector.

H 0710	.....	\$2.25
10 Up	.....	\$1.95

Vero Type Strip Board

Alpha numeric grid. Pre-drilled .9mm 2.5mm spacing. 95mm wide. 3 handy lengths.

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



Quality Solderless Breadboards

These solderless breadboards enable circuits to be literally thrown together in an instant, yet all components remain reusable. A necessity in all research laboratories to save on expensive development costs.

- 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.

Mini Strip 100 Holes

P 1000 \$3.25

640 Holes

P 1005 \$12.50

640 + 100 Holes

P 1007 \$14.50

640 + 200 Holes

P 1009 \$16.95

400 + 1280 Holes

Accepts up to 16 x 16 pin DIL IC's Terminals for PS Connections.
P 1012 \$43.50

500 + 1920 Holes

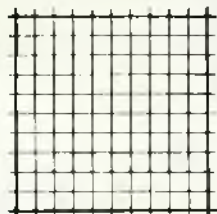
Accepts up to 24 x 16 pin DIL IC's Metal Backing Plate for Shielding of sensitive circuitry
P 1015 \$65.00

Bishop Graphics

As demand for greater PCB density increases so does the need for a more professional approach to PCB design. To help in this regard, Altronics stocks a comprehensive range of PCB artwork materials from **Bishop Graphics** of the U.S.A. This material is both dimensionally stable and accurate which enables you to produce complex layouts with great accuracy (very necessary for LSI for example). Once your artwork has been produced, you can make your own board.

Artwork Films Polyester

Always use a background grid during printed circuit artwork and layout preparation to ensure maximum accuracy on the final PCB. 10 x 10 grid, matte one side - 0.003" thick. This is the material you lay the patterns on.



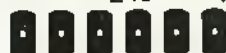
ACTUAL
SIZE

H 9959 8 1/2" x 11"
Pack of 2 \$4.25

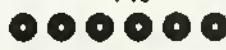
H 9960 11" x 17"
Pack of 2 \$7.50

Pre-Spaced Pads

0.100" Pitch 2.54mm
H 9906 240 **\$5.60**



0.100" Pitch 2.54mm
H 9907 140 **\$5.60**



0.156" Pitch 3.96mm
H 9908 150 **\$5.60**



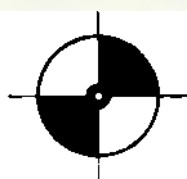
Black Artwork Tape

Size	Price
H 9930 0.026" wide x 18M	\$3.95
H 9931 0.031" wide x 18M	\$4.25
H 9932 0.040" wide x 18M	\$4.25
H 9933 0.050" wide x 18M	\$4.25
H 9934 0.062" wide x 18M	\$4.30
H 9935 0.080" wide x 18M	\$4.30
H 9936 0.093" wide x 18M	\$4.30
H 9937 0.100" wide x 18M	\$4.30
H 9938 0.125" wide x 18M	\$4.30
H 9939 0.200" wide x 18M	\$4.30
H 9940 0.250" wide x 18M	\$5.75

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 **\$5.60**



(Illustration shown actual size)

BISHOP GRAPHICS
*The Leader In
PCB Artwork*



Donut Pads

Type	Symbols	Price
H 9941 0.080" OD x 0.031" ID	96	\$4.30
H 9942 0.100" OD x 0.031" ID	96	\$4.30
H 9944 0.125" OD x 0.031" ID	96	\$4.30
H 9945 0.156" OD x 0.031" ID	96	\$4.30
H 9947 0.200" OD x 0.031" ID	108	\$4.30
H 9948 0.250" OD x 0.031" ID	128	\$4.30

Artwork Accessories



X-ACTO KNIFE

H 9955 **\$4.50**



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) **\$5.60**

H 9924 T0-18 (36 pads) **\$5.60**



Edge Connector Patterns

H 9950 0.1" pitch (25 strips) **\$5.30**

H 9952 0.156" pitch (5 strips) **\$5.30**



DIL Patterns

Type	Symbols	Price
H 9909 14Pin	32	\$5.60
H 9910 16Pin	32	\$5.60
H 9911 18Pin	28	\$5.60
H 9912 24Pin	12	\$5.60
H 9913 28Pin	12	\$5.60
H 9914 40Pin	8	\$5.60



DIL Patterns Narrow Cut

H 9918 14Pin	32	\$5.60
H 9919 16Pin	32	\$5.60
H 9920 40Pin	8	\$5.60

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 **\$4.30**
 - H 9902 0.05" wide **\$4.30**
 - H 9903 0.1" wide **\$5.35**
- Packaged in 6 Foot Rolls**

High Technology Leleon 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 be size larger than 8mm diameter has safety vents on rubber bun. • Temperature Range -40 to +85 deg.C • Tolerance -10% to +5%.

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 Current (mA)		
							1-8	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	63V	79	46	5	2	.27	.23	.20
R 5038	3.3uF	25V	32	59	5	2	.27	.23	.20
R 5044	4.7uF	63V	79	59	5	2	.27	.23	.20
R 5048	4.7uF	25V	32	71	5	2	.27	.23	.20
R 5054	6.8uF	63V	79	71	5	2	.27	.23	.20
R 5058	10uF	63V	79	86	5	2	.27	.23	.20
R 5062	10uF	25V	32	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	3.5	.35	.32	.29
R 5094	33uF	25V	32	108	6	2.5	.39	.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 5108	47uF	63V	79	220	8	3.5	.42	.36	.35
R 5122	100uF	16V	20	176	6	2.5	.32	.29	.26
R 5124	100uF	25V	32	195	8	3.5	.45	.40	.38
R 5128	100uF	63V	79	370	10	5	.78	.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	.78
R 5154	330uF	25V	32	416	10	5	.65	.60	.55
R 5158	330uF	63V	79	766	13	5	.95	.90	.80
R 5162	470uF	16V	20	467	10	5	.60	.55	.50
R 5164	470uF	25V	32	548	10	5	.70	.65	.60
R 5168	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 5188	1000uF	63V	79	1450	18	7.5	1.85	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	2.90	2.85	2.40
R 5208	2200uF	63V	79	1690	22	10	4.70	4.30	3.90
R 5214	3300uF	25V	32	1258	16	7.5	1.95	1.75	1.60
R 5216	3300uF	50V	63	1690	22	10	4.70	4.30	3.90
R 5222	4700uF	16V	20	1471	15	7.5	1.80	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	4.88	4.80	4.10
R 5234	10000uF	25V	32	2617	25	12.5	5.08	5.50	5.00

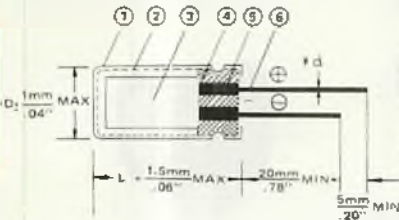
• RIPPLE CURRENT AT 20° 100Hz

Cat. No.	uF	Working Voltage	Surge Voltage	Ripple Current MA	Can Length MM	Ripple Current (mA)		
						1-8	10-24	25-
R 5518	1uF	63V	79	25	12	.35	.30	.27
R 5524	2.2uF	25V	32	37	12	.36	.30	.27
R 5528	2.2uF	63V	79	37	12	.35	.30	.27
R 5534	3.3uF	63V	79	46	12	.35	.30	.27
R 5538	3.3uF	25V	32	59	12	.35	.30	.27
R 5544	4.7uF	63V	79	59	12	.38	.30	.27
R 5548	4.7uF	25V	32	71	12	.35	.30	.27
R 5554	6.8uF	63V	79	71	12	.35	.30	.27
R 5558	6.8uF	25V	32	86	12	.35	.30	.27
R 5560	10uF	63V	79	86	12	.35	.30	.27
R 5564	10uF	25V	32	87	12	.35	.30	.27
R 5568	10uF	63V	79	108	12	.40	.35	.30
R 5584	22uF	25V	32	129	12	.45	.40	.36
R 5588	22uF	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 5646	220uF	50V	63	476	22	.95	.85	.78
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	.68
R 5668	470uF	63V	79	942	28	1.95	1.82	1.75
R 5682	1000uF	16V	20	751	21	.95	.82	.75
R 5684	1000uF	25V	32	830	22	1.30	1.15	1.05
R 5688	1000uF	63V	79	1450	38	3.50	3.40	2.95
R 5702	2200uF	16V	20	1020	27	1.50	1.25	1.10
R 5704	2200uF	25V	32	1180	28	1.85	1.60	1.65
R 5706	3300uF	25V	32	1690	43	4.88	4.60	4.25
R 5714	4700uF	16V	20	1258	37	2.50	2.30	2.10
R 5716	3300uF	50V	63	1690	43	4.95	4.50	4.55
R 5724	4700uF	25V	32	1614	38	3.00	3.30	3.00
R 5725	4700uF	35V	44	1706	43	4.88	4.80	4.10
R 5744	10000uF	25V	32	2617	52	6.95	6.40	6.05

• RIPPLE CURRENT AT 20° 100Hz

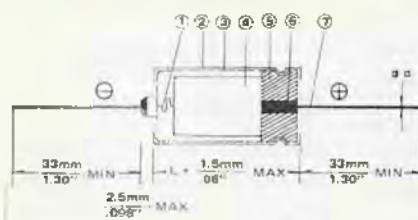
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For Bulk Rates Contact Our
Wholesale Company
ALTRONIC DISTRIBUTORS
(09) 3282199

INTERNAL STRUCTURE



1. Insulating Sleeve
2. Aluminium Case
3. Capacitor Element
4. Sealing Rubber
5. Aluminium Lead Wire
6. Lead Wire

INTERNAL STRUCTURE

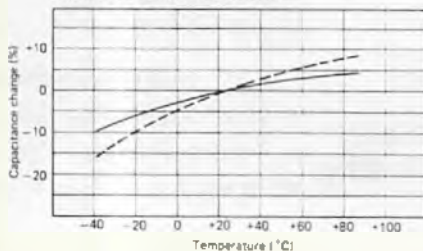


1. Plain Foil
2. Insulating Sleeve
3. Aluminium Case
4. Capacitor Element
5. Sealing Rubber
6. Aluminium Lead Wire
7. Lead Wire

TEMPERATURE CHARACTERISTICS

R 5018 — R 5234 R 5518 — R 5744
 --- 1000uF 16V --- 1uF 50V

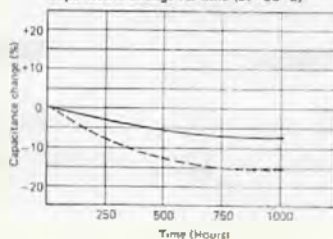
Capacitance change vs. temperature



LIFE TEST

R 5018 — R 5234 R 5518 — R 5744
 --- 1000uF 16V --- 1uF 50V

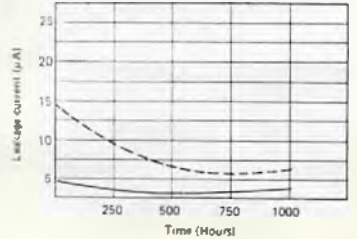
Capacitance change vs. time (at +85°C)



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 • Tolerance +/- 20%

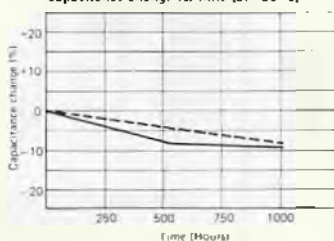
Cat No.	uF	Working Voltage	Surge Voltage	Ripple Current MA	Can Diameter MM	Lead Spacing MM	1-9	10-24	25+
R 6006	1uF	50V	63	8	5	2	.35	.30	.27
R 6018	15uF	50V	63	9	5	2	.35	.30	.27
R 6026	22uF	50V	63	11	5	2	.35	.30	.27
R 6036	33uF	50V	63	14	5	2	.35	.30	.27
R 6046	47uF	50V	63	17	5	2	.35	.30	.27
R 6056	68uF	50V	63	21	5	2	.35	.30	.27
R 6066	1uF	50V	63	25	5	2	.35	.30	.27
R 6076	15uF	50V	63	31	5	2	.35	.30	.27
R 6086	22uF	50V	63	37	5	2	.35	.30	.27
R 6096	33uF	50V	63	46	5	2	.35	.30	.27
R 6106	47uF	50V	63	55	5	2	.35	.30	.27
R 6115	6.8uF	35V	44	56	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	.40	.35	.32
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	8	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	18V	20	219	8	3.5	.45	.40	.35
R 6185	100uF	35V	44	269	8	3.5	.45	.40	.35
R 6192	220uF	18V	20	324	8	3.5	.45	.40	.35
R 6195	220uF	35V	44	459	10	5	.65	.60	.55
R 6202	330uF	18V	20	456	10	5	.65	.60	.55
R 6205	330uF	35V	44	584	13	5	.80	.75	.70
R 6212	470uF	18V	20	613	10	5	.50	.45	.40
R 6215	470uF	35V	44	765	12	5	.85	.80	.75

LIFE TEST

R 6006 — R 6215

---10uF 35V - - - - 100uF 35V

Capacitance change vs. time (at +85°C)

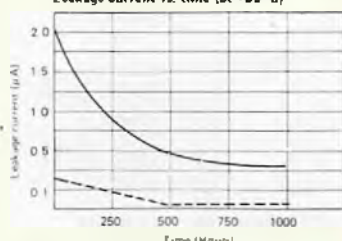


LEAKAGE GRAPH

R 6006 — R 6215

---10uF 35V - - - - 100uF 35V

Leakage current vs. time (at +85°C)

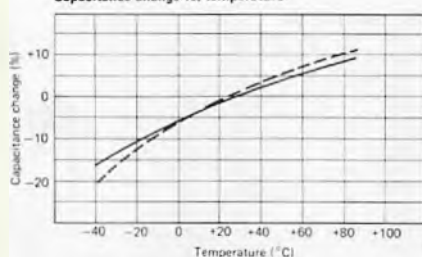


TEMPERATURE CHARACTERISTICS

R 6006 — R 6215

---10uF 35V - - - - 100uF 35V

Capacitance change vs. temperature



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.

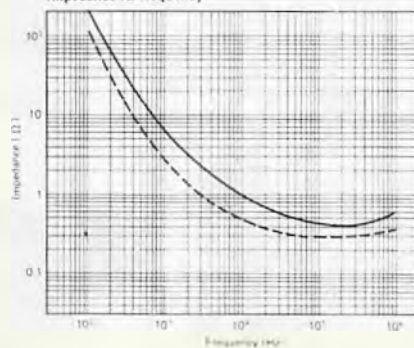
Cat No.	uF	Working Voltage	Surge Voltage	Ripple Current MA	Can Diameter MM	Lead Spacing MM	1-9	10-24	25+
R 6510	1uF	50V	63	30	8	3.5	.45	.40	.36
R 6520	2.2uF	50V	63	44	8	3.5	.45	.40	.36
R 6530	3.3uF	50V	63	54	8	3.5	.45	.40	.36
R 6540	4.7uF	50V	63	65	8	3.5	.45	.40	.36
R 6550	6.8uF	50V	63	70	8	3.5	.45	.40	.36
R 6560	10uF	50V	63	89	10	5	.65	.60	.55
R 6570	22uF	50V	63	145	10	5	.75	.65	.60
R 6580	47uF	50V	63	220	13	5	1.15	1.05	.90
R 6590	100uF	50V	63	363	16	7.5	1.60	1.45	1.30

IMPEDANCE GRAPH

R 6510 — R 6590

---4.7uF 50V - - - - 22uF 50V

Impedance vs. frequency



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.

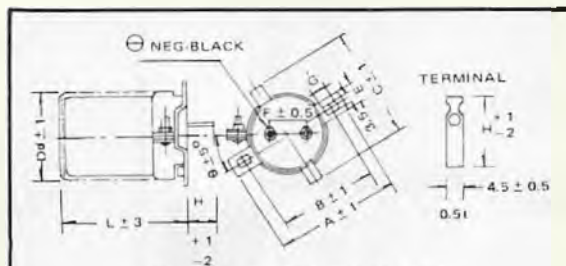
Operating Temperature Range -40 +85°C
Capacitance Tolerance +/- 20% (at 20°C, 100Hz)



Cat No.	uF	Working Voltage	Surge Voltage	Ripple Current MA	1-9	10+
R 6710	4000uF	63V	80	1814	10.80	9.90
R 6720	8000uF	63V	80	2039	19.50	17.50
R 6730	10000uF	50V	60	2473	16.50	14.86

*RIPPLE CURRENT AT 20°C, 100Hz

INTERNAL STRUCTURE



MECHANICAL SPECIFICATIONS

D0	A	B	C	E	F	G	H	0	0
30	52	42	38	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

Values expressed in microfarad (uF) excepting ceramic expressed in picofarad (PF)

TANTALUM

R 2620	1 /35V	R 2636	4 7/35V
R 2622	22/35V	R 2637	6 8/35V
R 2624	33/35V	R 2638	10 /25V
R 2626	47/35V	R 2640	15 /16V
R 2628	1 /35V	R 2642	22 /16V
R 2630	1.5 /35V	R 2644	33 /10V
R 2632	2.2 /35V	R 2646	47 /6.3V
R 2635	47uF 25V		

All Above .70 All Above .95
10 Up .65 10 Up .85



CERAMIC 50V

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 2831	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

All Above .18
Per Value 10 up .15
Per Value 100 up .12



50V MONOLITHIC CERAMICS

	ea.	10+	100+	
R 2900	.001uF	.22	.18	.16
R 2905	.0047	.22	.18	.16
R 2910	.01	.22	.18	.16
R 2915	.022	.22	.18	.16
R 2920	.033	.22	.18	.16
R 2925	.047	.22	.18	.16
R 2930	.1	.22	.18	.16
R 2935	.22	.55	.50	.45
R 2940	.33	.55	.50	.45
R 2945	.47	.65	.60	.55
R 2950	1uF	.95	.88	.80



VARIABLE TUNING CAPACITORS 60-160pF



R 2601 \$1.75
10 Up \$1.40

**RESELLERS
MANUFACTURERS**
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(09) 328 2199

COMPONENT BULK PACKS



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 10up \$5.50

R 3505 **.25W RESISTOR PACK
METAL FILM**
Average Contents: 150
Only: \$5.59 10up \$5.50

R 3510 **GREENCAP PACK 100V**
Average contents: 50 \$12.00 value
Only: \$5.95 10up \$5.50

R 3515 **CERAMIC PACK 50V**
Average Contents: 100 \$14.00 value
Only: \$5.95 10up \$5.50

R 3520 **ELECTROLYTIC PACK
PCB TYPE**
Average Contents: 40 \$14.00 value
Only: \$6.95 10up \$6.20

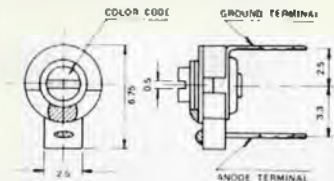
RF CHOKES



Cat.No.	Inductance uH ± 10%	DC Resistance 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 ea

TRIMMER CAPACITORS



D Series, top adjust., 2 pin, 5mm pin spacing.
Colour coded for capacitance range identification.

R 4001	2-7pF	Red
R 4003	3-11pF	White
R 4005	3.5-20pF	Blue
R 4007	5-30pF	Yellow
R 4009	8.5-40pF	Brown
R 4011	8.5-50pF	Green
R 4013	8.5-70pF	Black

All \$1.20
10 Up \$1.05

CRYSTALS



All Parallel Resonant HC25
(Except Y 1000 - HC33 Style)

		ea.	10+
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

100V GREENCAPS

	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	.30	.28	.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

	EA.	10+	100+	
R 2770	01	.55	.50	.40
R 2772	022	.60	.55	.50
R 2774	033	.65	.60	.55
R 2776	047	.70	.65	.55
R 2778	1	1.05	.95	.85
R 2780	22	1.20	1.10	1.00
R 2782	33	1.30	1.15	1.05
R 2784	47	1.80	1.45	1.35





Mini Mains

Primary: 240V
Secondary: 12.6V ct 150mA

M 2851 \$5.95
10 Up \$5.50

Primary: 240V
Secondary: 30Vct at 150mA

M 2855 \$6.95
10 Up \$6.50



Medium Mains

Primary: 240V
Secondary: 6V3, 7V5, 8V5, 9V5, 12V6, 15V at 1 Amp.

M 2155 \$10.95
10 Up \$10.25

Primary: 240V
Secondary: 15, 17V5, 20, 24, 27V5, 30 at 1 Amp.

M 6672 \$14.95
10 Up \$13.40



Standard Mains

Primary: 240V
Secondary: 6, 9, 12, 15V at 2 Amps.

M 2156 \$16.95
10 Up \$15.95



General Purpose Heavy Duty

Primary: 240V
Secondary: 28-0-28 2 amp

M 0144 \$33.00
10 Up

Primary: 240V
Secondary: 18V 6 amps

M 0163 \$33.00
10 Up



Low Cost Multipurpose Power Transformer

240V to 9, 12, 15, 18, 21, 24 volts at 60VA (60W). Our Multitap 1 amp and 2 amp Transformers have proved so popular we decided to release a big brother. Made right here in Australia. Use of high grade Silicon steel has enabled surprisingly compact dimensions (70mm x 70mm x 58mm High).

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

And The Best News is the Low Price

M 2165 \$26.50
10 Up \$23.00



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: 1 0-12V @ 5A, 15V @ 4A
Secondary: 2 0-12V @ 5A, 15V @ 4A

M 2175 \$39.95
10 Up \$35.00



Shielded Type With Shorting Strap

(Use with ET) Mosfet Amp
Secondary: 35-0-35 2.25 amp
15V x 2 at .25 amp

M 0320 \$47.50

PCB Mount Mains Transformers

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%

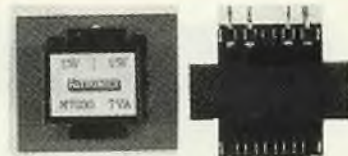
7VA Load Full voltage +3% -0%
9VA Load Full voltage +6% to -8%

Model Prim/SEC's

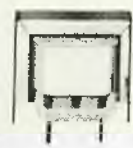
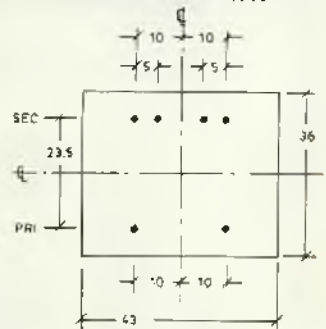
M 7012 240/6+6
M 7015 240/7.5 + 7.5
M 7018 240/9+9
M 7024 240/12+12
M 7030 240/15+15

Overall Height 35mm
Length 43mm
Width 36mm

1-9 \$12.95
10-24 \$11.50
25 Plus \$10.60



PINOUT VIEWED FROM UNDERNEATH



Low Cost Miniature Transformers

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

Coupling Type
M 0212 10K/2Kct
M 0222 3Kct/3K

Output Type
M 0216 1Kct/8
M 0226 500ct/8

All \$1.95ea
10 Up \$1.70ea

Low Cost Line Input Transformer

Max. Input Level + 12dbm
Ideal input coupling Transformer enables DC isolation of various modules therefore preventing hum pickup etc.

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

M 0710 \$7.50
10 Up \$6.90

Mu Metal Shielded Microphone & Input Transformers

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 \$22.50
10 Up \$20.50

Bridging/Isolating Type

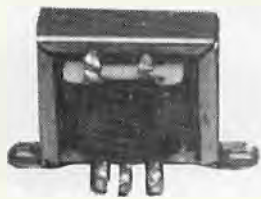
Use for coupling audio modules - prevents earth loops, hum etc. Essential coupling device where DC isolating is required.

Nominal Impedance Ratio 10K : 10K (1:1)

M 0702 \$22.50
10 Up \$20.50



Speaker and Line Transformers

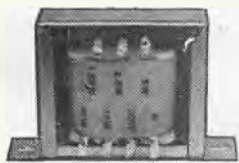


Super Versatile 4 Watt For 70V or 100V Line

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 1105 **\$7.50**
10 Up **\$6.90**



5 Watt

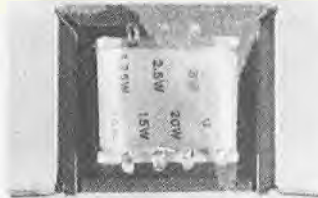
With Tapped Primaries for 8 ohm speaker on 100V line

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	Colour	Power
2K	Red	5W
4K	Green	2.5W
8K	Black	1.25W
16K	White	.66W
32K	Yellow	.33W
Common	Blue	

M 1108 **\$8.50**
10 Up **\$7.90**



20 Watt Transformer

High grade G.O. steel transformer for speaker columns etc.

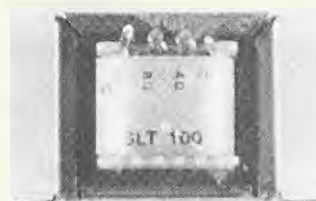
Primary Taps/Power

500	20W
666	15W
1K	10W
2K	.5W
4K	2.5W
8K	1.25W

(Halve Power out for 70V Line)

Secondary Taps 2,4 & 8 Ohm

M 1120 **\$19.50**
10 Up **\$18.00**



40 Watt Transformer

High Grade G.O. steel transformer for speaker columns etc.

Primary Taps/Power

250	40W
500	20W
1000	10W
2000	.5W

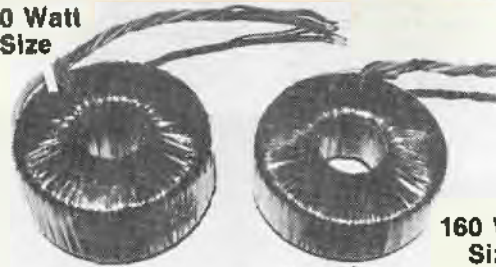
(Halve these for 70V Line)

Secondary Taps 4 & 8 Ohm

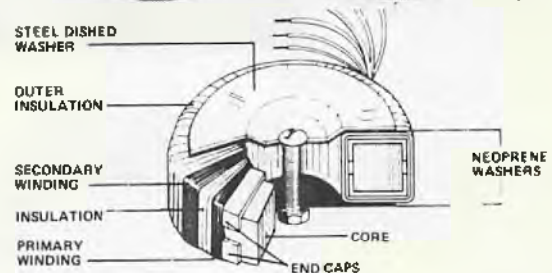
M 1122 **\$27.50**
10 Up **\$24.00**

TOROIDALS

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.**

160 Watt Models

Cat. No.	SEC.V	SEC	SEC
		Current A	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 160 Watt Models \$65.00 5 Up \$62.00

300 Watt Models

Cat.No.	SEC.V	SEC	SEC
		Current A	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 300 Watt Models \$79.00 5 Up \$75.00

Dimensions and Weight

160 VA Models 110 Diam. 45mm H. 1.8Kgs Leads 200mm
300 VA Models 125 Diam. 45mm H. 2.5Kgs 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.

Toroids For Kit Projects

Sixty-Sixty EA Amp Project

240/35 + 35V at 2.3A, **\$75**
M 3071 15 + 15 at .25A

12 VDC to 240 VAC Inverters

For 300 Watt Model

M 3200 **\$115**

For 600 Watt Model

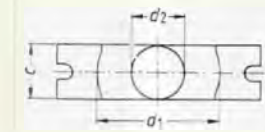
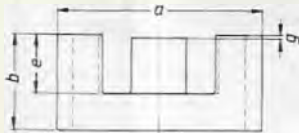
M 3205 **\$180**



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	\$9.75
10 Up	\$9.25

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

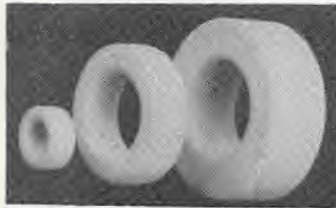
Diameter 9mm Length 200mm
Material F16 Applicants Long-Medium-Short Wavelength up to 12MHz. Neocid Part No. 9.5x200/F16



L 5240	\$2.95
10 Up	\$2.80

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	.75 ea
10 Up	.65

Balun Core (Small)

7.4mm x 13.2mm x 8.6mm
Part No. 1050/2/F14
Operating Frequency 40 = 220MHz
Material = F14

L 5235	.60 ea
10 Up	.55

Ferrite Suppression Beads

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



L 5250	.15
10 Up	.13

Sub Miniature Former With Core, Can and Base

5mm type 722/1 - use with 4mm slug or as open air type.

(as used in ET1760 Video Modulator)

L 5210	\$1.95
10 Up	\$1.75

Transformer Pot Cores

Size OD x 25 ID 11.1 xH 15.9
Material F4 Ferrite
Equivalent to FX2240 pot core.
As used in the Megohm Meter.



L 5300	\$3.50
10 Up	\$3.25



LAMPS AND BEZELS 250V Neon Flush Mount Indicators

Red



Single Red indicator. Panel Cutout
13 x 19mm.

S 4005	\$1.75
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Green/Red



Dual indicator - Red & Green Panel
cutout 19 x 22mm.

S 4007	\$3.95
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Miniature Panel Neon 250V

Chrome Bezel Housing



S 4020	\$1.15
10 Up	.99

12V Panel Lamps



S 4025 Red	.95
10 Up	.90
S 4026 Green	\$1.20
10 Up	\$1.10

Standard Neon 250V

Panel Mount (9mm Hole)



S 4015 Red	\$1.25
10 Up	\$1.05

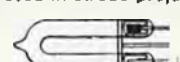
Filament Globes



S 4045 MES 6V	1-9 10+ .45 .40
S 4047 MES 12V	.45 .40
S 4051 Lilliput 6V	.65 .60
S 4053 Lilliput 12V	.65 .60
S 4055 MES Holder	.45 .40

Xenon Tube

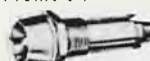
As used in strobe projects etc.



S 4040	\$4.20
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Led Bezel 2 Volt

Chrome Bezel Housing



S 4030 Red	\$1.40
10 Up	\$1.25
S 4032 Green	\$1.40
10 Up	\$1.25

Trigger Transformer FOR S 4040



M 0104	\$1.95
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Insulation Displacement Connectors



PCB Mounting Headers With Locking Levers

90 Degree Type		Ea 10 Up	
P 4000	26 Pin	4.50	4.10
P 4010	34 Pin	5.95	5.50
P 4020	50 Pin	7.95	7.20

Straight Type		Ea 10 Up	
P 4050	26 Pin	4.95	4.50
P 4060	34 Pin	5.50	4.95
P 4070	50 Pin	7.15	6.60



Cable Mounting Socket With Strain Relief

		EA. 10 Up	
P 4500	26 Way	3.95	3.75
P 4510	34 Way	6.50	6.05
P 4520	50 Way	7.50	6.95



IDC DII 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 4220	28 Pin	4.50	4.10
P 4230	40 Pin	5.95	5.50



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

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

DIL Header Plugs

Plug into standard IC Socket (Solder Tall Type)



		Ea 10 Up	
P 0614	14 Pin	3.95	3.45
P 0616	16 Pin	2.75	2.50
P 0624	24 Pin	4.95	4.40

Molex Pin Sockets

For use with single pins up to .5mm diam.



Make your own sockets for IC's displays, LSI's etc.

Ea 10 Up	
P 0680	Pack of 100 3.90
P 0681	Pack of 1000 39.50

16 Pin IC Test Clip



Makes connection of DIL IC easy without the danger of shorting out pins. Use on 8, 14 or 16 pin IC's. Often used as part of a test jig for production testing or service work. Spring loaded.

P 0670	8.50
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Multimeter Plug/Test Prods



		Ea 10 Up	
P 0165	Tip Plug Red	.55	.50
P 0166	Tip Plug Black	.55	.50
P 0167	Tip Prod Red	.90	.75
P 0168	Tip Prod Blk	.80	.75

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.

P 0182	Red Probe	1.20	1.00
P 0183	Blk. Probe	1.20	1.00

Banana Sockets



		Ea 10 Up	
P 0175	Red	.80	.55
P 0176	Black	.80	.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

Banana Plug Solderless



		Ea 10 Up	
P 0170	Red	.80	.75
P 0171	Black	.80	.75

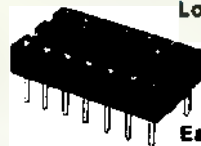
Binding Posts With 4mm Banana Socket



		Ea 10 Up	
P 0238	Red	.80	.75
P 0240	Black	.80	.75

IC Sockets DII

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

P 0578	8 Pin	1.50	1.35
P 0580	14 Pin	2.50	2.30
P 0585	16 Pin	2.70	2.50
P 0590	18 Pin	2.90	2.70
P 0595	24 Pin	3.50	3.20
P 0598	40 Pin	5.50	5.10

34 Way Double Sided Edge Connectors



For Disc Drives etc. 0.1" Pitch	
P 0780	7.95 10 Up 7.30

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

**RESELLERS
MANUFACTURERS**
For Bulk Rates Contact
Our Wholesale
Company
ALTRONIC
DISTRIBUTORS
(09) 328 2199



Panel Mount Screw Terminals

P 2020 2 Way	.80	.75
P 2022 4 Way	1.20	1.10



12 Way Terminal Block

250V Rated

P 2100	1.80	10 Up	1.60
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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	.65	.60	
P 0135 2.5mm	.75	.70	



Car Cigarette Lighter Plug

P 0160	.95	10 Up	.85
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Crocodile Clips

	Mini	Ea	10 Up
P 0100	Red	.50	.45
P 0101	Black	.50	.45
	Medium		
P 0110	Red	.55	.50
P 0111	Black	.55	.50



9V Battery Snap

P 0455	.30	10 Up	.25
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8 Pin Octopus (Octal)

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

Plug Adaptors

Plug	Socket
P 0330 6.35mm Stereo	3.5mm Stereo
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 each

25 Way Shielded Leads

D25M to Centronics 1.8M	
P 0758	\$27.95
D25 M to Centronics 3.6m	
P 0759	\$33.50
D25 Male/Male 1.8M	
P 0762	\$27.95
D25 Male/Female 1.8M	
P 0764	\$27.95



Jack Plugs and Sockets

Miniature Jacks

P 0020 2.5mm	.55	.50
(Jack Mono)		
P 0026 3.5mm	.55	.50
(Jack Red Mono)		
P 0028 3.5mm	.55	.50
(Jack Black Mono)		
P 0030 3.5mm	.90	.85
(Stereo Jack)		

Standard 6.3mm Jacks

P 0040 Plug 6.35mm	.90	.85
(Mono Plastic)		
P 0044 Plug 6.35mm	1.20	1.10
(Stereo Plastic)		
P 0050 Plug 6.35mm	1.40	1.30
(Mono Metal)		
P 0055 Plug 6.35mm	1.80	1.65
(Stereo Metal)		

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

P 0088 Socket 2.5mm	.55	.50
(Mono Panel)		
P 0090 Socket 3.5mm	.55	.50
(Mono Panel)		
P 0092 Socket 3.5mm	.95	.85
(Stereo Panel)		

STD 6.35mm Jack Sockets

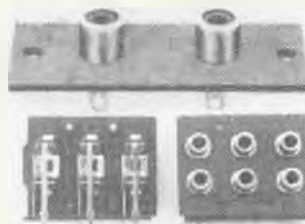
Quality Enclosed Type

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	.90	.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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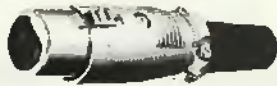
Insulated RCA Sockets

	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

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	5.50	4.95
P 0966 3 Pin Chassis Female	6.50	5.90

5 Pin Cannon Type



	Ea	10 Up
P 0968 5 Pin Line Male	9.95	9.28
P 0969 5 Pin Chassis Female	9.95	9.28

Cannon to Cannon Type Adaptors 3 Pin



	Ea	10 Up
P 0972 Male/Male	9.95	8.95
P 0980 Fem/Fem	14.90	13.80

UHF Sockets



	Ea	10 Up
P 0508 Fem/Fem Coupler	2.50	2.10
P 0509 Socket Sq.mount	1.55	1.40
P 0510 Socket round mnt.	1.80	1.65

BNC - UHF Adaptor



	Ea	10 Up
P 0517	3.95	3.60

75 Ohm Plugs



	Ea	10 Up
P 0227 All Metal	1.80	1.60
P 0228 Plastic	.95	.85

75 Ohm Sockets



	Ea	10 Up
P 0229 Chassis	.95	.85
P 0230 Line	1.85	1.75

Car Antenna Plug And Socket



	Ea	10 Up
P 0185 Plug	.80	.75
P 0236 Socket	.85	.80

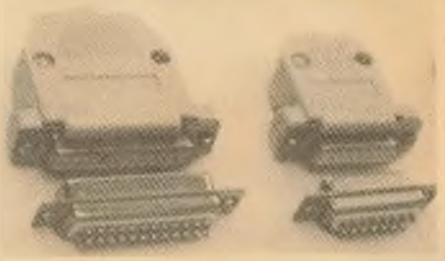
BNC Plugs & Sockets



	Ea	10 Up
P 0514 Plug	2.50	2.30
P 0515 Socket	2.60	2.40
P 0516 Socket (1 hole mount)	2.70	2.50

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 mnt.	2.95	2.70
P 3050 Female PCB Mnt.	3.95	3.60
P 3090 Backshell cover	1.95	1.80
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 mnt.	3.85	3.30
P 3150 Female PCB	4.85	4.35
P 3190 Backshell cover	2.20	1.95
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	2.20	1.95



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)	1.95	1.75
P 0503 PL 1/8 (Suit .38 Coax)	1.95	1.75
P 0504 Reducer (For P 0503)	.50	.45

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	9.95	8.95

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 Mount Screw Terminals



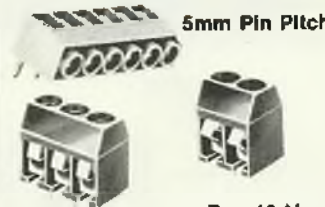
P 2090 4 Way	1.70	1.55
P 2092 6 Way	2.50	2.30
P 2094 8 Way	3.50	3.20
P 2096 10 Way	4.20	3.80
P 2098 12 Way	4.95	4.50

Thru Panel Barrier



P 2074 4 Way	2.45	2.20
P 2076 6 Way	2.95	2.70
P 2078 8 Way	3.50	3.20

PCB Terminal Block 5mm Pin Pitch



	Ea	10 Up
P 2032 2 Way	.95	.90
P 2033 3 Way	1.25	1.15
P 2064 4W Rt/L	1.90	1.75
P 2066 6W Rt/L	2.80	2.70

Tag Strips



P 2203 3 Way	.35	.30
P 2205 5 Way	.40	.35
P 2209 9 Way	.80	.75

Din Connectors

2 Pin Din Connectors



Cable Plug
P 0145 .60 10 Up .55

Chassis Socket
P 0222 .60 10 Up .55

Cable Socket
P 0221 .60 10 Up .55

Din Sockets

180 Degree Pin Displacement



	Ea	10 Up
P 1170 3 Pin	1.20	1.10
P 1175 4 Pin	1.20	1.10
P 1178 5 Pin	1.20	1.10
P 1180 6 Pin	1.20	1.10
P 1182 7 Pin	1.40	1.30
P 1184 8 Pin	1.40	1.30

PCB Mount Din



P 0188 1.50 10 Up 1.35

Male Din Plugs

180 Degree Pin Displacement



Ea 10 Up

P 1145 3 Pin	.75	.70
P 1148 4 Pin	.85	.80
P 1150 5 Pin	.85	.80
P 1152 5 Pin 270 dg	.85	.80
P 1156 6 Pin	1.10	.98
P 1159 7 Pin	1.10	.98
P 1162 8 Pin	1.25	1.10

Din Line Socket



Ea 10 Up

P 0220	1.20	1.10
P 0225 6 Pin	1.10	.99
P 0226 7 Pin	1.10	.99

Right Angle 5 Pin Din



P 1154
1.60

Universal 5 Pin Din

P 0186 Plug
P 0190 Socket



1.00 .90
.95 .90



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 inserting polarisingkeys into selected cavities.

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 : 10¹² Ohm min.

Temperature Range : 55° C to + 125° C.

Insertion Force per way : 95 g.

Extraction force per way : 95 g

Ea 10 Up

Plugs Right Angle PCB Mount

	Ea	10 Up
P 4832 32 Way - Rows A + C	4.50	4.10
P 4864 64Way - Rows A + C	8.50	8.00
P 4896 96Way - Rows ABC	12.50	11.50

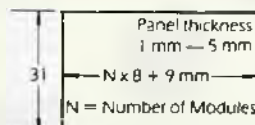
Sockets Straight Pins 4MM

	Ea	10 Up
P 4932 32 Way - Rows A + C	6.50	6.00
P 4964 64 Way - Rows A + C	12.50	11.50
P 4996 96 Way - Rows ABC	17.50	16.00

RESELLERS MANUFACTURERS

For Bulk Rates, Contact Our
Wholesale Company
ALTRONIC DISTRIBUTORS
(09) 328 2199

New BCD Thumbwheel Switch



From
\$6.50

New
For
'88

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

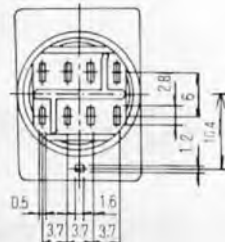
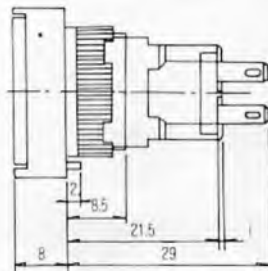
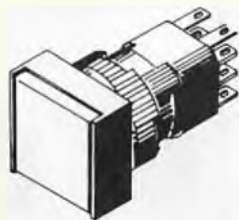
plated copper on epoxy fibreglass. continuous load 1A max. Panel cutout for one unit 16mm x 30mm. Allow further 8mm per extra unit.

Note that a pair of end caps (S 3305) are required per assembly. i.e. whether assembly is one unit or 6 units long.

S 3300	\$6.95
10 Up	\$6.50
S 3305 End Caps	\$1.75 pr.

Professional Switches For Industry All Listed By Underwriters Laboratory USA

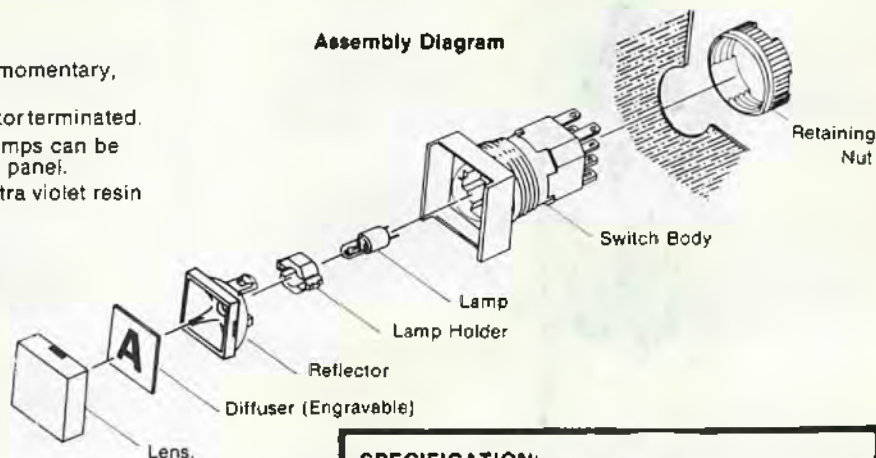
Illuminated Push Button Switches And Displays



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

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

S 1550	Red Lens	\$ 7.50	\$ 6.90
S 1552	Green Lens	\$ 7.50	\$ 6.90
S 1554	Yellow Lens	\$ 7.50	\$ 6.90
S 1556	White Lens	\$ 7.50	\$ 6.90

Lamps

S 1580	12V Lamp	\$.95¢	\$.85¢
S 1585	24V Lamp	\$.95¢	\$.85¢

Safety Cover

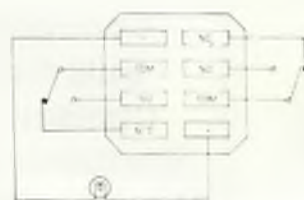
S 1595	Safety Cover	\$ 3.95	\$ 3.50
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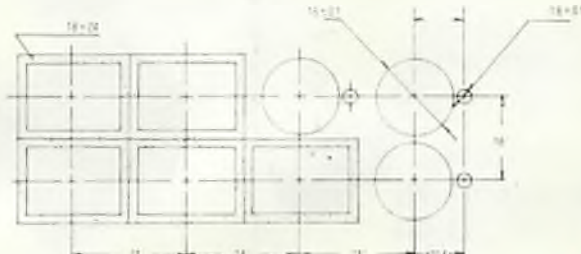
SPECIFICATION:

Rated Current/Voltage	3A/250V AC
Insulation Resistance	100M Ohm/500V DC
Dielectric Strength	
Between Switch Terminal	AC 1,000V 1 Min.
Between Switch Terminal and Lamp Terminal	AC 1,500V 1 Min.
Operating Force	300 - 350g
Stroke	3MM
Service Life	
Electrical	3A/250V AC 50,000 operations Min.
	1A/250V AC 100,000 operations Min.
Mechanical	Momentary 1,000,000 operations Min.
	Alternate 100,000 operations Min.

Pin Out (When viewed from rear)



Panel Layout



A Great Range Of Switches For Just About Any Application

Slide Switches

Sub-Miniature DPDT

Plastic Handle

S 2010 .45c
10 Up **.40c**



Sub-Miniature DPDT

Aluminium Handle

S 2020 .60c
10 Up **.55c**

Miniature 3 Pos. 2 Pol.

Aluminium Handle

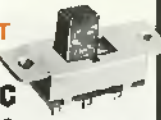
S 2030 .90c
10 Up **.80c**



Miniature DPDT

Plastic Handle

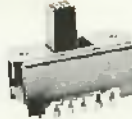
S 2035 .80c
10 Up **.75c**



Miniature 4 Pos. 2 Pol.

Plastic Handle

S 2040 \$1.10
10 Up **\$1.00**



PCB Mount DPDT

Pitch between Pins 4.25mm
Pitch between Pin rows 3mm

S 2060 .45c
10 Up **.40c**



Mounting Screws For Slide Switches

S 2015
Pack of 100 **\$1.95**

Lamp Switches

SPST 2.5A/250V

S 1075 \$1.20
10 Up **\$1.10**

DPDT 2.5A/250V

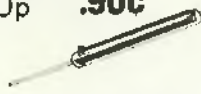
S 1076 \$1.75
10 Up **\$1.60**



Mini Reed Switch

N/Open

S 5150 .95c
10 Up **.90c**



Mini Reed Coil

S 5151 .99c
10 Up **.85c**



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**



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



Standard Rocker Switch With Indicator Dot

250V 6A DPDT. Panel cut-out 19 mm x 22mm

S 3230 \$2.75
10 Up **\$2.50**



Miniature Rocker Switch With Indicator Dot

Low cost snap action rocker switch - ideal as mains switch etc. 250V 6A rating. Panel cut-out required 19 x 13mm.

SPST

S 3210 \$1.80
10 Up **\$1.65**



SPDT

S 3215 \$2.20
10 Up **\$1.95**

Illuminated Rocker Switch

SPST 250V/6A
Panel Cutout 18.6 x 13mm

DPDT Illum.

S 3217 \$2.95
10 Up **\$2.70**



**Contractors
Bulk Users
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Wholesale Dept
On (09) 328 2199
For Bulk Rates**

Economy Switches

Mini Toggle Sturdy - Reliable

S 1010 SPDT \$1.90
10 Up **\$1.70**



S 1020 DPDT \$2.35
10 Up **\$2.10**

Standard Toggle Sturdy - Reliable 125V/3A Rating

S 1040 SPST \$1.50
10 Up **\$1.35**

DPDT

S 1050 \$1.70
10 Up **\$1.50**



Heavy Duty Toggle DPDT Centre Off

125V/10A (250V AC/5A)
Ideal for car antenna switch, automotive and marine electrical use.

S 1055 \$2.95
10 Up **\$2.70**



Standard Toggle Switch

250V 15A SPDT

S 3220 \$2.70
10 Up **\$2.50**



ALTRONIC Components

DII Switches

Gold Plate Self Wiping
Contacts



10 Up

\$ 3045	2 Way	\$1.40	\$1.30
\$ 3050	4 Way	\$1.95	\$1.75
\$ 3055	6 Way	\$2.25	\$2.05
\$ 3060	8 Way	\$2.50	\$2.25
\$ 3065	10 Way	\$2.65	\$2.45

Rotary Wafer Switches

6.3mm (1/4") by 32mm
plain shafts. OEM Quality



10 Up

	Pos.	Pole		
\$ 3002	2	6	\$2.20	\$1.99
\$ 3003	3	4	\$2.20	\$1.99
\$ 3004	4	3	\$2.20	\$1.99
\$ 3005	5	2	\$2.20	\$1.99
\$ 3006	6	2	\$2.20	\$1.99
\$ 3012	12	1	\$2.20	\$1.99

Snap Action Key Board Switches

PCB Mount. Super handy for
custom keyboards, security
switches etc.

Ultra Long Life Design
Choose from 5 Colours



\$ 1095	Red
\$ 1096	Black
\$ 1097	Yellow
\$ 1098	Green
\$ 1099	White

All **.80c**

10 Up **.75c**

Miniature Push Button

6mm Mounting Hole
125V/3A Rating



Push to make Contacts

\$ 1060	.60c
10 Up	.52c

Push to Break Contacts

\$ 1070	.99c
10 Up	.95c

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.



\$ 5145	52mm L	.99c
10 Up		.90c



\$ 5147	65mm L	.99c
10 Up		.90c

Momentary Push Model

250V/3A SPST
12.5mm Mounting Hole

\$ 1080	Red	\$1.95
10 Up		\$1.75
\$ 1081	Black	\$1.95
10 Up		\$1.75
\$ 1090	ALT ACT	\$1.80
10 Up		\$1.60

Double Pole Push Button

Two Models 250V/1.5A
Rates

DPDT Alternate Action		
\$ 1091		\$4.95
10 Up		\$4.50
DPDT Momentary Action		
\$ 1092		\$4.95
10 Up		\$4.50

Two Position Single Pole Key Operated Switch



Zinc Alloy Die Cast housing
& cylinder with weatherproof
shutter. Five disc tumbler
cylinder. Durable chrome/
Nickel plated solid brass
double fitted key. Silver plated
contacts and terminals.
250V/3 Amps.

DIMENSIONS:

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

\$ 2500		\$7.95
1 - 9		\$7.40
10 - 24		\$6.90
25 Plus		

3 Position 2 Pole Key Lock Switch



Key is removable in Position
1 only.

Switch Position

1. (12 O'Clock)	8-1, 4-5
2. (2 O'Clock)	1-2, 5-6
3. (10 O'Clock)	7-8, 3-4

DIMENSIONS:

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

\$ 2506	\$7.95
10 Up	\$7.40

4 Position 2 Pole 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.

\$ 2510		\$9.95
1 - 9		\$9.25
10 - 24		\$8.50
25Up		

Relays At Import Prices

Cradle Relays — Pinout compatible with ITT and Siemens high sensitivity, high reliability, gold flashed contacts. Operate time 15 ms (max.) release time 10 ms (max.). Insulation resistance 100M. Ohm at 500V DC. Dielectric Strength 1000V AC (1 min.).



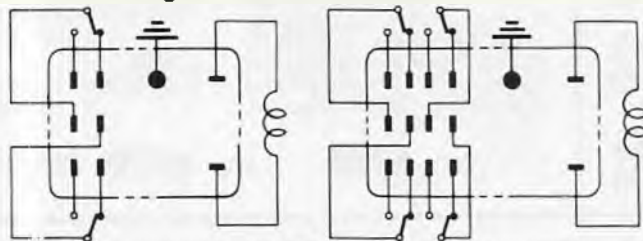
	Coil Voltage	Coil Resistance	Contact Set	Contact Current Max.	Contact Power Max.	Price 1-24	25 Up
S 4067	12	325	DPDT	2A	120VA	\$8.98	\$8.15
S 4068	24	1600	DPDT	2A	120VA	\$8.98	\$8.15
S 4070	12	170	4PDT	1A	60VA	\$9.95	\$9.25
S 4071	24	700	4DPT	1A	60VA	\$10.95	\$9.95

Huge Savings with our Direct Import Price!

Cradle Relay Socket

			Includes Retaining Clip		
S 4058	for DPDT Relays	(S 4067/8)	\$2.40	10Up	\$2.20
S 4059	for 4PDT Relays	(S 4070/1)	\$2.40	10Up	\$2.20

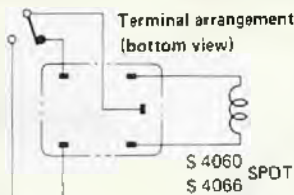
Terminal arrangement (Bottom view)



Mini PCB Relays

Low Profile 14H x 20W x 12D
12V DC Bobbin
1 Amp Contact Rating

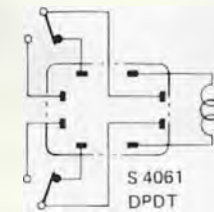
S 4060 SPDT	2.50
10 Up	2.25
S 4061 DPDT	3.95
10 Up	3.70



Mini PCB Relay H/D

Low Profile 15mm (H)
12V DC Bobbin 3 Amp
Contact Rating

S 4066 SPDT	3.15
10 Up	2.70



Extra Heavy Duty PCB Relay

Low Profile 25mm (H) 12V DC coil. A massive 10 amp contact rating 240V AC or 24V DC.

S 4080 SPDT	5.50
10 Up	5.10



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
5 Up	4.50

Lamp Relay

12-16V Coil. Two separate make contact sets 30 amp capacity each.

S 4135	13.50
5 Up	12.25 ea



RESELLER — MANUFACTURERS
For Bulk Rates, Contact Our Wholesale Company
ALTRONIC DISTRIBUTORS
(09) 3282199

Fuses & Fuseholders

Fuse Holder 3AG

Standard



\$ 6000 \$1.20
10 Up **\$1.10**

Safety type



\$ 5995 \$1.70
10 Up **\$1.55**

In Line Type



\$ 6001 \$1.10
10 Up **\$.95**

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



Pack 8 **\$ 5980 \$1.15**
Pack 100 **\$ 5981 \$9.90**

30 Amp Panel Mount 5AG Fuse Holder



Remember the hassle in providing high current circuit protection? The options are few — expensive industrial fuse assemblies costing \$10 or more or circuit breakers (costing an arm and a leg). 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.

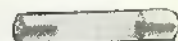
Panel hole size 15/16 inch is perfect although 1 inch or 25mm is OK.

Simple One Hole Mounting - No More Expensive Panel Cutouts, Brackets.

	EA	10 Up
\$ 6030 Holder	\$3.40	\$3.10
\$ 5975 Fuse 20A	\$1.75	\$1.60
\$ 5976 Fuse 25A	\$1.75	\$1.60
\$ 5977 Fuse 30A	\$1.75	\$1.60

Fuses 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

**Bulk Buy
And Save
Up To
50%**

M205

	All Fuses
\$ 5910 250MA	1—9 .25
\$ 5912 500MA	10—99 .20
\$ 5914 1A	100 Per Value .15
\$ 5916 2A	500 .12
\$ 5918 5A	Mixed .12

RESELLERS MANUFACTURERS

For Bulk Rates, Contact Our Wholesale Company
ALTRONIC DISTRIBUTORS (09) 328 2199

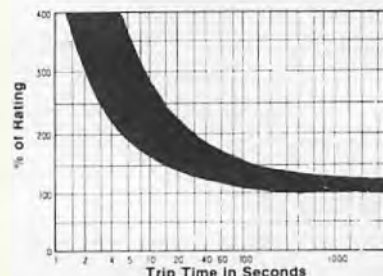
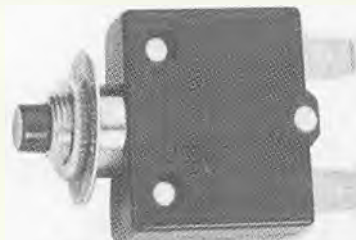
Low Cost Resettable Circuit Breaker

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.

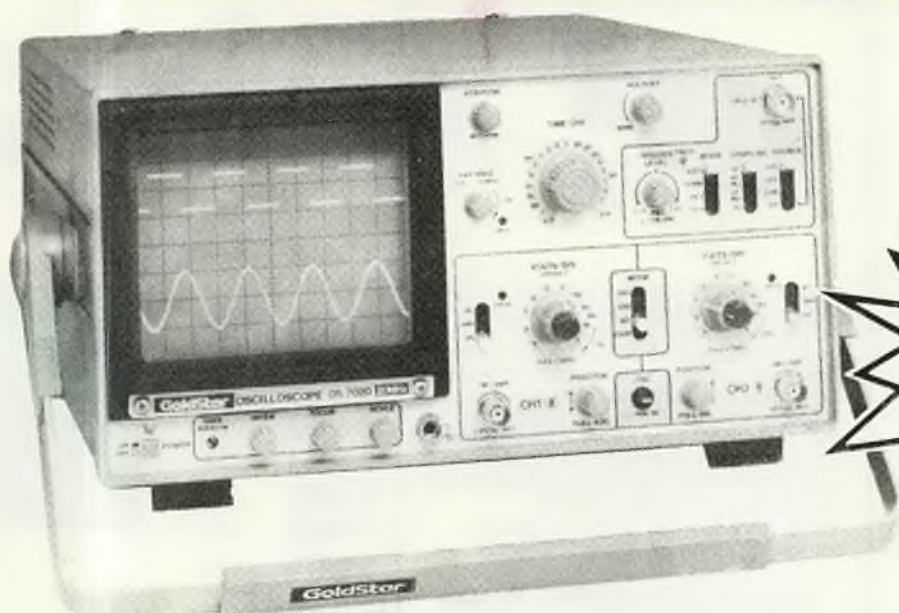
Performance Data:

- 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 1 hour at 125% of load at 25 deg. C.
- will trip within 4-40 seconds at 200% rated load.

		10 Up
\$ 5505 5 Amp	\$4.50	\$4.20
\$ 5510 10 Amp	\$4.50	\$4.20
\$ 5515 15 Amp	\$4.50	\$4.50
\$ 5520 20 Amp	\$4.50	\$4.50



**"Australia's Finest Dual Beam 20MHz CRO
is Under a Thousand Dollars"**



**New
For
'88**

Q 0120
\$899.00

Dual Trace 20MHz Oscilloscope

This all new CRO must be the best valued quality Oscilloscope in Australia!

This new model is a 20MHz dual-trace Oscilloscope using a high brightness CRT with an illuminated scale. The vertical amplifiers have high sensitivity 1mV-5V/Div. The unit has LED's to indicate when the controls are in the 'uncal' position, and to indicate if the trace has been triggered. The brilliant triggering circuit will trigger on just about any waveform applied. The highest triggering sweep is 0.2uSec/Div. The Q 0120 also features a 'Hold Off' control for seeing the front end of the input wave form.

FEATURES:

- Large 6" rectangular CRT with internal graticule.
- High sensitivity: 1mV/Div.
- High accuracy: + or - 3%
- Stable, low-drift design
- 8 divisions of displayed dynamic range and accurate, distortion-free waveform measurements.
- This instrument has a special TV sync separation circuit for quick measurements of video signals.
- A convenient X-Y operation mode allows phase difference measurements between two waveforms.

SPECIFICATIONS

DISPLAY

CRT: 6-inch rectangular, internal graticule, scale illumination, photographic bezel

Effective Area: 8x10 div (1 div=1 cm)

Acceleration Potential: 2 KV

External Intensity Modulation

VERTICAL DEFLECTION

Sensitivity: 5 mV/div to 5 V/div in 10 calibrated steps ±3%

1 mV/div to 1 V/div ±5% when using x5 magnifier

Uncalibrated continuous control between steps 1: <2.5

Bandwidth: DC to 20 MHz (-3 dB)

DC to 7 MHz (-3 dB) when using x5 magnifier

Rise Time: Less than 17.5 n sec

Max Input Voltage: 300V (DC + AC peak) or 500 Vp-p AC at 1 KHz

Input Coupling: AC, GND, DC

Input Impedance: 1MΩ, 20±2 PF

Operating Modes: CH1 (ADD), CH2 (INVERT), ALT, CHOP

XY operation: CH1: X-axis, CH2: Y-axis

HORIZONTAL DEFLECTION

Sweep Time Range: 0.2 μS/div to 0.2 S/div in 19 calibrated

steps ±3%

100ns ±5% when using x10 magnifier

(20ns and 50ns uncalibrated)

Uncalibrated continuous control between

steps: 1: < 2.5

TRIGGER

Modes: Auto, Norm, TVV, TV-H

Coupling: AC, HF (Rej), LF (Rej), DC

Sources: CH1, CH2, LINE, EXT.

Sensitivity:

	20Hz to 2MHz	2MHz to 20MHz
CH1 & CH2	0.5 div	1.5 div
External	200 mV	800 mV

Slope: + or -

TV Sync: Polarity: TV (-)

CALIBRATOR: 1 KHz, Square Wave, 0.5V ±3%

POWER: AC: 100/120/220/240 ±10%, 50/60/400 Hz, 35W

DIMENSION/WEIGHT: 290 (W) x 145 (H) x 375 (D) mm / 7.5 kg

ACCESSORIES: Power cable, Fuse, Operation manual

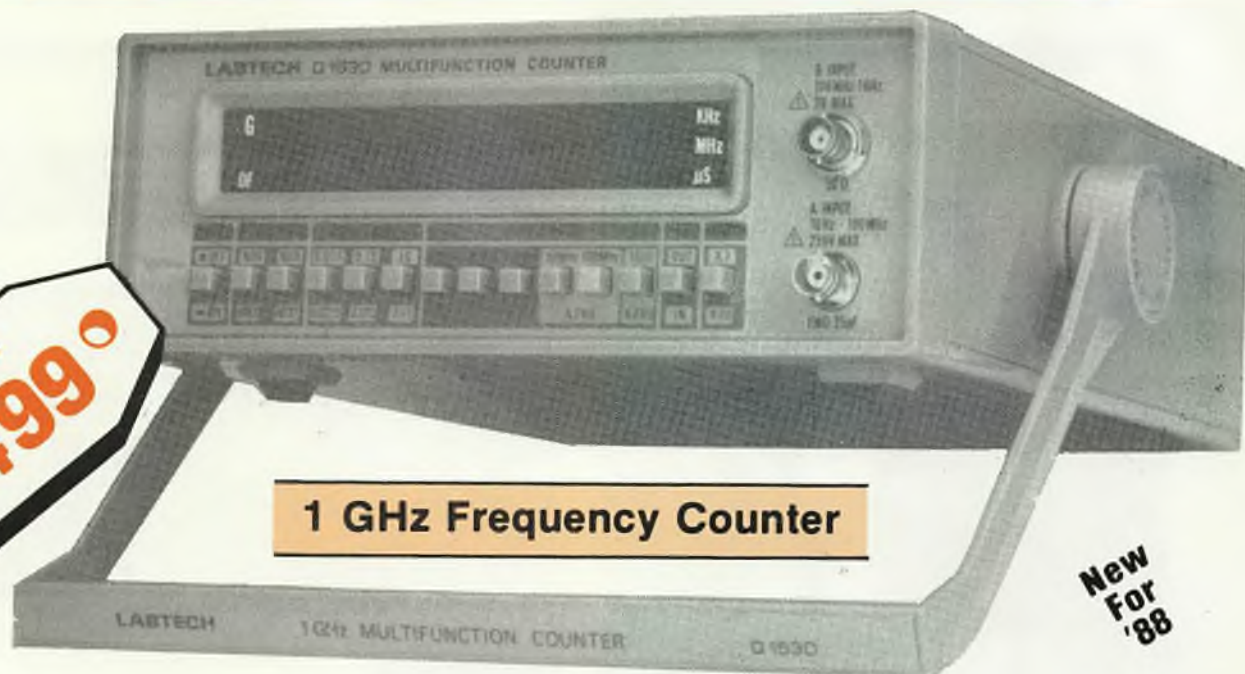
CRO Probe Sets

High quality LABTECH Oscilloscope probes, ideal for use with the Q 0120 Oscilloscope. Suits all other brands 1:1 or 10:1 Attenuation.



Q 0175 **\$49.95**

Frequency Counters



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

The pertinent specifications for the Model Q 1530 are listed as follows:-

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: 10⁻⁷S, 10⁻⁸S, 10⁻⁹S 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 50V p-p
- Impedance: approx. 50 ohm
- Maximum voltage without damage: 3V

TIME BASE

- Frequency: 10MHz, 3.90625 MHz
- Aging Rate: +/- 3 x 10⁻⁷/month
- Temperature: +/- 1 x 10⁻⁶.0°C to 40°C
- Line voltage: +/- 1 x 10⁻⁷ 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
Internal Battery: Option
- 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.



**Accurate
Test Gear
At
Affordable
Prices**

Q 1520
\$199.00

150MHz Frequency Counter

A frequency counter is invaluable for the accurate alignment and testing of many modern electronic circuits.

SPECIFICATIONS:

Frequency Range	10Hz - 150MHz
Gate Time	1 sec, 6 sec.
Accuracy	+/- 1 count
Max. Input Sensitivity:-	20V P-P
• 10Hz - 30MHz	25mV - 100mV
• 10MHz - 150MHz	100mV - 300mV
• Power requirement	9V DC @ 100mA

Use our 9V Plug Pack M 9004

Get An Altronics Quality Multimeter Today



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 • DC Voltage and 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)	Overload Prot.	1100V
	DCV Accuracy	0.5% + 1DGT	DC max.(60 sec)	
	Input Impd.	200mV; 100m Ohm	or DC,AC Peak Max.	
		Ohm/2-1000V:10M Ohm	Resolution	1mV
		Overload Prot. Max.	DC Current	
		DC Max.(50 sec)	Accuracy	20mA—0.75% + 1 DGT
		or DC,AC Peak Max		10A—1.50% + 5 DGTS
	Resolution	100 Ohm V	Overload Prot.	20mA—0.2A
AC Voltage			250V Fuse	
	Ranges	4(2V,20V,200V, 750V)	10A-12A max.(60 sec)	
	ACV Accuracy	0.75%+DGTS	Resolution	10 Ohm A
	Input Imp.	10M Ohm Min.		

Carry Case
Keep your LABTECH looking like new for years!



Q 1076 **\$9.50**

Holster
Just the protection your Q 1075 needs from drops and knocks!



Q 1077 **\$9.50**

Q 1075 **\$99.95**

Portable Multimeter With Bench Stand

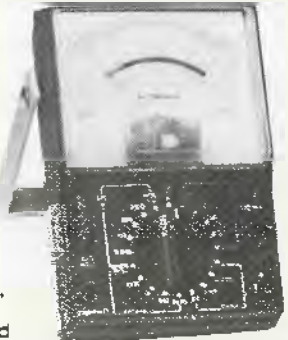
Includes Continuity Buzzer

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

Size 135 x 91 x 39mm
Includes Battery Tester
 Carry Case
 Q 1019 \$4.95 Q 1018 **\$39.95**



Economy Pocket Tester

High 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) with mirrored scale **Ranges:** DC Voltage 0.25, 2.5, 25, 250, 1000V **DC Current** 0.1, 10, 500mA **Resistance** 0-10K in 3 ranges • safety off position to protect the meter movement. Feature packed.

Q 1015 **\$27.50**





Audio Frequency Generator

Often in testing audio circuitry it is necessary to have an accurate and adjustable audio signal source available. This little generator 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.

New For '88
 Q 1540 \$249.00



RF Signal Generator

An RF signal generator is an absolute necessity when it comes to radio servicing. With provision for both internal and external modulator, this generator is a winner.

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 \$229.00

**RESELLERS
 For Bulk Rates
 Contact Our
 Wholesale Company
 ALTRONIC
 DISTRIBUTORS
 (09) 328 2199**

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 new addition to the Labtech range.



Q 1085 \$139.00

•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



Electronic FET Laboratory Multimeter

Centre Zero Pointer Setting Allows + and - Readings

We're absolutely delighted with our Laboratory FET VOM. 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. insignificant circuit loading, high accuracy etc. without the misleading and erroneous readings that DVM's are famous for.

- 10 Meg Ohm input
- 12 amp DC and AC Current Ranges
- Centre zero Pointer Adjust for + and - readings
- Single Range and Polarity Reversing switch
- Power on LED indicator
- P-P calibrated scale.

Q 1050 \$79.95

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)
ZuF	1nF	
20uF	10nF	

CONDUCTANCE $S = \frac{1}{\Omega} \times 10^6$

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

Carry Case

You will no doubt want a carry case to protect your Labtech Q 1085.



Q 1086 \$12.50

Holster

Just the thing to protect your meter when in the field. Includes free waist belt.



Q 1087 \$12.50

DC VOLTS
 Ranges—0-0.3, 1, 2, 12, 30, 120, 300, 1200V—0-600V 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 0-0.3, 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—±0.2% -5MHz ±3% -dB -10dB -63dB 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 -1K Ohm
 Rx10 0-10K Ohm
 Rx100 0-100K Ohm
 Rx10K 0-10M Ohm
 Rx1M 0-1000M Ohm

Professional Quality Panel Meters

**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**

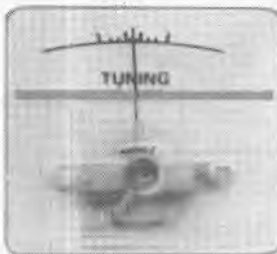
Overall dimensions 100W x 82H
Bolt mounting centres 80W x 64H
Hole required 63mm
Nuts and washers provided



Cat. No.	Size	FSD	RES	Price	10 Up ea.	Cat.No.	Size	FSD	RES	Price	10 Up ea.
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**

250ua FSD Scale Labelled 1-10



Q 0600

\$5.95

10 Up **\$4.95**

**Signal Strength
Meter**

Sensitivity (half scale) 250uF



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

\$34.95

UV Eprom Eraser

Erase your EPROMS quickly and safely. It will erase up to 9x 24 pin devices in about 40 mins. for 9 chips (less for less chips)
• Erase up to 9 chips a time • Chip drawer has conductive foam pad • Mains powered • High UV intensity ensures thorough erase
• Engineered to prevent UV exposure
• Long Life UV Tube



D 1450

\$99.00



Pro Grade Hook Up Wire All On 100M Reels

Light Duty Hookup

Tinned 13/.012

Red W 0250	Yel W 0254
Blk. W 0251	Gm W 0255
Brn W 0252	Blu W 0256
Orn W 0253	Wht W 0257
Per Metre	.13
Per 100M roll	\$7.00
Buy Eight Reels for	
Only	\$46

Medium Duty

Tinned 14/.20

Red W 0260	Blk W 0261
Blu W 0265	Wht W 0268
Per Metre	.20
Per 100M Rolls	\$16.00
Buy Four Reels for	
Only	\$45

Heavy Duty

24/.20

Red W 0270	Blk W 0272
Green W 0274	
Per Metre	.23
Per 100M Reels	\$19.00
Buy Four Reels for	
Only	\$45

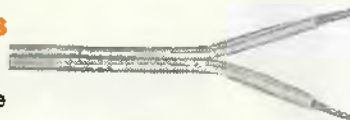
Extra H/Duty

32/.20

Brown W 0280	
Blue W 0282	
Per Metre	.30
Per 100M Reels	\$20.00
Buy Two Reels for	
Only	\$30

Figure '8' Cables On Reels Not Hanks

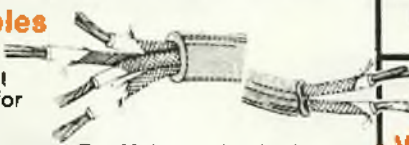
For speaker wiring, security systems, PA systems, low voltage wiring etc. All include polarity trace stripe.



Conductor	Cat.No.	Colour	Trace Colour	Per M	Per 100M
2x14/.14	W 0100	Grey	Black	.30	\$19.00
2x14/.193	W 0105	grey	Black	.35	\$23.00
2x19/.193	W 0110	White	Red	.40	\$25.00
2x19/.193	W 0112	White	Black	.40	\$25.00
2x19/.193	W 0114	White	Green	.40	\$25.00
2x19/.193	W 0116	White	Blue	.40	\$25.00
2x24/.24	W 0122	Red/Blk	-	.50	\$35.00

Shielded Audio Cables

Supplied on 100M reels (not Hanks). Eminently suitable for microphone cables, chassis wiring, building wiring.



	Per Metre	Per 100M Reel
1 Core W 1010	.40	\$25.00
2 Core W 1020	.50	\$40.00
2 Core Fig.'8' W 1022	.60	\$45.00
4 Core W 1040	1.00	\$70.00



Extra Heavy Twin Mic Cable

20 x .12mm by 2
Suit Entertainment Work

W 1030	
Per Metre	\$1.55
Per 100M Rolls	\$110.00

Special Audio/Data Cable

2 x 2 pairs. Individually shielded and Drain Wire.

W 1032	
Per Metre	\$1.50
Per 100M Reel	\$110.00

100% Screened Computer Cable

7/.2mm Tinned Alum.
Mylar Shield

4 Wire W 0705	\$1.10M
10+	\$.90
6 Wire W 0710	\$1.45M
10+	\$1.20
9 Wire W 0715	\$1.85M
10+	\$1.60



Mains Cable

3 Core, 7.5 Amp 250V
W 0570
Per Metre **\$1.20**



Security Cable 4 Core

Pro Quality 14/.20 used extensively in Security and Alarm Systems.

Grey	W 0354
Black	W 0355
White	W 0356

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	Per 200M
2 Pair W 0302	.50	\$59
3 Pair W 0303	.69	\$74
6 Pair W 0306	\$1.20	\$130
10 Pair W 0310	\$1.80	\$188

Per Metre **.65**
Per 200M Roll **\$110.00**



Feeder And Coax Cables

	Per Metre	Per 10M +
300 Ohm Clear Ribbon W 0220	.28	.18
300 Ohm Black ribbon W 0221	.30	.23
75 Ohm Coax (STD) W 0222	.60	.50
75 Ohm Coax Low Loss W 0224	.80	.70
RG 58AU 52 Ohm Coax W 0226	.60	.49

Whopper Wire Twin 90/.18mm

Super low loss speaker cable

W 0130	\$2.50
	\$2.00

Double Insulated Twin

2/.75mm

W 0190	.95c
	.80c



IDC Cable

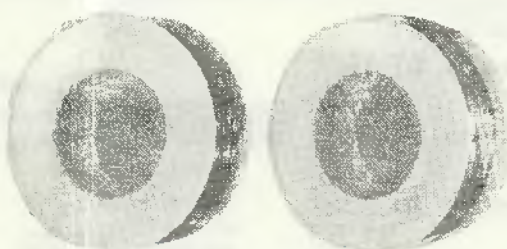
		Per Metre	Per 10M +
10 Way	W 0610	\$1.50	\$1.30
16 Way	W 0616	\$1.75	\$1.60
26 Way	W 0626	\$2.15	\$1.95
34 Way	W 0634	\$3.25	\$2.90
50 Way	W 0650	\$4.95	\$4.50



Rainbow Cable

1.27mm Pitch

		Per Metre	Per 10M +
10 Core	W 0510	\$2.25	\$2.05
16 Core	W 0516	\$2.95	\$2.75
24 Core	W 0524	\$3.95	\$3.50



Enamelled Winding Wire

Handy hobby packs - for coil winding etc.

	Metric	B + S	Pack	Price \$	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
W 0420	63mm	22	100g	\$5.95	\$5.50



Heatshrink Sleeveing

Hobby Pack

Includes internal diameter
1.6mm, 2.4mm, 4.8mm, 6.3mm
12.7mm, 19mm.

By The Meter

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/Video/Test Leads

Audio Leads Din and RCA Audio Leads



5 Pin Din/5 Pin Din (Reversed Conns. 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	\$5.50
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	\$6.95
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

Car Antenna Extension Leads



1.2m Length	P 0463	\$4.95
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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 Cros Red/Black	P 0405	\$2.95
Croc Clip to Croc Clip H/Duty	P 0415	\$5.50

Professional Grade Service Aids

Famous Electrolube Products

For many years **Electrolube UK** have been the undisputed world leader in providing high quality service aids for the Electronic Industry. **Electrolube** products may cost a little more - but you can be assured of a **100% result every time** — so in the long run **Electrolube** may well be **significantly cheaper**. Beware of low cost brands (especially house brands) which employ an unnecessary high proportion of propellant — they could, in fact, be 2 or 3 times the effective cost!

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 from printed circuit boards and flux residues from soldering. Test small area before use on plastics.

T 3067 \$8.50



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

Ultraclean 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



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 **\$1.20**

10 Up **\$1.10**



Silastic

150g pack Adhesive/Sealant provides tough, non-brittle seal or joint.

T 3015 **\$7.50**

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 10 Up
\$3.95 \$3.65



Five Minute Epoxy

Similar to "Araldite" this multipurpose super strong epoxy is supplied in handy dual syringe.

T 3005 **\$6.50**

Desk Mounted Magnifier Lamp



A 0980
\$279

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 diopres focal length 254mm) consistent with minimum distortion and eyestrain and good off-angle viewing. It is NOT cheap, but then again it will definitely last a lifetime. It is built like a Rolls Royce. (We doubt whether 20 years continuous use would wear out the German made flexible arms for example) If you have trouble with fine PCB work or component identification but still want both hands free, this is for you. We thoroughly recommend this quality Australian made product.

Illumination: 22W Fluorescent **Weight:** 8.16kg **Lateral Extension:** 254mm **Vertical Extension:** 254mm **fixing:** Heavy table base with two chrome plated flexible arms



Great When You're Working On The Boat, Car, Farm, TV Antenna Or Anywhere in The Field

Introducing Portasol The Nifty Go Anywhere Butane Soldering Iron



Safety Cap Turns Off Heat & Gas When Replaced

Actual Size

- 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.

Amazing Bonus From Altronics — When you buy your Portasol from Altronics One Stop Electronic Shop you get **Free Gas Refills Until The Year 2000!** All you need do is simply drop into Altronics at 174 Roe Street, Perth and we will recharge your Iron with Butane Gas with our compliments (that is absolutely free!)

T 2460 **\$39.95**

Spare 3-2MM Tip With Catalytic Heater



T 2465
\$12.95

No Leakage Current To Sensitive CMOS & Microprocessor Circuits

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 (608°F, 662°F, 716°F, 770°F and 824°F) fixed temperatures are selectable by rotating the detented rotary switch freely without changing heater or tip.

Specification	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 lead bargraph instantly visible.

Patented Heating Element. The specially insulated NICHROME wire heating element is compressed between two layers of stainless steel for ruggedness and is located at the end of the barrel to insure instant heat up and recovery.

Heat Capacity. Full 48 watts of heat energy available for heavy duty work.

Temperature Control. A unique electronic control circuit maintains tip temperature to within $\pm 3^\circ\text{C}$ (6°F) of idling, this is accomplished by embedding the thermocouple sensing unit in the bevel of the heating element barrel so that the tip actually seats against it. This method allows the closest possible monitoring of tip working surface temperature.

Zero Voltage Switching. The revolutionary electronic "Zero Voltage" switching, protects voltage and current sensitive devices such as CMOS against transient voltage spikes caused in stations.

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 Plated 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.

Developed to meet the present and future needs of the electronic production industry, service technician and hobbyist.



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 **\$39.50**

Fantastic Value

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**



HEAT UP AND RECOVERY

REPLACEMENT TIPS \$5.50 ea

- MICRO CHISEL T2423 1mm
- MINI CHISEL T2424 1.5mm
- STD CHISEL T2425 3mm

12V Soldering Iron

For the motorist. Compact soldering iron. Just plugs into car lighter socket

T 2512 **\$8.50**

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.

T 2415
\$19.50

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 **\$14.95**

Dual O-Ring Seal

Replacement tip

T 1241 **\$ 2.35**

Chemwick De-SolderBraid

World Famous Chemwick brand braid available in 3 different widths to suit any de-solder job.

- 4MM Blue T 1232 All One
- 3MM Green T 1234 Low Price
- 2MM Yellow T 1236 **\$2.95 ea**



Soldering Iron Stand

Heavy Iron Base **\$11.50**
T 1310

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**

Solder Hobby Pack

Approx. 5M of 1mm Solder - Handy for that odd job.

T 1205

\$1.95

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



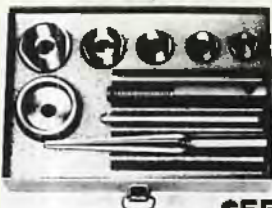
T 2370 \$15.50

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

Nifty Little Chassis Maker & Pan Brake Bender

Please Note: This product is a genuine Pan Brake Bender allowing you to make quite complex chassis, boxes, lids, trays etc. — It is made from solid steel and is not to be confused with inferior Non Pan Brake simple benders currently sold by our competitors.

Make Your own chassis Boxes, brackets etc. Unique slotted upper clamping bar allows complex corner bends etc.

Handles up to 16 gauge metal and up to 445mm wide

Make Your Own Chassis and Cases and Save a Fortune

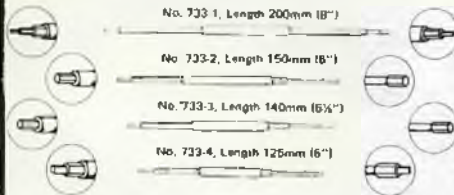
Direct Import Price

T 2400 \$99.95

Tools For Technician And Hobbyist

Alignment Tool Set

Super Tough Delrin Plastic. Universal Alignment. Set of 4 Tools



T 1400

\$4.20

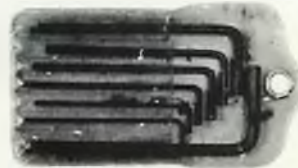
Allen Key Set

Set of 7 Handy Keys

Size: (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.

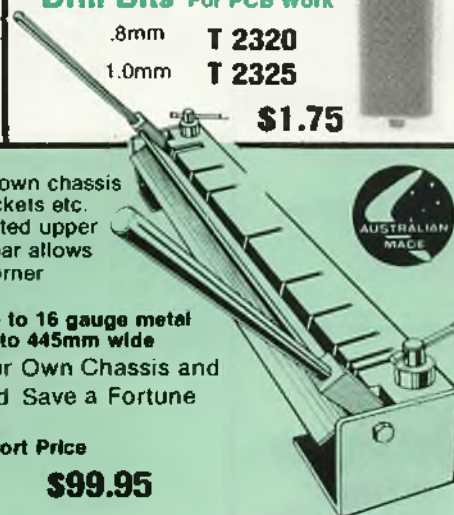
T 2302 \$21.50

Drill Bits For PCB Work

.8mm **T 2320**

1.0mm **T 2325**

\$1.75



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

\$24.50



New For '88

Nifty Little Chassis Maker & Pan Brake Bender

Please Note: This product is a genuine Pan Brake Bender allowing you to make quite complex chassis, boxes, lids, trays etc. — It is made from solid steel and is not to be confused with inferior Non Pan Brake simple benders currently sold by our competitors.

Make Your own chassis Boxes, brackets etc. Unique slotted upper clamping bar allows complex corner bends etc.

Handles up to 16 gauge metal and up to 445mm wide

Make Your Own Chassis and Cases and Save a Fortune

Direct Import Price

T 2400 \$99.95



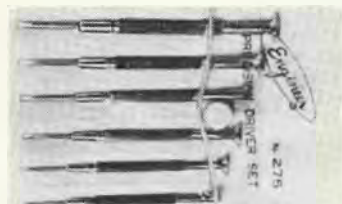
Mini Bench Vice

Direct Import Price Quality Die Cast Alloy

T 2365

\$9.50

Quality Screwdrivers Jewellers Drive Set 6 PC



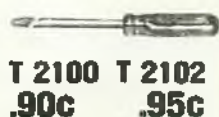
T 2200
\$4.50

Mini

55mm O/A Length

Flat Blade 1.6mm

Phillips Micro



T 2100 T 2102
.90c .95c

Alignment S/Drivers

Metal Tip



T 1401 100mm Shaft \$2.75
T 1402 200mm Shaft \$2.95

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



Engineers Screwdriver Set

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



Electronic Tools For Hobbyist & Professional



Economy Side Cutters

T 2000 \$3.95

Mini Long Nose Pliers

T 2001 \$6.95

Diagonal Cutters

T 2002 \$6.95

GENERAL WORKSHOP SERIES

All Stainless Steel with
Insulated Handles



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

Professional Automatic Wire Stripper

Automatically adjusts to insulation/wire diameter. This absolutely brilliant stripper is the finest we've ever used.



Great Value

T 1520
\$10.95

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!



This new tool has two new functions as both a cutter and a stripper for electrical cables of 5 to 8mm in dia.

T 1522 \$14.95

Spare Blades

T 1525 \$1.95

Low Cost IC Inserters-Extractors

- CMOS SAFE conductive plastic.
- Exclusive bent pin alignment guides in handle. 8 to 40 pins.
- Ground strip can be connected.
- One hand operation.



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 \$2.95

PCB Stand With Alligator Clips

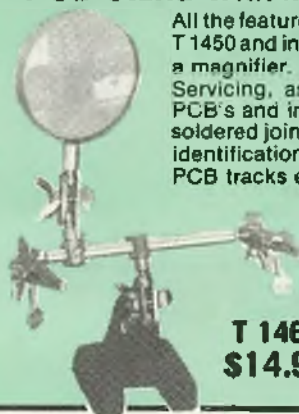
Screw this handy little jig to your work bench and presto! you now have both hands free to insert and solder components!!



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

DIODES

Z 0024	BAW62/BAW76 Diode	.20	.17
Z 0029	OA80 Ger.Diode	.35	.30
Z 0030	OA91 Ger.Diode	.35	.30
Z 0035	OA95 Ger.Diode	.35	.30
Z 0060	S082-2800 Schottky Diode	2.50	2.25
Z 0101	1N914/1N4148 Diode	.05	.04
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
Z 0120	R250H 400V 6 Amp	1.10	.99
Z 0122	IN3493 Pressfit 30 Amp 200V	5.75	5.45
Z 0123	IN3493R Pressfit 30 Amp 200V	5.75	5.45
Z 0125	BYX71 800 7Amp	5.30	4.95

DIODE BRIDGES

Z 0130	WO2 Bridge 200V 1.2 Amp	.65	.75
Z 0132	WO4 Bridge 400V 1.2 Amp	1.10	.95
Z 0134	PWD4 Bridge 400V 6 Amp	2.30	2.10
Z 0139	FB3504 400V 35A Bridge	5.95	5.40

ZENERS

.5 WATT
All One Price..25ea. 10Up. .20ea

Z 0303	3V3 1N746	Z 0330	11V 1N962
Z 0306	3V6 1N747	Z 0332	12V 1N963
Z 0308	3V9 1N748	Z 0334	13V 1N964
Z 0310	4V3 1N749	Z 0336	15V 1N965
Z 0312	4V7 1N750		
Z 0314	5V1 1N751	Z 0338	18V 1N987
Z 0316	5V6 1N752	Z 0340	20V 1N988
Z 0318	6V2 1N753	Z 0342	22V 1N989
Z 0320	6V8 1N754	Z 0344	24V 1N990
Z 0322	7V5 1N755	Z 0346	27V 1N971
Z 0324	8V2 1N756	Z 0348	30V 1N972
Z 0326	9V1 1N757	Z 0350	33V 1N973
Z 0328	10V 1N758	Z 0352	36V 1N974

1 WATT

All One Price. .35 10 Up. .30

Z 0603	3V3 IN4728	Z 0630	11V IN4741
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	33V IN4753
		Z 0675	75V IN4761

5 WATT

All One Price.1 .15ea. 10Up. .105ea

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	.16	.12
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 0156	Led 5mm Flashing Red	1.60	1.50
Z 0158	Led 5mm Flashing Green	1.70	1.60
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

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 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 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-S 5V 10mA reg.	2.95	2.65
Z 0460	78L05 5V 100mA Reg.	1.25	1.15
Z 0462	78L12 12V 100mA Reg.	1.25	1.15

Z 0464	78L15 15V 100mA Reg.	1.25	1.15
Z 0466	79L05 -5V 100mA Reg.	1.25	1.15
Z 0468	79L12 -12V 100mA Reg.	1.25	1.15
Z 0470	79L15 -15V 100mA Reg.	1.25	1.15

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 0555	78H05 +5V Volt Reg 5A TO-3	14.50	13.20
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 0567	LM340K -8 8V+ve Adj.Reg 1A TO-3	4.50	4.25
Z 0568	LM340T -8 8V+ve Adj.Reg. 1A TO-220	3.15	2.95
Z 0570	LM350K +VE ADJ. Reg. 3A TO-3	15.95	15.50
Z 0580	LM398K -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/8A	2.45	2.20
Z 1715	BT136/500 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

DIACS

Z 1745	ST2/BR100 Diac	.95	.90
Z 1750	ST4 Diac (Equiv 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		.95	.90
Z 1069	BD140	TO-126	PNP		.95	.90
Z 1073	BD437	TO-126	NPN		1.40	1.25
Z 1074	BD438	TO-126	PNP		1.40	1.25
Z 1078	BD649	TO-220	NPN		2.65	2.40
Z 1081	BD681	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	NPN		7.50	6.95
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 1123	M+ P3055	TO-220	NPN		2.75	2.50
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	MTP3055	TO-220	NPN		2.75	2.50
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	2N2218	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
Z 1258	2N5589		NPN	3W RF	18.95	18.40
Z 1259	2N5590		NPN	10W RF	22.50	21.90
Z 1281	2SC1307/MRF485	TO-220	NPN	15W RF	9.50	9.30

Package Formats

TO-3



TO-5



TO-18



TO-39



TO-66



TO-92



TO-126



TO-220



SPECIAL FET/MOSFET

Z 1240	2N4342 TO-226 P Channel JFET	1.50	1.30
Z 1243	BF245C FET	1.70	1.60
Z 1245	2N5458/MPF 104 TO-226 N Channel JFET	1.20	1.10
Z 1246	2N5459/MPF 105 TO-226 N Channel JFET	1.10	.99
Z 1248	MFE131 TO-206 Dual Gate Mosfet	2.45	2.65
Z 1250	2N5484 TO-92 N Channel JFET	1.25	1.09
Z 1251	2N5485 TO-92 N Channel JFET	1.15	.95
Z 1252	2N5486 TO-92 N Channel JFET	1.15	.95

Z 1510	2SK134 NCL Power Mosfet	9.95	9.40
Z 1512	2SJ49 PCH Power Mosfet	9.95	9.40
Z 1520	2SJ56 Power Mosfet	16.95	15.00
Z 1525	2SK176 Power Mosfet	13.95	13.00
Z 1530	BUZ71 Fet	5.50	4.95
Z 1540	VN88AF	5.95	5.40

UNIUNCTION

Z 1400	2N2646 TO-18	1.75	1.60
Z 1410	2N6027 TO-92 PROG.	1.20	1.10

LINEAR IC'S



Z 2005	CA3130 FET Op.Amp 8 Pin Dil	3.95	3.50
Z 2010	CA3140 FET Op.Amp 8 Pin Dil	2.10	1.90
Z 2016	DM2502 Successive Approx.Reg.	29.75	27.50
Z 2021	ICL7555/TLC555 CMOS Timer	1.80	1.65
Z 2501	LM301 Op.Amp (Un-Comp)	1.20	1.10
Z 2507	LM307 Op Amp	1.25	1.10
Z 2509	LM308 Super Beta Op.Amp	1.95	1.75
Z 2512	LM310 Voltage Follower	5.70	5.35
Z 2516	LM311/UA311 Comparator	1.25	1.15
Z 2520	LM331N Prec.Voltage to Freq.Convtr.	17.95	16.95
Z 2524	LM324 Low Power Quad Op Amp	1.40	1.25
Z 2528	LM334Z Constant Current Source	3.50	3.20
Z 2530	LM335Z Volt.Mode Temp Sensor	17.50	15.95
Z 2532	LM339 Quad Comparator	1.20	1.05
Z 2536	LM/UA 348 Quad Op Amp	2.25	2.10
Z 2540	LM358 L/Pwr Dual Op Amp	1.55	1.35
Z 2541	LM359N Hi Speed Norton Op Amp	5.95	5.50
Z 2542	LM361 High Speed Diff. Comp.	9.50	8.98
Z 2546	LM380 Power Amp 14 Pin Dil	3.45	3.20
Z 2550	LM381 Low Noise Dual Pre Amp	4.90	4.65
Z 2552	LM382 Low Noise Dual Pre Amp	4.25	3.80
Z 2554	LM384 5 Watt Audio Pwr Amp	5.50	4.95
Z 2556	LM386 Low Volt.Amp.	2.60	2.40
Z 2558	LM393 Dual Comparator	1.25	1.15
Z 2560	LM394CH Matched Transistor Pair	8.95	8.15
Z 2580	LM709/UA709 Op Amp	1.60	1.50
Z 2590	LM741 Op Amp 8 Pin Dil	.99	.95
Z 2595	LM747 Dual Op Amp	1.90	1.80
Z 2620	LM1458/4558 Dual Op Amp	1.09	.99
Z 2640	LM2917 Freq.to Voltage Conv.	3.95	3.85

Z 2645	LM/CA3080 Transcon Op Amp	1.95	1.75
Z 2650	LM3086 Transistor Array	1.50	1.25
Z 2655	LM3900 Quad Norton Op Amp	1.25	1.15
Z 2660	LM3905 Precision Timer	3.20	2.95
Z 2665	LM3909 Led Oscillator	3.30	3.10
Z 2670	LM3914 Led Bar/ Dot Driver	6.50	5.95
Z 2672	LM3915 Led Bar/ Dot Driver	5.95	5.45
Z 2674	LM3916 Led Bar/ Dot Driver	5.95	5.45
Z 2690	LM/RC4136 Quad Op Amp	2.95	2.65
Z 2700	MC1408 8 Bit Mult. D—A Conv.	5.10	4.90
Z 2705	MC1488 Quad. RS-232C Trans	1.95	1.85
Z 2710	MC1489 Quad. RS-232C RX	1.95	1.85
Z 2755	NE555 Timer IC	.60	.55
Z 2758	NE556 Dual Timer IC	1.40	1.25
Z 2760	NE570 Compander IC	7.50	6.95
Z 2762	NE571 Compander IC	4.70	4.50
Z 2790	NE5534N Op Amp Low Noise	2.70	2.50
Z 2792	NE5534AN Op Amp V/Low Noise	3.50	3.20
Z 2805	OM350 VHF Pre Amp	15.95	14.60
Z 2810	SG2536N Switching Reg.	8.20	7.90
Z 2861	TL061 Lo/Pwr JFET Op Amp	1.95	1.80
Z 2862	TL062 Lo/Pwr 2XJFET Op Amp	2.60	2.40
Z 2864	TL064 Lo/Pwr 4XJFET Op Amp	4.50	4.10
Z 2871	TL071 Lo/Nse JFET Op Amp	1.19	1.09
Z 2872	TL072 Lo/Nse 2XJFET Op Amp	1.95	1.75
Z 2874	TL074 Lo/Nse 4XJFET Op Amp	4.15	3.90
Z 2881	TL081 GP JFET Op Amp	1.45	1.20
Z 2882	TL082 GP 2XJFET Op Amp	1.55	1.45
Z 2884	TL084 GP 4XJFET Op Amp	3.90	3.75
Z 2894	TL494 Pulsewidth Mod Cont CCT	4.50	4.35
Z 2910	MC1372P ColourTV Video Modlt.	4.25	3.95
Z 2912	MC1374P TV Modlt. Circuit	3.75	3.40
Z 2914	MC1377P Col.TV RGB to PAL/NTSC Convtr.	6.95	6.50

MEMORY CPU AND SUPPORT

Z 6106	4116 MOT 16X1K Dynamic RAM	6.50	6.05
Z 6116	6116/2016 CMOS 2KX8 RAM 250NS	3.95	3.75
Z 6256	41256 256K DRAM	9.95	9.15
Z 6664	4164/6664 64K DRAM	4.50	4.10
Z 6680	TMS4500 DRAM Controller	29.50	27.00
Z 6800	6800 Motorola CPU	12.50	11.25
Z 6802	6802 Motorola CPU	11.98	11.85
Z 6810	6810 MOT 128X8 STATIC RAM	6.80	6.50
Z 6821	6821 Motorola PIA	6.50	5.95
Z 8920	74S168/TBP16SA030 256 BIT PROM	7.50	6.90
Z 8922	74S288/TBP16SO30 256 BIT PROM	7.50	6.90
Z 9001	Z80A 4MHZ CPU	5.40	4.98
Z 9005	Z80A 4MHZ PIO	5.40	4.98
Z 9010	Z80A 4MHZ CTC	6.20	5.70
Z 9107	2732 32K EPROM	8.95	8.10
Z 9110	2764 64K EPROM	8.50	7.85
Z 9120	27128 128K EPROM	9.95	9.10
Z 9140	MSM5832 Real Time Clock 4 Bit	14.50	13.30
Z 9150	TMS9929A Video Processor	39.75	37.50
Z 9160	8255 P.I.A.	6.50	6.20
Z 9170	AY-3-1015D 25K BAUD UART	16.75	15.75

MISC SEMI CONDUCTORS

Z 7200	NE566 Function Generator	3.15	2.75
Z 7202	NE567 PLL/Tone Decoder	2.25	2.10
Z 7205	XR2206 Function Generator	10.95	10.75
Z 7216	ICM7216AIJ Intersil DFM IC	79.00	75.00
Z 7220	SAB0600 Door Chimes Generator	9.95	9.10
Z 7225	LM3911 Temperature Control	4.80	4.35
Z 7230	MM5369EYR/N 50HZ TIMEBASE	6.50	6.15
Z 7231	MM5369EST/N 60HZ TIMEBASE	6.50	6.15
Z 7235	MM5387 4 Dig.AI.Clock Direct.LED Drv.	29.95	27.95
Z 7240	MM53200 RX/TX	9.90	8.98
Z 7250	11C90 650MHZ DIV 10/11 Prescaler	17.25	15.90
Z 7292	MM74C926N 4Dig.Dis. Driver	12.50	12.00
Z 7296	ICL7108 Dig.Dis.Driver 3.5 Digit	14.95	13.95
Z 7298	Display	12.95	12.45
Z 7300	ZN414 AM Radio Receiver/IC	1.70	1.50
Z 7310	MC13020 AM Stereo Decoder IC	9.95	9.20
Z 7320	TDA1170S TV Vertical Defl.system	6.50	5.95

MODEM IC'S

Z 9215	7910 World Modem Chip	29.00	26.00
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CMOS

Z 4000	4000 D. 3 Input Nor Gate	.85	.80	Z 4030	4030 Quad 2 IPT Ex. Or Gate	1.10	1.05	Z 4161	4161 Binary Counter A/S	1.85	1.70
Z 4001	4001 Quad 2 I/P Nor Gate	.80	.75	Z 4032	4032 Triple Serial Adder	3.65	3.35	Z 4501	4501 Triple Gate	.90	.85
Z 4002	4002 Dual 4 IP Nor Gate	.80	.75	Z 4034	4034 8-ST/TRI-ST BI-Dir I/O Bus Reg	4.50	4.10	Z 4502	4502 Strobed Hex Inv.	1.90	1.80
Z 4006	4006 18 Stg. Stat Shift Register	1.50	1.40	Z 4035	4035 4 Bit Shift Reg	2.00	1.90	Z 4503	4503 Hex N/Inv Tri-St Buffer	1.30	1.20
Z 4007	4007 Dual Comp PR + Inv	.90	.85	Z 4040	4040 12 STG Binary CTR	1.80	1.60	Z 4508	4508 Dual 4 Bit Lach	4.20	3.90
Z 4008	4008 4 Bit Full Adder	1.70	1.55	Z 4042	4042 Quad Clocked D 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 4043	4043 Quad Nor RS Latch	1.40	1.30	Z 4511	4511 BCD to 7 SEG DDDR/DR	2.30	2.20
Z 4010	4010 Hex Buffer N/Invert	1.60	1.45	Z 4046	4046 Micropower PLL	2.10	1.98	Z 4512	4512 8 CH Data Selector	1.70	1.60
Z 4011	4011 Quad 2 IP Nand Gate	.85	.80	Z 4047	4047 Low Pwr Mono/Asta M/VIB	4.50	4.10	Z 4514	4514 4-16 LN DDDR/4 BT LT	4.50	4.25
Z 4012	4012 Dual 4 IP Nand Gate	.85	.80	Z 4049	4049 Hex Inverting Buffer	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 4050	4050 Hex Buffer (Non/Inv)	1.15	.99	Z 4518	4518 BCD Up Counter	1.98	1.90
Z 4014	4014 8 STG STC Shift Reg	1.70	1.20	Z 4051	4051 8 CH A/Log Multiplx	1.98	1.90	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 Multiplxer	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 4060	4060 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 4066	4066 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 4068	4068 8 Input Nand Gate	.95	.90	Z 4538	4538 Dual Mono/Freq Multiplxer	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-7SEG LT/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 Trig	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 4914	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				

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	1.85	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 7780	1.85	1.70	Z 8180	2.10	1.98			
191	U/D Binary Counter	Z 7781	2.10	1.95	Z 8191	2.10	1.98			
192	U/D Decade Counter	Z 7782	4.20	3.85	Z 8192	2.10	1.98			
193	U/D Binary Counter	Z 7783	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	1.09			
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	1.09			
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			
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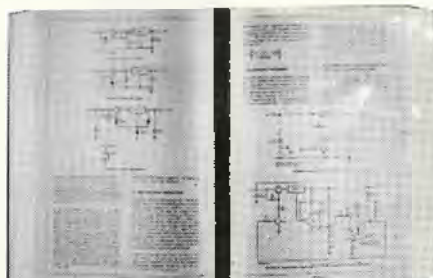
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CHANNEL NO	FREQUENCY MHZ	CHAN NO	FREQUENCY MHZ
1	26.065	21	27.215
2	26.075	22	27.225
3	26.085	23	27.255
4	27.005	24	27.236
5	27.015	25	27.256
6	27.025	26	27.265
7	27.035	27	27.275
8	27.055	28	27.285
9 (emergency)	27.065	29	27.295
10	27.075	30	27.305
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	27.396
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	Yes	Busy Tel.
27	157.350	161.950	Public Corresp.	No	Yes	Busy Tel.
28	157.400	162.000	Public Corresp.	No	Yes	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	FREQUENCY MHZ
1	476.425	21	476.925
2	476.450	22	476.950
3	476.475	23	476.975
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	Distress calling ONLY
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 31 & 33
FOR CB AND MARINE TRANCEIVERS

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 R. 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:

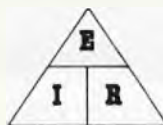
$$E = I \times R$$

$$I = E/R$$

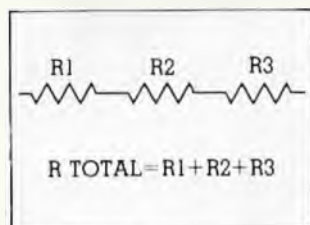
$$R = E/I$$

Where
E = Volts
R = Resistance in Ohms
I = Current in Amps

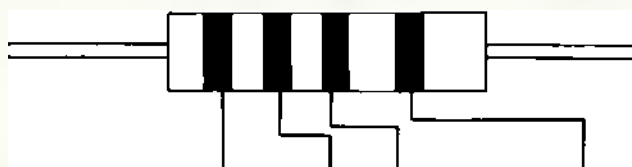
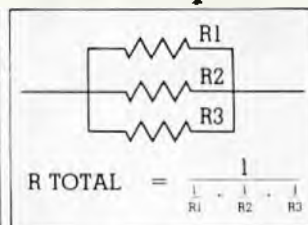
An easier way to remember Ohm's Law is by this diagram. Just cover up the value you are looking for, and the formula shows.



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.

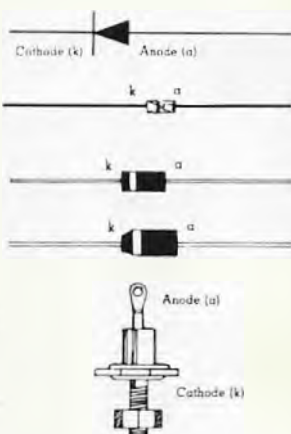


Resistors shown approximate actual size.

Diodes

Diodes are used to rectify current, and also to 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.



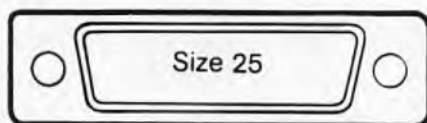
Shell sizes

Actual size reproductions

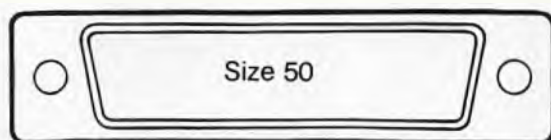
D type subminiature shell sizes. You can work panel cutouts from this information. (They are actual size).



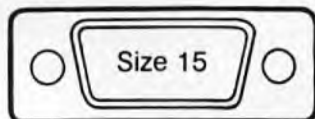
1.239" x .515" overall
(31.47 x 13.08)



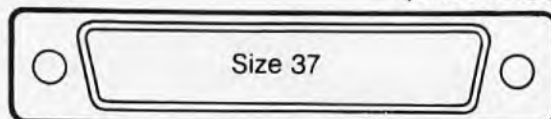
2.107" x .515"
(53.57 x 13.08)



2.661" x .626"
(67.59 x 15.90)



1.567" x .515"
(39.80 x 13.08)



2.754" x .515"
(96.95 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, styroseal, 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.

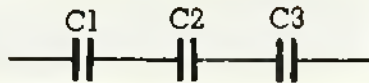
Microfarad (μF) a millionth of a farad
Nanofarad (nF) a thousandth of a microfarad

Picofarad (pF) a thousandth of a nanofarad
So $.001\mu\text{F} = 1\text{nF} = 1,000\text{pF}$

CAPACITOR MAGNITUDES

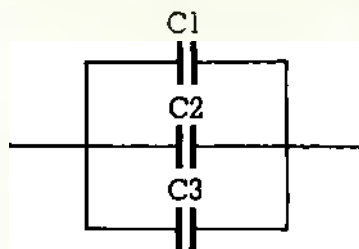
100,000 pF	=	0.1 μF or 100nF
10,000 pF	=	0.01 μF or 10nF
1,000 pF	=	0.001 μF or 1nF
100 pF	=	as is (100pF)
10 pF	=	as is (10pF)
1 pF	=	as is (1pF)

CAPACITORS IN SERIES



$$C_{\text{TOTAL}} = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}}$$

CAPACITORS IN PARALLEL



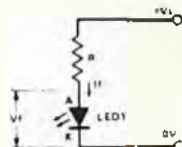
$$C_{\text{TOTAL}} = C_1 + C_2 + C_3$$

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 _F (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.



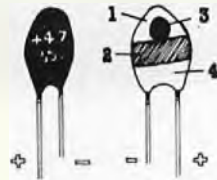
OPERATING LED FROM DC

$$R = \frac{V_s - V_f}{I_f}$$

TANTALUMS

These are generally marked in μF , 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	$\times 1\mu\text{F}$	10V
Brown	1	1	$\times 10\mu\text{F}$	-
Red	2	2	$\times 100\mu\text{F}$	-
Orange	3	3	-	-
Yellow	4	4	-	6.3V
Green	5	5	-	16V
Blue	6	6	-	20V
Violet	7	7	-	-
Grey	8	8	$\times 0.01\mu\text{F}$	25V
White	9	9	$\times 0.1\mu\text{F}$	3V
Pink	-	-	-	35V

GREENCAPS

Greencaps can be marked in a number of different ways. Generally the value is marked in μF :- .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 0.015 μF , 10% tolerance greencap. Larger value greencaps are usually marked in Microfarads:- e.g. 0.01 μF .

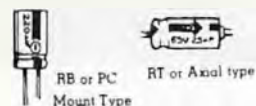
Greencaps are also available in some values at voltage ratings up to 630VDC.



ELECTROLYTICS

Most Electro's have their capacitance and voltage rating marked on them. Electro's are always marked in μF . Tolerance is not usually marked, but it can vary greatly. A 100 μF capacitor could well be anywhere between 80 μF and 150 μF . 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 μF . Remember that 1000pF equals 0.001 μF . Ceramic capacitors used in kits are usually rated at 50V dc.

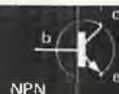


STYROSEALS

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 styroseal marked in this way would be 47pF and 630V DC working voltage.

Styroseals are not polarized and so may be inserted in circuit either way round.



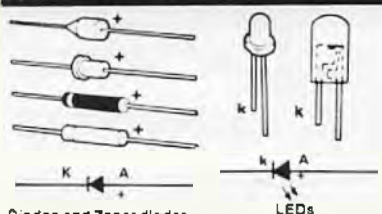


TRANSISTOR PINOUTS (All viewed from below)

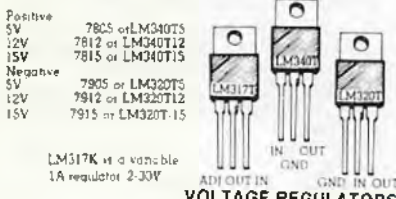


TO18	TO18b	TO18c	TO18d	TO18e
TO7	TO11	TO18	TO18a	TO18f
TO66	TO66c	TO72	TO92	TO92a
TO92b	TO92c	TO92d	TO92e	TO92f
TO92g	TO92h	TO92i	TO92j	TO92k
TO106	TO106f	TO12E	SO12a	SO55
E-line	C220	P1	P2	P3

MORE PINOUTS



Diodes and Zener diodes



Positive
5V 7805 or LM340T5
12V 7812 or LM340T12
15V 7815 or LM340T15

Negative
5V 7905 or LM330T5
12V 7912 or LM330T12
15V 7915 or LM330T-15

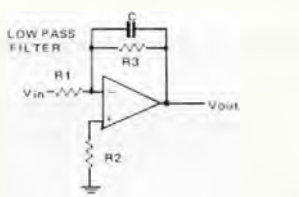
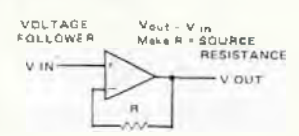
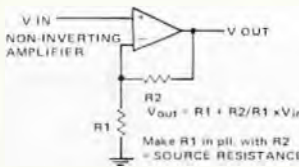
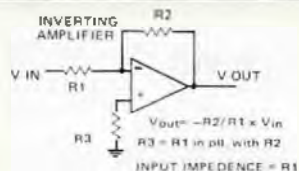
LM317K is a variable 1A regulator 2-30V
VOLTAGE REGULATORS

Small Signal FETs



Programmable Unijunction Transistor (PUT) 2N5027/D13T1

STANDARD OP AMP CONFIGURATIONS



ELECTRICAL FORMULAE

OHM'S LAW The relationship between resistance, voltage and current is defined by Ohm's Law. The formulae are:

$E = I \times R$ Where E=Volts, I=Current in Amps, R=Resistance in Ohms

$I = E/R$

$R = E/I$

Series and Parallel Connections

Resistors in series: $R_{total} = R1 + R2 + R3 + \dots$

Resistors in parallel: $\frac{1}{R_{total}} = \frac{1}{1/R1 + 1/R2 + 1/R3 + \dots}$

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, P = power, I = current

$E = P/I$

$I = P/E$

ZENER DATA

VOLTAGE	400mw TYPES*	1W TYPES**
3.3	1N746	
3.6	1N747	
3.9	1N748	
4.3	1N749	
4.7	1N750	1N4732
5.1	1N751	1N4733
5.6	1N752	1N4734
6.2	1N753	1N4735
6.8	1N754/1N957	1N4736
7.5	1N755/1N958	1N4737
8.2	1N756/1N959	1N4738
9.1	1N757/1N960	1N4739
10	1N758/1N961	1N4740
11	1N962	1N4741
12	1N759/1N963	1N4742
13	1N964	1N4743
15	1N965	1N4744
16	1N966	1N4745
18	1N4172	1N4746
20	1N968	1N4747
22	1N969	1N4748
24	1N970	1N4749
27	1N971	1N4750
30	1N972	1N4751
33	1N973	1N4752

* Diode 400mw, Op Temp 50°C, Case DO-7 or DO-35
 ** Diode 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

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.

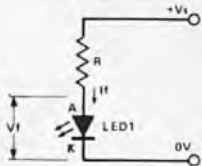
Notes 3 — Normally, it is recommended to connect the shell of the plug to terminal 2 of the connector to ensure that the screen is earthed.

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		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		Screening: earth	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

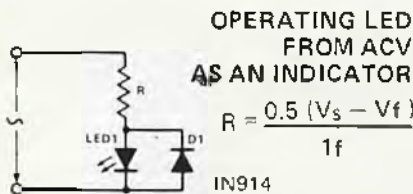
COLOUR	RED	ORANGE	YELLOW	GREEN
V _F (TYPICAL)	1.8V	2.0V	2.1V	2.2V

TABLE 1 Typical forward voltage characteristics of standard LEDs with forward current set at 20 mA.



OPERATING LED FROM DCV

$$R = \frac{V_s - V_f}{I_f}$$

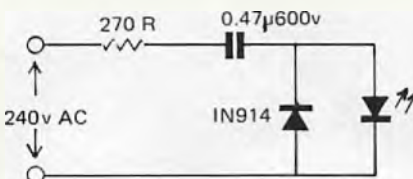


OPERATING LED AS AN INDICATOR FROM ACV

$$R = \frac{0.5 (V_s - V_f)}{I_f}$$

The above formulas should be used in conjunction with Table 1 to determine the required series resistance to operate LEDs at 20 mA.

OPERATING DIRECTLY FROM 240V AC MAINS



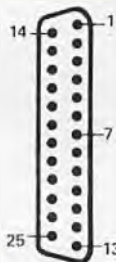
The above circuit results in a LED current of approximately 16 mA.

COMPUTING TERMS

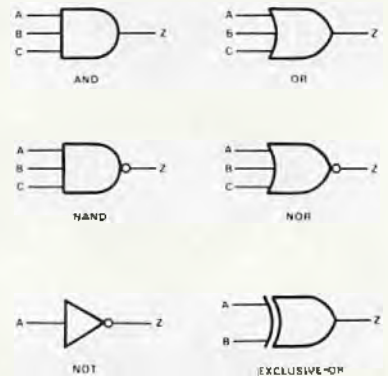
ASM: Assembler.
 BASIC: Beginners All-purpose Symbolic Instruction Code.
 BDOS: Basic Disk Operating System.
 BIOS: Basic Input/Output System.
 Bit: Binary Digit. Either 1 or 0.
 Bug: an error in a program.
 Byte: A computer word eight bits wide.
 CBASIC: A commercial version of the BASIC language, running 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.
 If: 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



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

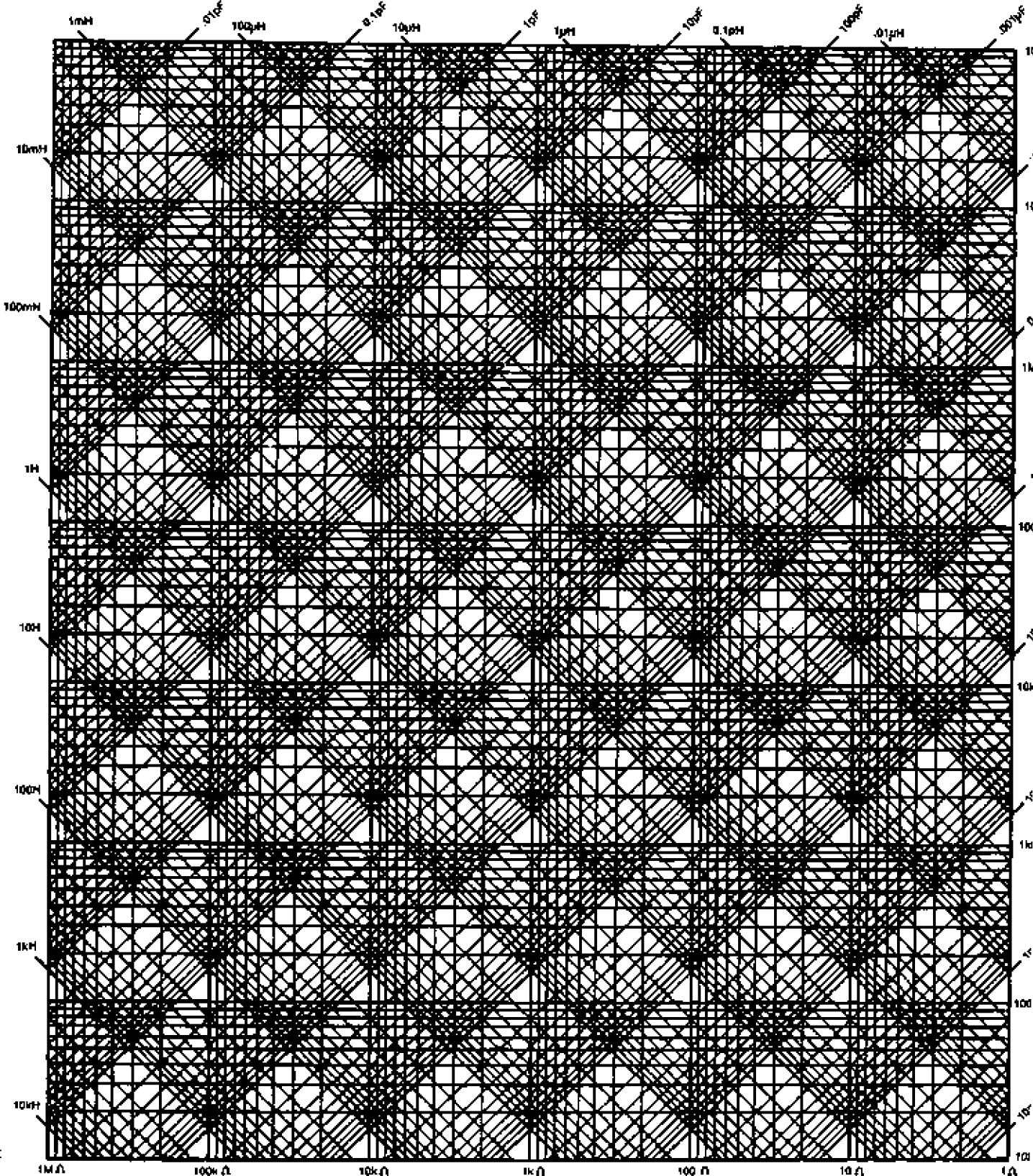


Reactance-Frequency Chart For Capacitors Inductors & Tuned Circuits

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 ■ 212777
KARRATHA
Daves
Oscitronics 854336
MANDURAH
Lance Rock
Retravision 351246
NEWMAN
Watronics 751734
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